Environmental Impact Assessment Report

St. Vincent’s Hospital Fairview

Volume 1 – Non-Technical Summary and EIA Report Main Chapters

Prepared by: AWN Consulting, March 2023

Prepared for: St. Vincent’s Hospital Fairview

TABLE OF CONTENTS

VOLUME 1: NON-TECHNICAL SUMMARY AND EIA REPORT MAIN CHAPTERS

ENVIRONMENTAL IMPACT ASSESSMENT

NON-TECHNICAL SUMMARY

NON-TECHNICAL SUMMARY CONTENTS

1.0 INTRODUCTION

1.1 PROPOSED DEVELOPMENT

This Non-Technical Summary (NTS) has been prepared to accompany the Environmental Impact Assessment (EIA) Report. The EIAR has been prepared on behalf of St. Vincent's Hospital Fairview (herein referred as 'the Applicant') who intend to apply for planning permission development at the site of St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The proposed development site (c. 9.46 hectares) is located at and surrounding St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The location of the Proposed Development is shown in Figure 1.1.

A ten-year planning permission is sought for the proposed development. This development will hereafter be referred to as the 'Proposed Development'. A full description of the development is provided in Chapter 2 (Description of the Proposed Development) of the EIAR.

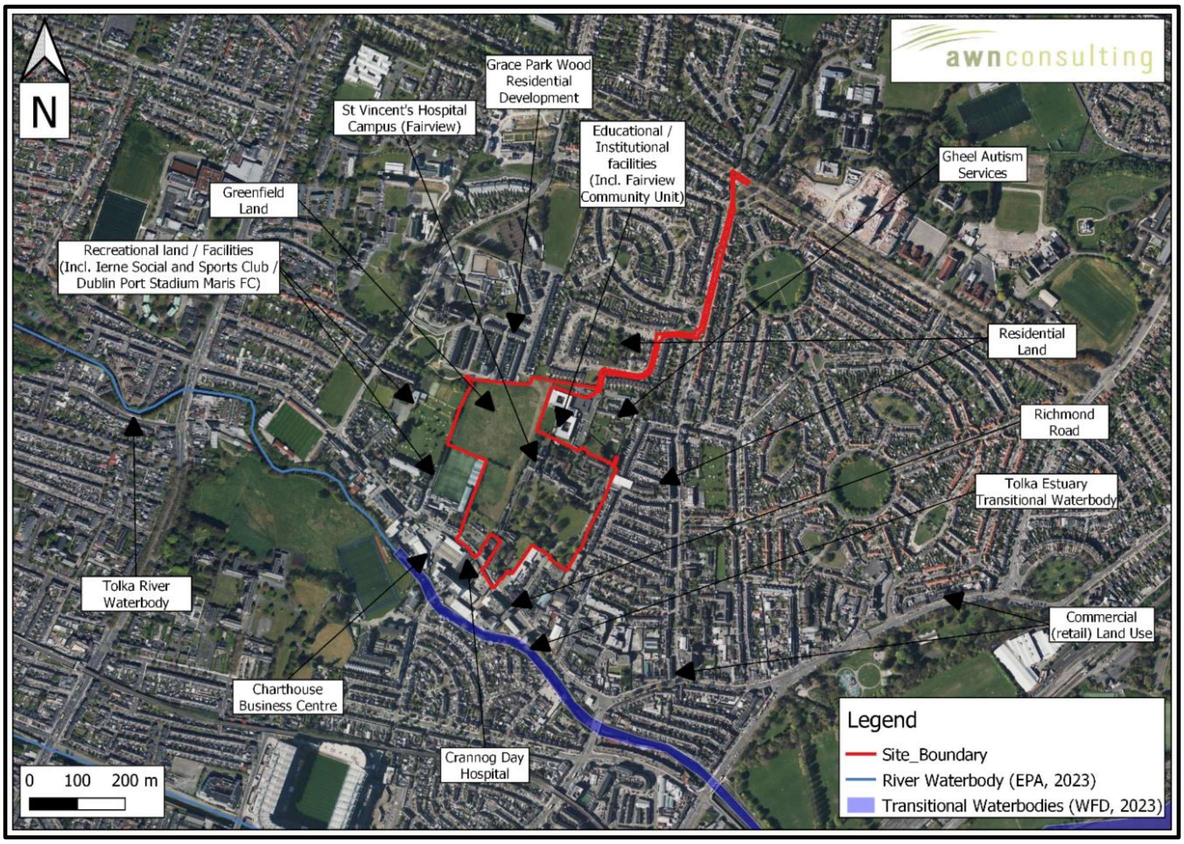


Figure 1.1 *Location of the Proposed Development*

1.2 RELEVANT LEGISLATIVE REQUIREMENT FOR ENVIRONMENTAL IMPACT ASSESSMENT

Environmental Impact Assessment is an essential tool in the implementation of EU environmental legislation. According to the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018) the objective of the Directive (Directive 2011/92/EU), as amended by Directive

2014/52/EU, is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for environmental impact assessment (EIA), prior to development consent being given, of public and private developments that are likely to have significant effects on the environment.

The requirement for EIA Report is set out in the EIA Directive (Directive 2011/92/EU as amended by 2014/52/EU); the EIA Directives have been transposed into existing Irish planning consent procedures i.e., the *Planning and Development Act 2000 as amended* (the Act) and *Planning and Development Regulations, 2001 as amended* (the Regulations).

1.3 FORMAT OF THE ENVIRONMENTAL IMPACT ASSESSMENT REPORT

This EIA Report has been prepared in accordance with the most relevant guidance and legislation. This report has been laid out using the grouped format structure, the EIA Report examines each environmental factor in a separate chapter. The EIA chapters have been prepared by a suitably qualified expert(s) and have considered the construction and operational phases of the Proposed Development.

The scope of the EIAR has been defined at an early stage of the planning process to identify and ensure that the environmental studies address all the relevant issues. This included a review of the context of the development site, locality, and previously permitted development, and of the development proposed to identify the matters to be covered within this environmental impact assessment.

The preparation and co-ordination of this EIA Report has been completed by AWN Consulting in conjunction with experienced subject matter experts. Each environmental specialist of the applicants project team was commissioned having regard to their previous experience in EIA; their knowledge of relevant environmental legislation relevant to their topic; familiarity with the relevant standards and criteria for evaluation relevant to their topic; ability to interpret the specialised documentation of the construction sector and to understand and anticipate how their topic will be affected during construction and operation phases of development; ability to arrive at practicable and reliable measure to mitigate or avoid adverse environmental impacts; and to clearly and comprehensively present their findings.

The role and responsibility of each contributor, their qualifications and relevant experience are detailed in Table 1.1 of Chapter 1, along with the corresponding EIA Report chapter.

1.4 DESCRIPTION OF EFFECTS

The quality, magnitude and duration of potential impacts are defined in accordance with the criteria provided in the *Guidelines on Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022). This criteria is duplicated in Table 1.2 of Chapter 1.

1.5 ADDITIONAL ASSESSMENTS REQUIRED

The additional reports and/or assessments required under Legislation or EU Directives other than the Environmental Impact Assessment Directive in respect of the Proposed Development are listed below.

- A Site-Specific Flood Risk Assessment (FRA) has been prepared by OCSC in accordance with the Planning System and Flood Risk Management Guidelines for Local Government (2009). This Site-Specific FRA is included as a separate report with the planning application.
- The 'Appropriate Assessment Screening' and the 'Natura Impact Statement' has been prepared for the proposed development by Altemar Environmental Consultants and is included with the planning application.
- A screening assessment for the Water Framework Directive has been prepared by AWN consulting in response to the requirements of the Water Framework Directive and is included as Appendix 6.1. This WFD Screening Assessment relies on information provided in the Land, Soils, Geology and Hydrogeology Chapter (Chapter 5) and Hydrology (Chapter 6) of the EIAR and should, therefore, be read together with these chapters.

1.6 FORECASTING METHODS AND DIFFICULTIES IN COMPILING THE SPECIFIED INFORMATION

Forecasting methods and evidence used to identify and assess the significant effects on the environment for each environmental aspect are set out in each chapter.

There were no significant difficulties in compiling the specified information for this EIA Report. Any issues encountered during the assessment of individual factors are noted within the relevant chapters.

2.0 DESCRIPTION OF PROPOSED DEVELOPMENT

2.1 INTRODUCTION

This chapter presents the description of the project comprising information on the site, design, size and other relevant features of the project as set out in the EIA Directive (2011/92/EU) as amended by EIA Directive (2014/52/EU), as well as the relevant guidance document *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022).

This chapter summarises the existing site, the Proposed Development, and the existence of the project as set out within the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022). This guidance advises that description of the existence of the project should define all aspects of the proposed lifecycle of the facility, including:

- Description of Construction;
- Description of Commissioning;
- Operation of the Project;
- Changes to the Project; and
- Description of Other Related Projects.

This chapter draws on and has been informed by the project design and summarises the key relevant details of the proposed development and its lifecycle as it relates to EIA Report. This description is not exhaustive, and as such this report should be read in conjunction with the full application package that includes complete elevations and plans, layout plans including utilities and building drawings. The specialist assessments reported in this EIA Report have been conducted using this description, and the full application package as a guide to the details of the development under consideration.

2.2 DESCRIPTION OF THE EXISTING DEVELOPMENT SITE

The proposed development site is c. 9.46 hectares of the located at located at St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The subject site is located at and surrounding St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The subject site is located at and surrounding St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The site contains protected structures under RPS Ref.: 2032 (St. Vincent's Hospital old house/convent, including plastered extension to the west, including entrance porch to convent. Two-storey over garden level brick building (with granite steps and entrance door surround) on south front. Four-storey pedimented brick pavilion, with stone trimmings, to the west (including granite balustrading at parapet level). Railings in front of convent building on north side), RPS Ref.: 8788 (Richmond House including former chapel and courtyard with outbuildings) and RPS Ref.: 8789 (Brooklawn, a 'House', including red brick wall and two gate piers). The application site includes an area of the public road / footpaths (extending for approximately 0.8km) to facilitate service connections via Griffith Court, Philipsburgh Avenue and Griffith Avenue, part of the open space within Grace Park Wood to facilitate a pedestrian / cycle connection, and part of Richmond Road to facilitate service connections and associated upgrades.

The site is bound by the Grace Park Wood residential development to the northwest; Griffith Court, the 'Fairview Community Unit' nursing home, Fairview Day Centre, Gheel Autism Services and a graveyard to the north; the An Post Fairview Delivery Service Unit on Lomond Avenue and properties on Inverness Road, Foyle Road and Richmond Avenue to the east; existing residential and commercial properties on Richmond Road and Convent Avenue to the south and Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC, and Ierne Sports and Social Club to the west of the site.The eastern portion of the site includes the principal hospital buildings and ancillary structures. The western and southern sections of the site are relatively undeveloped. The site is primarily accessed from Richmond Road. The surrounding context of the site includes a mix of residential, commercial and amenity uses with building heights ranging from 1 to 6 storeys. The historic buildings are described in detail in the Chapter 13 (Architectural Heritage) of this EIA Report and the Architectural Heritage Impact Assessment Volume 4 of this EIA Report.

The site is in an Inner Suburb location, defined as the areas beyond the inner city which comprise the 19th century built-up areas of Dublin City, including Drumcondra to the north east of Dublin City Centre, approximately 2km north-east of O'Connell Street and c. 700m east of DCU St. Patrick's Campus. The site is within walking distance of the Drumcondra Road QBC bus stop to the west (750m) and Fairview Strand Bus routes to the east (650m). The site is also approximately 1.5km from Drumcondra Rail Station and 2km from a DART and inter-city rail connection at Clontarf Road DART station on the Dublin-Belfast railway line.

St Vincent's Hospital Fairview is a Public Voluntary Hospital founded in 1857 and managed by the Daughters of Charity until 1997. The Hospital provides mental healthcare (inpatient, outpatient, and day patient) to the local population of Dublin North City and surrounding areas (including Counties Louth, Meath, Cavan and Monaghan). Because of the age and condition of the buildings the facilities are simply no longer consistent with current requirements and modern health care standards.

The Site is subject to three different land use zonings namely 'Z1 – Sustainable Residential Neighbourhoods', 'Z12 – 'Institutional Land (Future Development Potential) and 'Z15 - Institutional and Community' under the Dublin City Development Plan 2022-2028. For further detail on the land use zoning objectives refer to the Planning Report in Respect of St. Vincent's Hospital Redevelopment prepared by John Spain Associates which accompanies this application.

The site is not a Seveso facility and is not within the consultation distance of any Seveso facility. Therefore, there are no implications for major accidents or hazards at the Proposed Development site. there are no. 12 existing EPA Licensed sites located within the Study Area, a combination of IE, IPPC and Waste Licenses, that could potentially give rise to cumulative effects.

2.3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

A ten year planning permission is sought for the proposed development comprising of the following (see public notices for the detailed description):

- The construction of a new part two and part three storey hospital building, providing mental health services (with a total gross floor area (GFA) of 7,188 sq.m), accommodating 73 no. beds, and including treatment/consultation rooms, education rooms, reception, family visitation and resource areas, therapy areas, multifaith rooms, staff and visitor canteen/café, staff offices, back of house areas including changing facilities, public and staff circulation areas, plant rooms and zones, and related servicing areas. The hospital includes 2 no. courtyards at ground floor level, a terrace at first floor level, and open space adjacent to the building to be used by patients and staff. A total of 76 no. car parking spaces (including 39 no. EV charging spaces), 50 no. bicycle spaces and 4 no. motorcycle spaces are proposed for the new hospital. A facilities management building, with a GFA of 149 sq.m, is located northwest of the new hospital building and will accommodate a generator area, a disposal hold area, an ESB substation, a MV switch room, a LV off loader room and a plant area.
- Richmond House and associated structures (RPS Ref.: 8788) will be refurbished for hospital administration use, with a GFA of 397 sq.m, and the proposed refurbishment works include the removal of an external staircase and balcony, removal of some internal walls, internal renovations, repair of the facades, repair and renewal of rainwater goods, and all associated conservations works.
- Brooklawn (RPS Ref.: 8789) will be refurbished for hospital administration use, with a GFA of 301 sq.m, and the proposed refurbishment works include the removal of an external staircase, replacement of rooflights, removal of some internal walls, internal renovations, repair of the facades, repair and renewal of rainwater goods, and all associated conservations works.
- Rose Cottage will be refurbished and extended for hospital administration use, with a GFA of 161 sq.m, and the proposed refurbishment works include the removal of a single storey extension, provision of a single storey extension to the southeast, and all associated works.
- The Laundry building will be refurbished for hospital administration use, with a GFA of 135 sq.m, and the proposed works include the demolition of the adjacent electric hub building to the north, the adjoining structures to the south of the building, and the refurbishment of the building including replacement rooflights and door and window opes, and all associated conservations works.
- The Gate Lodge building will remain in residential use, to be used by visiting members of staff to the new hospital.

- The new hospital, associated buildings and grounds (as described above), are proposed on a hospital site of c. 2.67 ha.
- The proposal includes the demolition of existing structures on site with a GFA of 5,872 sq.m, including the (1) westernmost range of the hospital building, which includes St. Teresa's and the Freeman Wing, (2) extensions to the south and north of the main hospital building, including the conservatory extension, toilet block extension, an external corridor, toilet core, lift core, and stair core (which are all part of / within the curtilage of RPS Ref.: 2032), (3) hospital buildings and outbuildings located to the north of the existing main hospital building, (4) St. Joseph's Adolescent School building located in the southeast of the site, (5) Crannog Day Hospital building located in the southwest of the site, and (6) extensions to the Laundry building and Rose Cottage.
- The change of use, refurbishment, alterations, and extensions, to the existing St. Vincent's Hospital buildings, part protected structures under RPS Ref.: 2032 (referred to as Block K), from lower ground to third floor level to provide for a mixed use building including community facilities, commercial uses, and residential amenities and facilities. The building will be separated into 4 no. parts (Block K1, K2, K3 and K4). Block K1 includes a gym at ground and first floor levels and residential amenities and facilities at second and third floor levels. Block K2 includes a café and a community library at ground floor level and co-working spaces at first, second and third floor levels. Block K3 includes a childcare facility over three levels at lower ground, ground and first floor level, and Block K4 is proposed as a community hall. The alterations to the existing buildings to facilitate the change of use includes the removal of external walls, a stair core, external elements to the northern and southern façade, internal walls, windows and doors, new rainwater goods, associated repairs and alterations, the construction of a new lift and stair core for Block K1, K2 and K3, and all associated conservation works. A part one to part four storey building is proposed as an extension to the western end of Block K (referred to as Block J and which is described below).
- Block A is a part two to part seven storey building comprising a 2 storey retail unit at ground and first floor levels and a total of 58 no. standard design apartment (SDA) units from ground to sixth floor level with 7 no. studio units, 27 no. 1 bed units, 18 no. 2 bed units, and 6 no. 3 bed units. Private balconies / terraces for the apartments are provided on the east, south and west elevations.
- Block B is an eight storey building comprising 86 no. SDA units with 54 no. 1 bed units, 23 no. 2 bed units, and 9 no. 3 bed units. Private balconies / terraces for the apartments are provided on the west and east elevations.
- Block C is a part six to part seven storey building, above a lower ground floor / basement level, comprising 82 no. SDA units with 40 no. 1 bed units and 42 no. 2 bed units, with a residential amenity area at ground floor level. A communal roof terrace is proposed at sixth floor level. Private balconies / terraces for the apartments are provided on the west, east, and south elevations.
- Block D-E is a part five to part thirteen storey building, above basement level, comprising 199 no. Build-to-Rent (BTR) units with 7 no. studio units, 88 no. 1 bed units, and 104 no. 2 bed units. Residential amenity and facility areas are proposed at ground, sixth, and twelfth floor levels. Five communal roof terraces are proposed, one terrace at fifth floor level, two terraces at sixth floor level, one terrace at ninth floor level, and one terrace at twelfth floor level. Private balconies / terraces for the apartments are provided on the west, east, north and south elevations.

- Block F is a part four to part nine storey building, above basement level, comprising a café/restaurant and residential amenity area at ground floor level and 118 no. BTR units with 1 no. studio unit, 63 no. 1 bed units, 46 no. 2 bed units, and 8 no. 3 bed units. Private balconies / terraces for the apartments are provided on the west, east, south and north elevations.
- Block G is a part four to part nine storey building comprising 139 no. SDA units with 1 no. studio unit, 71 no. 1 bed units, 54 no. 2 bed units and 13 no. 3 bed units, with a residential amenity area at ground floor level. Private balconies / terraces for the apartments are provided on the west, east, south, and north elevations.
- Block H is a five storey building comprising 30 no. SDA units with 1 no. studio unit, 10 no. 1 bed units, 14 no. 2 bed units and 5 no. 3 bed units. Private balconies / terraces for the apartments are provided on the west, east, south, and north elevations.
- Block J is a four storey building, which is an extension to Block K (St. Vincent's Hospital building- RPS Ref.: 2032), comprising 13 no. SDA units with 6 no. 1 beds and 7 no. 2 beds, and residential amenities and facilities at ground floor level. Private balconies / terraces for the apartments are provided on the north, west and south elevations.
- Block L is a part four to part six storey building comprising 86 no. SDA units with 1 no. studio unit, 28 no. 1 bed units, 41 no. 2 bed units and 16 no. 3 bed units. Private balconies / terraces for the apartments are provided on the north, east, south, and west elevations.
- A proposed basement / lower ground floor level is located below and accessed via Blocks C, D-E and F, and includes a total of 240 no. car parking spaces allocated for the residential development (including 6 no. accessible spaces, 7 no. car share spaces and 120 no. EV charging spaces), 9 no. bicycle stores providing a total of 947 no. cycle spaces (including cargo bikes and electric bikes), 13 no. motorcycle spaces, 15 no. storage units, bin storage areas, an ESB substation and switchroom, various plant rooms and lift and stair cores.
- A total of 16 no. car parking spaces and 817 no. bicycle spaces are proposed at surface level for the proposed residential, commercial, and community uses.
- Access to the new hospital and associated grounds is provided from Richmond Road and Convent Avenue, with separate internal access points. A separate vehicular access to the residential development is provided from Richmond Road. The development includes a proposed pedestrian / cycle connection to Griffith Court, requiring alterations to the service yard of the Fairview Community Unit, pedestrian / cycle connections to the Fairview Community Unit campus to the north (providing an onward connection to Griffith Court), a pedestrian / cycle connection to Grace Park Wood, and makes provision internally within the site for a potential future connection to Lomond Avenue / Inverness Road.
- The proposal includes public open space, including allotments, children's play areas, a central park, a linear park and an entrance plaza, with a set down area at Richmond Road, and communal open space at surface level.
- The proposed development includes an enclosed heat pump area located to the south of Block D-E and west of Block C, and 6 no. ESB substations in Blocks A, B, C, D-E, F, and G.
- The proposal also includes provision of internal access roads, pedestrian and cycle infrastructure, associated set down areas, bin and bike stores, alterations to existing landscape features, landscaping, boundary treatments, lighting, telecommunications infrastructure at roof level of Block B, green roofs, lift overruns and plant at roof level, site services, including a watermain connection

/ upgrade via Griffith Court, Philipsburgh Avenue and Griffith Avenue, site clearance, and all associated site works.

Please refer to Chapter 2 of the EIAR for a full description of the proposed development.

2.4 DESCRIPTION OF DEMOLITION, CONSTRUCTION, AND COMMISSIONING

The works during the construction and commissioning phase are summarised in Table 2.3 below.

Table 2.1 *Summary of Key Construction Works*

Activity	Description of Activity
Site Preparation Works and Establishment of Construction Services	The primary activities that will be required during the Site preparation phase for the development will be the establishment of construction fencing and hoarding and site compound. The Site compound will provide office, portable sanitary facilities, equipment storage, parking etc for contractors for the duration of the works. The Site compound will be fenced off for health and safety reasons so that access is restricted to authorised personnel only. All areas under construction will be fenced for security and safety purposes and temporary lighting supplied, as necessary. Tree protection areas will be established at an early stage in line with the project arborists recommendations. All required enabling works and site investigations, surveying and setting out for structures, archaeological impersonation (if required) etc. are carried out.
Demolition works.	The proposed demolition works will continue throughout the construction phase and will be completed within the construction duration. Completion of Pre-Demolition Surveys including an asbestos survey and bat survey prior to works commencing; Stripping of hazardous materials; Removal of existing fixtures and fittings such as floors, doors, partitions, ceilings, windows, mechanical equipment and non-buried pipping & electrical services; Removal of all roof coverings and building envelope finishes. Support and then cut remaining roof structures before lowering to ground level for dismantling; Demolish internal walls and columns; Remove ground floor slab; Separation of demolition debris into different waste streams; Removal of all waste from site.
Site clearance and earthworks	This phase will include site clearance, vegetation removal, excavations and levelling of the Site to the necessary base level for construction. Excavate and remove material to the required formation including pile mat construction. This will require a bulk excavation and removal from the site. Surveying and setting out for structures. Rerouting of services/connections to services. Install granular fill for roads and footpaths. Excavations down to the lowest formation level (c. 4.5m below ground level). The Site preparation works will include the demolition and removal of the existing roads, watermains foul and surface water and utility pipework. The installation of site utilities, such as water supply, sewer lines, and storm drainage systems may also continue throughout the construction phase.
Foundations	Once the site is prepared, foundation works can begin. This involves excavating and pouring the concrete foundations for the building or structure. The foundations will generally be reinforced concrete pad footings incorporated into the concrete slabs. The basements will be excavated prior to commencement of construction on that phase. The basement will be constructed of Reinforced concrete. it is expected given the heights of the proposed superstructures that the foundations will be supported on pile groups with insitu pile caps. The basement slabs and perimeter walls will be waterproofed to ensure that ingress of ground water is negligible.
Structural and Building envelope works	The podium slab is intended to be in Cast insitu concrete in the order of 450mm thick, suitably stepped to provide lower areas for landscaped courtyard build-up and street/hard landscape build-up After the foundations are in place, the structural steel and building construction can begin. This involves erecting the steel framework for the building or structure and installing the exterior walls, roofing, and insulation.

	Once the structural works are complete, building envelope works can begin. This involves installing the roof, walls, and other components that make up the exterior envelope of the building or structure. The roofs are intended to support a selection of blue roofs for attenuation purposes, green biodiverse roofs, and landscaped areas. The supporting roof will be of concrete proprietary warrantied waterproofing system.
Installation of Services and Fitout	New electricity and telecommunications services infrastructure will be put in place to serve the various buildings. This will be carried out in accordance with the requirements of the various service providers / authorities. The fitout and commissioning of the units will be completed within the construction duration.
Landscaping	After the main construction works are completed on each phase the hard and soft landscaping and reinstatement works for that phase will be carried out in accordance with the proposed landscaping design.

It is anticipated that the proposed development will be delivered in 2 no. main development phases.

The phasing will include all necessary site clearance and preparation work, site development and construction. The site preparation works and establishment of construction services, demolition works, site clearance and earthworks, would occur within the first 6 month of each phase. Then works on the foundations / substructure and superstructure, façade, structural and building envelope works, installation of services and fitout would occur. Site demobilisation landscaping and reinstatements will be undertaken in the last 3 months of construction works timelines for each phase.

The duration of the construction phase has been estimated to approximately 48 months from commencement of development. On the basis of a grant of planning Phase 1 is intended to commence in Q1 2024 and estimated completion in Q2 2026; Phase 2 is intended to commence in Q4 2025 and estimated completion in Q1 2028. However, these are likely to be best case scenarios and accordingly a ten-year permission is being sought.

Commissioning

The commissioning involves a process of verifying and testing that all the building systems and components are functioning as intended and meeting the necessary standards and regulations. This process typically includes the mechanical, electrical, plumbing, and fire protection systems, as well as the architectural finishes and other elements of the building.

Commissioning will be carried out on a phased basis as block is completed. Commissioning will be carried out over a period of weeks and is included within the construction timelines in Table 2.6 above.

Potential Impacts and Mitigation Measures During Construction and Commissioning

There are potential short-term nuisances associated with demolition, excavations and construction such as dust, noise, as well as the potential for pollution of groundwater or the surface water infrastructure.

The main potential impacts during demolition, excavation, construction, and commissioning which require mitigation are:

- Control of construction run-off water in terms of silt runoff and dewatering, and disposal of construction water (see Chapter 5 (Land, Soils, Geology & Hydrogeology) and Chapter 6 (Hydrology) for further information);

- Impacts on human beings in terms of nuisances relating to the air quality of the environs due to dust and other particulate matter generated (see Chapter 8 (Air Quality) for further information);
- Potential impacts on Natura 2000 sites (SPA and SAC) linked to the proposed development site (See Chapter 7 (Biodiversity) and the accompanying Appropriate Assessment Screening and Natural Impact Statement);
- Potential impacts on human beings in terms of nuisances due to plant noise and vibration from equipment (see Chapter 10 (Noise and Vibration) for further information);
- Potential impacts on Archaeology, Architectural and Cultural Heritage during the demolition and excavation works (See Chapter 12 (Archaeology and Cultural Heritage), and Chapter 13 (Architectural Heritage) for further details;
- Effects on the road network (due to construction workers and other staff attending site (see Chapter 14 (Traffic and Transportation) for further information); and
- The generation of construction waste materials generated will be soil from excavation works and litter (see Chapter 15 (Waste Management) for further information).

In order to manage these short-term impacts a Construction Environmental Management Plan (CEMP) has been prepared by OCSC with input from AWN Consulting. The CEMP will be updated by the Construction Manager, Environmental Manager and/or Ecological Clerk of Works, as required if site conditions change, and for any planning conditions that may be imposed. The CEMP will be implemented and adhered to by the construction Contractor(s).

The potential for impacts depends on the type of construction activity being carried out in conjunction with environmental factors including prevailing weather conditions i.e. levels of rainfall, wind speeds and wind direction; as well as the distance to potentially sensitive receptors. This will be taken into consideration in the EIA Report.

2.5 OPERATION OF THE PROPOSED DEVELOPMENT

The proposed development, when operational, will generate typical anthropogenic impacts associated with the usual operation of a large-scale, residential, and apartment complex. The main potential impacts are associated with additional traffic (and associated air emissions), and surface and foul water emissions, visual impacts, biodiversity, and wastes generation due to changes from the current undeveloped site to a build environment.

During the operational phase a Resident Management Team will be in place for the residential blocks as set out in the Hooke and McDonald Operational Management Plan included with the application documentation. St. Vincent’s Hospital, Fairview will continue to be operated by the current board of trustees to provide psychiatric care to the population of Dublin North Central. The current staff complement in St Vincent’s Hospital is 177. During visiting hours, up to 109 additional personnel can be on site during early weekday visiting times. The Hospital will continue to operate on a 24/7 basis and the existing shift times will be unchanged.

As with the construction phase, waste materials will be generated during the operational phase of the proposed development. A separate Operational Waste Management Plan (OWMP) has been prepared for the operational phase of the proposed Development and is included as Appendix 15.2 in Volume 2 of the EIA Report. This includes waste materials generated by the hospital will fall into two main categories, namely healthcare non-risk waste (i.e. non-clinical healthcare waste) and healthcare risk waste (hazardous).

The average and peak daily demands for potable water during operation of the hospital is estimated to be 0.65 l/s and 3.25 l/s respectively. In residential units, potable water is typically used for a variety of purposes, such as drinking, cooking, bathing, and cleaning. It is important for residential units to have access to potable water in order to maintain good health and hygiene. The average and peak daily demands for potable water during operation of the residential units are estimated to be 6.44 l/s and 32.22 l/s respectively.

It is proposed to provide separate surface water and wastewater drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and wastewater sewer networks respectively. The proposed development is to be served by a sustainable urban drainage system (SuDs) that is to be integrated with the proposed developments landscaping features and is typically to comprise green roofs, blue podium, intensive landscaping, pervious paving and filter drains, rain gardens, infiltration basins, trapped road gullies, flow control devices and attenuation storage.

The stormwater discharge from the site will be restricted using flow controls to the greenfield runoff rate calculated by OCSC as follows; Hospital catchments - 4.2 l/s (3.0 l/s/ha); and Residential catchments – 9.5 l/s (3.0 l/s/ha). All proposed wastewater sewer design is to be carried out in accordance with Irish Water's Code of Practice for Wastewater Infrastructure. The foul wastewater discharged from the site will ultimately discharge to the Ringsend Wastewater Treatment Plant.

Natural Gas will be used in the hospital kitchen for cooking purposes. The average daily use is predicted to be 0.25 MWh with a peak of 50kW / hr.

New electrical and telecommunications infrastructure will be developed to serve the proposed development. For the hospital facility, the average daily electricity use has been predicted to be 2.8 MWh peaking at 4.8MW. The residential component of the proposed development will consume an average daily of 17.2 MWh daily average with a peak of 0.8 MW.

The physical aspects of parking and access arrangement are discussed further in the Traffic Impact Assessment prepared by O'Connor Sutton Cronin which is included in Chapter 14 of this report. In its operational phase, the proposed development will generate regular vehicular trips on the surrounding road network predominately from the residents themselves, hospital staff and visitors but also from ancillary users such as crèche staff, waste collection, maintenance of private units and communal areas under contractual agreements.

<u>Potential Impacts During Operation and Mitigation Measures</u>

The proposed development shall incorporate several design elements (mitigation by design) intended to mitigate the impact of the proposed development during the operational phase on the surrounding environment.

The main potential impacts during operation which require mitigation are:

- Impacts on human beings in terms of nuisances relating to the air quality of the environs due to dust and other particulate matter generated (see Chapter 8 (Air Quality) for further information);

- Potential impacts on Natura 2000 sites (SPA and SAC) linked to the proposed development site (See Chapter 7 (Biodiversity) and the accompanying Appropriate Assessment Screening and Natural Impact Statement);
- Impacts on human beings in terms of nuisances due to plant noise and vibration from mechanical and services plant (see Chapter 10 (Noise and Vibration) for further information);
- Interventions in the visual and landscape environment from the introduction of new buildings and structures (see Chapter 11 (Landscape and Visual) for further information);
- Effects on the road network due to residential users and staff (see Chapter 14 (Traffic and Transportation) for further information); and
- The management and segregation of operational waste generated from the residential and hospital areas (see Chapter 15 (Waste Management) for further information).

Each chapter of the EIA Report prepared assesses the potential impact of the operation of the proposed development on the receiving environment. Please refer to each specialist chapter respectively.

2.6 CHANGES TO THE PROJECT

The lifespan of the proposed development is not defined but it is anticipated that it will be maintained, and periodic upgrading and re-fit undertaken over the long-term (i.e. 15-60 years).

If the proposed development is no longer required, then decommissioning and demolition will be subject to a separate planning application and associated EIA Report, as required.

2.7 DESCRIPTION OF OTHER RELATED PROJECTS

To connect to the public watermain upgrade works are required to increase the capacity of the Irish Water it will be necessary to construct a watermain connection of c. 650 m in length of new and replacement 200-250 mm diameter watermain via Griffith Court, Phillipsburgh Avenue and Griffith Avenue, and all associated installation works. These watermain works have been included within the application site boundary; however, agreement will be reached with Irish Water regarding the undertaker of the works at connection application stage.

2.8 DESCRIPTION OF OTHER CUMULATIVE PROJECTS

As part of the assessment of the impact of the proposed development, account has also been taken of developments that are currently permitted within the surrounding area. The potential for Cumulative Impacts arising from these other related projects has been addressed within each specialist chapter of this EIA Report.

- DCC Reg. Ref.: 3601/18 – No. 87 North Strand Road / Poplar Row, Dublin 3
- Reg. Ref.: 2553/00 – No’s 21, 23, 27, 29 & 30 Richmond Avenue, Dublin 3
- Reg. Ref.: 2575/03 - Rear of 21 and 29 Richmond Avenue and, Site to Side of 31 Richmond Avenue, Fairview, Dublin 3
- Reg. Ref.: 3657/21- 17 and 19 Richmond Avenue
- Reg. Ref.: 5386/22 - Grace Park Wood, St. Joseph's, Grace Park Road, Drumcondra, Dublin 9

- Reg. Ref.: LRD6006/23-S3 - Leyden's Cash and Carry, Richmond Road, Dublin 3, D03 YK12

The potential for Cumulative Impacts has been addressed in each chapter of this EIA Report. The precise timeline for the construction of these developments is not known and as such, for the purposes of this EIA Report the precautionary principle has been applied by assessing in this EIA Report the potential for cumulative construction impacts occurring in tandem with the proposed development.

3.0 ALTERNATIVES

3.1 INTRODUCTION

The requirement to consider alternatives within an EIAR is set out in Annex IV (2) of the EIA Directive (2014/52/EU) and in Schedule 6 of the Planning and Development Regulations, 2001, as amended. Reasonable alternatives may include project design proposals, location, size and scale, which are relevant to the Proposed Development and its specific characteristics.

3.2 DO NOTHING ALTERNATIVE

In the context of EIA the "do nothing" alternative refers to the option of not implementing the proposed project or activity and maintaining the current state or status quo. In other words, it is a scenario where no action is taken, and the environment is left unchanged.

If the proposed hospital and ancillary development is not carried out, the potential to replace the aging, unsuitable hospital buildings with a new state-of-the-art hospital facility on the same site and benefiting from the existing mature landscape will not be realised. The existing dilapidated historic structures of St. Vincents Hospital Fairview are not suitable for current medical / health uses.

If the proposed residential elements of the development are not carried out, the need for residential development in the area would remain, and as such, it would be necessary to construct a similar development at another location.

3.3 ALTERNATIVE PROJECT LOCATIONS

The Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) Section 4.13 states that “some projects may be site specific so the consideration of alternative sites may not be relevant.” Additionally, the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA. 2022), states that in some instances alternative locations may not be applicable or available for a specific project which is identified for a specific location.

The proposed development allows for the retention of the services offered by St. Vincents Hospital Fairview until the new hospital facility is operational. The application site includes the existing St. Vincent’s Hospital building and ancillary structures. No alternative locations for the new hospital facility were considered as part of the EIA. The western and southern sections of the site are currently relatively undeveloped and can facilitate the proposed mix of residential, commercial and amenity uses. Having regard to the site-specific nature of the Proposed Development further consideration of alternative site locations is not considered essential in respect of the EIAR legislation and guidance.

Given the current zoning of the site, the surrounding land uses, the proximity to similar associated developments, and the availability of necessary services and infrastructure, the Proposed Development is the most appropriate use for the site.

As outlined in the Architects Design Statement by STW a series of pre-planning meeting at various dates were held with DCC to discuss the proposed development at various stages throughout the design process: The site layout evolved as follows to incorporate feedback from the pre-planning inputs leadings to various site layout considerations.

The proposed development is the culmination of a considered design process, weighing the development opportunity of the strategic land resource and certain characteristics of the context (e.g. the mixed use urban character of Richmond Road, the buffering effect of the open space to the west of the site, etc.) against the sensitivities which also exist (e.g. the lower density residential neighbourhoods to the north and east). The proposal takes account of and responds to its varied context.

Overall, the final proposed design has considered various environmental factors in each layout option to ensure that the development has minimal impact on the environment. The specialist team which included the EIAR consultants referred to in Chapter 1 has worked to create a design that is both environmentally sustainable and socially acceptable, and that meets the needs and values of the local community. The final proposed design for the development has been carefully developed with consideration of various environmental factors.

The proposal was amended following receipt of the DCC LRD Opinion, which requested justification of the proposed building heights specifically in relation to sensitive receptors in the receiving environment.

The proposed development has been designed to adapt and repurpose the older hospital buildings in a way that is sensitive and respectful of their value as part of the urban heritage.

The initial proposed size and location of the new hospital has been revised to protect the mature trees west of the current proposed location for the hospital. Subsequent design changes were made to completely retain (and enhance with additional trees) the tree-lined avenue from Richmond Rd to Richmond House.

3.4 ALTERNATIVE PROCESSES

In terms of the Proposed Development processes, the pre-planning initial design concept and the final design concept necessitate similar power requirements, waste, traffic generation and environmental emissions. This approach is designed to minimise energy consumption and operating costs for residents which can help affordability. Future flexibility is built-in for on-site renewable energy generation. The new buildings are designed in accordance with EU Directive for Near Zero Energy Buildings (NZEB) and Building Regulations Technical Guidance Document (TGD) Part L 2021 for energy efficiency. The project has committed to complying with the requirements set out in the EU Taxonomy alignment for 10% lower than NZEB.

The Proposed Development is guided by the applicant's standard specifications, and the flexibility to select alternative processes is limited for this type of development as opposed to an activity that has more complex equipment and processes. This means that the environmental impact of the project processes is consistent regardless of the design concept chosen.

3.5 ALTERNATIVE MITIGATION

Mitigation measures have been considered based on the effect on quality, duration of impact, probability and significance of effects. The selected mitigation measures for the proposed development are outlined in each of the EIA Report Chapters 5-17. By considering a range of mitigation measures and strategies, the specialist team has sought to ensure that the proposed development is as environmentally sustainable and responsible as possible.

3.6 CONCLUSIONS ON ALTERNATIVES

The Proposed Development was carefully designed, taking into consideration the site context and existing neighbouring commercial and residential properties and the local environmental conditions including air quality, noise and vibration and visual impact.

The proposal will allow the development potential of the site to be maximised within the mixed use St. Vincent's Hospital and the residential development while improving natural screening through landscaping treatments along the site perimeter particularly along the western boundary.

4.0 HUMAN HEALTH AND POPULATION

4.1 INTRODUCTION

This chapter has been prepared to assess the likely significant impacts on Population and Human Health in respect of the Proposed Development.

Human health should be considered in the context of environmental pathways which may affect health such as air quality, noise, water and soil quality. All can contribute to negative effects on human health by facilitating the transport of contaminants or pollutants. An evaluation of the effects of these pathways on health, by considering the accepted standards of safety in dose, exposure or risk of air quality and noise levels for example, is considered appropriate, as these standards have been arrived at via scientific and medical research. Where these topics are dealt with in further detail elsewhere in this EIA Report, the relevant chapters have been cross referenced in this Chapter to provide the Planning Authority with a context for their determination.

4.2 BASELINE ENVIRONMENT

Population Health Sensitivity

The Electoral Divisions (ED) included in the Study Area are those containing or within 1 km of the Proposed Development site. This Study Area includes

- Drumcondra South A (02047),
- Grace Park (02058),
- Drumcondra South B (ED 02048),
- Drumcondra South C (ED 02049),

- Botanic B (ED 02028),
- Whitehall D (ED 02093),
- Ballybough A (ED 02009),
- Ballybough B (ED 02010),
- North Dock A (ED 02076),
- Clontarf West D (ED 02045) and
- Clontarf West E (02046).

The study area has seen a population growth between the 2011 and 2016 census. The Pobal HP Deprivation Index shows the area to be 'Marginally Below Average' to 'Affluent'. There is a low age dependency ratio, therefore a large proportion of the population is within working age, thus considered as largely independent and judged to be not sensitive to change. A high proportion [48% – 63%] describes their health status as 'Very Good' and low proportion as 'Bad' or 'Very Bad'. The data shows that 6 ED's within the study area have a lower percentage of persons with a disability than the national average; indicating that there is a slight increase of restrictions on daily activity.

Location and Character of the Local Environment

While a general study area of ED within 1 km from the site location is included for population statistics, the wider area of 2.5 km from the site location has been used to inform the baseline description of the area. The nearest noise sensitive locations comprise the dwelling houses and commercial properties that bound the site, and the existing hospital on site. There are primary and secondary schools, healthcare services, emergency services and places of worship in the vicinity of the Proposed Development site. There are a number of protected structures on site. The hospital buildings include three no. protected structures with additional protected structures surrounding the site and a residential conservation area to the east. Tourism is not a major industry in the immediate environs of the site, however there are attractions of note within the wider Study Area. These include Croke Park, which hosts sports, cultural and music events, and tours of the stadium itself, located c. 750m south west. The National Botanic Gardens are located c. 1.64 km west of the site. The local environment is not an area of great significance in terms of natural resources. The Proposed Development site is not at risk of any major accidents, hazards of natural disasters.

4.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

The main potential impacts on population and human health from the proposed development are potential for spills/leaks, air emissions, noise, visual, and traffic impacts:

- Construction will have an indirect positive effect on support industries and local services;
- Visual impacts due to construction is an inherently, unavoidably unsightly activity;
- Humans can also be exposed to petroleum hydrocarbons or other contaminants by inhaling the fumes / dust from contaminated soil;
- A reduction in water quality via unmitigated pollutants entering the Tolka River has the potential to lead to negative impacts on human health and populations;

- The greatest potential impact on air quality during the construction phase of the Proposed Development is from construction dust emissions and the potential for nuisance dust;
- Noise and vibration emissions from the key construction stages (demolition of existing structures, site strip / excavation, substructure, superstructure, façade and internal fit out), as well as construction phase traffic;
- Construction traffic is expected to consist of the following categories: Private vehicles owned and driven by site construction staff and by full-time site supervisory staff and occasional professional supervisory staff i.e. design team members and supervisory staff from utility companies; and materials delivery and removal vehicles; and
- There is a negligible risk of natural disasters or major accidents as a result of proximity to Seveso sites, and the Proposed Development is classified as appropriate for its flood zonation.

These potential impacts are ***brief*** to ***short-term*** and range from ***neutral*** to ***negative***, and ***imperceptible*** to ***very significant***.

Operational Phase

The main potential impacts on population and human health from the proposed development are potential for spills/leaks, air emissions, noise, visual, and traffic impacts:

- It is not expected there will be any likely significant effects on local residential figures in association with the operation of the proposed development;
- The high urban design, architectural and landscape quality of the development would also elevate the quality of the landscape (as a resource for human enjoyment) overall;
- Unmitigated leaks or spills may lead to contamination of soil or groundwater, soils that are contaminated by petroleum hydrocarbons can affect soil health;
- Surface water runoff from roads, car parking areas, and the proposed petrol station can potentially contain elevated levels of contaminants such as hydrocarbons;
- The potential impact of the proposed development has been assessed by modelling emissions from the traffic generated as a result of the development. The annual average concentrations of NO_2 and PM_{10} are in compliance with the limit values at the worst-case receptors in 2026 and 2041;
- There will be noise emissions from a variety of mechanical and electrical (M&E) items required to serve the proposed development as well as the newly constructed hospital once it becomes operational, as well as additional operational traffic;
- OCSC have concluded that the analysed junctions indicate that sufficient excess capacity is available to accommodate the development trips;
- There is a negligible risk of natural disasters or major accidents as a result of proximity to Seveso sites, and the Proposed Development is classified as appropriate for its flood zonation; and
- A Microclimatic Wind Analysis was undertaken by IN2 Engineering Design Partnership for the proposed development. The proposed development is determined to not negatively impact on its receiving environment in terms of wind microclimate.

These potential impacts are ***long-term*** and range from ***positive*** to ***negative***, and ***imperceptible*** to ***significant***.

4.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

The mitigation measures to address the potential impacts on Population and Human Health from the construction phase of the Proposed Development and post-mitigation residual effects include:

- There are no potential likely significant impacts on Businesses and Residences therefore additional measures are not required;
- Given the importance of the existing trees to be retained on site, particular attention should be paid during construction to the tree protection and monitoring measures recommended in the Tree Protection Strategy;
- All mitigation measures outlined within the *Construction Environmental Management Plan (CEMP)* will be implemented, as well as any additional measures required pursuant to planning conditions which may be imposed;
- Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor;
- Mitigation measures to reduce dust impacts to ensure that no significant nuisance occurs at nearby sensitive receptors. These measures will be incorporated into the overall Construction Environmental Management Plan (CEMP) prepared for the site;
- The appointed contractor will be required to take specific noise abatement measures to the extent required and comply with the recommendations of BS 5228 -1 which includes guidance on several aspects of construction site practices, which include, but are not limited to: Selection of quiet plant; Control of noise sources; Screening; Hours of work; Liaison with the public; and Monitoring;
- This stage of the development will be dealt with by the appointed contractor through the development and implementation of a Construction & Environmental Management Plan. This plan will be agreed upon with the Local Authority prior to the commencement of construction; and
- The potential effect is imperceptible, and unlikely, in respect of Major Accident Hazards or Natural Disasters on Population and Human Health during the Construction Phase of the Proposed Development. Therefore, no specific mitigation measures are required.

The residual effects following the implementation of mitigation measures are ***short-term*** and range from ***positive*** to ***negative***, and ***imperceptible*** to ***moderate***.

Operational Phase

The mitigation measures to address the potential impacts on Population and Human Health from the construction phase of the Proposed Development and post-mitigation residual effects include:

- There are no potential likely significant impacts on Businesses and Residences therefore additional measures are not required;
- To reduce/mitigate the visual effect of the development on these receptors (e.g. Viewpoints 21-25 – see Chapter 11), the height of Block F has been reduced by one floor, from 10 no. to nine storeys;
- The proposed development stormwater drainage network design includes sustainable drainage systems (SuDS) these measures by design ensure the

stormwater leaving the site is of a suitable quality prior to discharge into the Tolka River;
- The handling and storage of any potentially hazardous liquids on site, e.g. fuels and chemicals, will be controlled and best practice guidelines;
- No mitigation is proposed for the operational phase of the proposed development as impacts to air quality will be neutral and non-significant;
- At the detailed design stage, best practice measures relating to building services plant will be taken to ensure there is no significant noise impact on NSLs adjacent to the development;
- Mitigation has been incorporated into the design of the development regarding the car, bicycle, car sharing, electric bike, cargo bike, electric vehicle and motorcycle parking provisions. A site and development-specific Mobility Management Plan has been prepared and submitted under separate cover as part of this application;
- The potential effect is imperceptible, and unlikely, in respect of Major Accident Hazards or Natural Disasters on Population and Human Health during the Operational Phase of the Proposed Development. Therefore, no specific mitigation measures are required; and
- The proposed landscaping design, particularly strategically placed trees, aids in mitigating against any potentially higher wind speeds at ground level.

The residual effects following the implementation of mitigation measures are ***long-term*** and range from ***positive*** to ***negative***, and ***imperceptible*** to ***significant***.

4.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

Construction Phase

The implementation of mitigation measures within each chapter and detailed in Section 4.6.1; as well as the compliance of adjacent development with their respective planning permissions, will ensure there will be minimal cumulative potential for change in soil quality or the natural groundwater regime during the construction phase of the proposed development.

In the event that demolition/construction activities at nearby sites are taking place concurrently with the demolition/construction of the proposed development, there is potential for cumulative noise impacts to occur. The noise contribution from other construction sites would need be equal to those associated with the proposed development to result in any cumulative effect.

With appropriate mitigation measures in place, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development are deemed ***short-term, direct, localised, negative*** and ***slight.***

Operational Phase

There is the potential for cumulative impacts to air quality during the operational phase due to traffic associated with other existing and permitted developments within the area. The cumulative operational phase impact was assessed and was found to have a neutral impact on air quality. The cumulative operational stage impact is ***long-term, localised, direct, neutral, imperceptible,*** and ***non-significant.***

The noise limits set for off-site noise sensitive locations are designed to avoid any significant increase in the prevailing background noise environment. Operational noise limits included in this report refer to cumulative noise from all fixed installations on site.

The design of plant and other fixed installations will be progressed during the design stage to ensure the noise limits at off-site noise sensitive locations are not exceeded.

The TIA prepared by OCSC indicates that the Proposed Development is not likely to result in significant adverse impacts either alone or in combination with any likely future projects.

5.0 LAND, SOILS AND HYDROGEOLOGY

5.1 INTRODUCTION

This chapter of the EIAR has been prepared by AWN Consulting Ltd. which assesses and evaluates the likely significant impacts of the proposed development on the land, soil, geological and hydrogeological aspects of the site and surrounding area.

5.2 BASELINE ENVIRONMENT

The proposed development covers an area of 9.46 hectares and comprises the existing St. Vincent's Hospital and associated ancillary building structures, which are located on the northern banks of the Tolka River at Richmond Road and Convent Avenue, Fairview, Dublin 3. The site topography is characterised in the Engineering Services Report (OCSC, 2023) by a general slope in elevation from north to south. The site falls from 11 m OD (meters ordnance datum) to c. 4.5 m OD, from levels along the northern boundary to southern portion of the site, respectively. The relief of the site comprises gentle undulations, with a significantly sharp drop in elevation located in the central portion of the site (11 m OD to 4.5 m-5 m OD).

According to the GSI map database (2023) and site investigation undertaken by GII (2021), the ground conditions are reported to be consistent with made ground deposits in the central and east / southeast portion of the site described generally as brown sandy slightly gravelly CLAY with occasional cobbles and contained occasional fragments of concrete, red brick, glass, ash, ceramic and plastic. This is consistent with previous development and subsequent landscaping / earthworks which have taken place on site. The approximate west half of the site is underlain by mainly basic poorly drained mineral soils (BminPD), described as cohesive deposits typically comprising brown sandy gravelly CLAY with occasional cobbles (GII, 2022). Gravel deposits were encountered dispersed across the site as localized lenses generally described as grey brown clayey sandy sub rounded to sub angular fine to coarse GRAVEL with occasional cobbles and rare boulders. The quaternary subsoil type present across the site comprises tills derived from Limestone and gravelly alluvium in the approximate north and south portions of the site. In addition, alluvial deposits (Alluvium) are found to the southwest, associated with the Tolka River riverbed. The site is located over Dark Limestone and Shale of the Lucan formation, which comprises Carboniferous dark limestone and shale('Calp) Age Bracket (Late Chadian to Asbian), Rock Unit code: CDLUCN.

The bedrock aquifers underlying the Proposed Development site are classified as a "*Locally Important Aquifer – Bedrock which is Generally Moderately Productive only in Local Zones*" (capable of good well yields) according to the GSI (2023). The aquifer vulnerability classification GSI for the proposed development site and its immediate vicinity is classified as a (L) – Low Vulnerability status (indicating >10 m of low permeability soil) which is consistent with data obtained from the ground investigations carried out by GII (2021) at the proposed development site.

The Dublin GWB was given a classification of *"Good"* for the last WFD cycle (2016-2021). Presently, the groundwater body in the region of the site (Dublin GWB) is classified as being under 'Review' per the WFD Risk Score system in order to determine whether or not the GWB has achieved its objectives and has either no significant trends or improving trends. The site is not located near any public groundwater supplies or group schemes and there are no groundwater source protection zones in the immediate vicinity of the site.

5.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

In absence of mitigation measures, the construction phase would present potential impacts associated to the following activities:

- Excavation and Infilling.
- Accidental Spills, discharges, and Leaks
- Management of Dewatering and Rainfall Runoff

Without the consideration and employment of mitigation measures the potential impacts during the construction phase on land, soils and geology, hydrogeology (groundwater) are **negative, not significant** and **short term**.

Operational Phase

In absence of mitigation methods, the operational phase would present potential impacts associated to the following activities:

- Accidental Leaks /Unmitigated spills.
- Increase in hardstanding.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on land, soils, geology and hydrogeology are **negative, imperceptible**, and **long-term**.

5.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

In order to reduce impacts on the soils, geological and hydrogeological environment, a number of mitigation measures will be adopted as part of the construction works on site.

- Control of dewatering process;
- Control of soil excavation;
- Regular source of fill and aggregates
- Surface water management during construction
- Fuel and chemical handling.
- Implementation of the mitigation measures set out in the EIAR and NIS via a Construction & Environmental Management Plan (CEMP);

The predicted impact on the geological and hydrogeological environment during the construction phase is ***neutral, imperceptible*** and ***short-term,*** the magnitude of impact is considered ***negligible***.

Operational Phase

A number of design measures will be put in place to minimise the likelihood of any spills entering the soil and groundwater environment to include the design of the car park with hydrocarbon interceptors. In the event of an accidental leakage of oil from the parking areas, this will be intercepted by the drainage infrastructure proposed.

The proposed surface water drainage system comprises infiltration areas which operate at a feasible rate. Multiple design measures will be put in place (interception system, petrol inceptors, settlement tanks, SuDS measures, attenuation system, etc.). No further mitigation measures are to be required during the operational phase.

The predicted impact on the geological and hydrogeological environment during the construction phase is ***neutral, imperceptible*** and ***long-term,*** the magnitude of impact is considered ***negligible***.

5.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

Construction Phase

All developments will have to incorporate measures to protect soil and water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016). As a result, there will be minimal cumulative potential for change in soil quality or the natural groundwater regime. The likely cumulative impact is considered to be **short-term, neutral** and **imperceptible**.

Operational Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place. All developments are required to manage groundwater discharges in accordance with S.I. 9 of 2010 and S.I. 266 of 2016 amendments. As such, there will be no cumulative impact to groundwater quality and, therefore, there will be no cumulative impact on the Groundwater Body Status.. The operation of the proposed development is concluded to have a **long-term**, **imperceptible significance** with a **neutral** impact on soil and groundwater in combination with other developments in the surrounding area.

6.0 HYDROLOGY

6.1 INTRODUCTION

This chapter of the EIAR assesses and evaluates the likely significant impacts on the surrounding hydrological environment associated with the proposed development.

6.2 BASELINE ENVIRONMENT

The proposed development covers an area of 9.46 hectares and comprises the existing St. Vincent's Hospital and associated ancillary building structures, which are located 110 m north of the Tolka River (Tolka Estuary) at Richmond Road and Convent Avenue, Fairview, Dublin 3. The site topography is characterised in the Engineering Services Report (OCSC, 2023) by a general slope in elevation from north to south. The site falls from 11 m OD (meters ordnance datum) to c. 4.5 m OD, from levels along the northern boundary to southern portion of the site, respectively. The relief of the site comprises gentle undulations, with a significantly sharp drop in elevation located in the central portion of the site (11 m OD to 4.5 m-5 m OD).

The proposed development site is located within the former Eastern River Basin District (ERBD) (now the Irish River Basin District), as defined under the Directive 2000/60/EC of the European Parliament commonly known as the Water Framework Directive (WFD). The WFD establishes a framework for community action in the field of water policy.

The most recent published status (www.epa.ie - River Waterbody WFD Status 2016-2021) for the proximal TOLKA_060 WFD surface / river waterbody which belongs to the River Tolka (IE_EA_09T011150), is 'Poor' and its risk score is qualified by the WFD as '*At risk of not achieving good status*'. The main pressures identified on the Tolka_060 are associated with the presently 'poor' ecological status or potential. This status is likely attributable to a combination of elevated Alkalinity-total (as CaCO3).

The nearby Tolka Estuary transitional waterbody (European Code: IE_EA_090_0200) is currently classified by the EPA as having 'Poor' WFD water quality status (2016-2021 period) and is 'At risk of not achieving good status. The Tolka River is currently classified as Q3 'Poor' as per EPA records from the active water monitoring stations along the Tolka River in closest proximity to the site. The proximal Tolka estuary transitional waterbody has been classified as 'Eutrophic' (EPA, 2018- 2020).

The majority of rainwater from the existing hardstanding areas and rooftops is discharged to the combined infrastructure, with minor areas of the site discharge to the storm water sewer on Richmond Road. Rainfall is also currently allowed to infiltrate naturally from the greenfield area. Wastewater and stormwater drainage is discharged via a 300 mm combined sewer within the site boundary, with a 900 mm concrete sewer in Richmond Road. This 900 mm sewer flows in an easterly direction and is treated off site at Ringsend Wastewater Treatment Plant.

Public records indicate an existing 525 mm concrete storm water sewer within the site boundary. This sewer flows in the southerly direction towards Richmond Road before discharging to the 1350 mm sewer on Richmond Road. This storm sewer discharges to the Tolka River immediately downstream of the site.

The discharges to surface water will be adequately treated via SuDS measures, hydro-brake (or equivalent) and oil/water interceptor / separator to ensure there is no long-term negative impact to the WFD water quality status of the receiving watercourse. The SuDS and proposed measures have been designed in detail with the ultimate aim of protecting the hydrological (& hydrogeological) environment.

6.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

In absence of mitigation measures, the construction phase would present potential impacts associated with the following activities:

- Increased surface run-off and sediment loading in run-off.
- Accidental Spills, discharges and Leaks.

Without the consideration and employment of mitigation measures, the potential impacts during the construction phase on surface water quality are ***negative***, ***not significant*** and ***short term***.

Operational Phase

In absence of mitigation methods, the operational phase would present potential impacts associated with the following activities:

- Slight increase in hardstanding.
- Discharges to the Tolka River and subsequent Natura 2000 conservation sites.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase are **negative, not significant**, and **long-term**.

6.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

In order to reduce impacts on the soils, geological and hydrogeological environment, a number of mitigation measures will be adopted as part of the construction works on site.

- Fuel and chemical handling.
- Soil removal and compaction.
- Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds).
- Discharges to surface water will be subject to agreement with Dublin City Council (DCC); and the discharges to the combined foul sewer are subject to agreement with Irish Water (IW). A staged treatment system (treatment-train) will be in place during construction works that will ensure the quality of the discharge water to foul sewer and storm sewer is maintained in accordance with permit conditions from Dublin City Council and Irish Water.
- Implementation of the mitigation measures set out in the EIAR and NIS via a Construction & Environmental Management Plan (CEMP).

The predicted impact on the hydrological environment during the construction phase is ***neutral, imperceptible*** and ***short-term,*** the magnitude of impact is considered ***negligible***.

Operational Phase

A number of design measures will be put in place to minimise the likelihood of any spills entering the hydrological environment and to include the design of the car park with hydrocarbon interceptors. In the event of an accidental leakage of oil from the parking areas, this will be intercepted by the drainage infrastructure proposed.

The proposed surface water drainage system comprises infiltration areas which operate at a feasible rate. A number of design measures will be in place (interception system, petrol inceptors, SuDS measures, attenuation system, etc.). No further mitigation measures are to be required during the operational phase. Irish Water has confirmed that the connection is feasible subject to upgrades.

The predicted impact on the hydrological environment during the construction phase is ***neutral, imperceptible*** and ***long-term,*** the magnitude of impact is considered ***negligible***.

6.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

As has been identified in the receiving environment section, all cumulative developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

There are no relevant other than the permitted or proposed developments within the immediate vicinity of the proposed development site.

Construction Phase

All developments will have to incorporate SuDS measures to protect water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019). As a result, there will be minimal cumulative potential for change in the natural hydrological regime. The cumulative impact is considered to be ***short-term***, ***neutral*** and ***imperceptible***.

Operational Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place. All the operational cumulative developments are required to manage discharges in accordance with S.I 272/2009 and 77/2019 amendments. As such there will be no cumulative impact to surface water quality and therefore there will be no cumulative impact on the Surface Waterbody Status. The operation of the proposed development is concluded to have a ***long-term***, ***imperceptible*** significance with a ***neutral*** impact on surface water quality.

7.0 BIODIVERSITY

7.1 INTRODUCTION

The Biodiversity chapter assesses the biodiversity value of the proposed development area and the potential impacts of the development on the ecology of the surrounding area and within the potential zone of influence (ZOI), prior to and after proposed mitigation.

7.2 BASELINE ENVIRONMENT

The proposed development site is not within a designated site. There are two Natura 2000 sites within 5km, six proposed Natural Heritage Areas within five kilometers of the proposed development site, and two Ramsar sites within 5km of the proposed development site. Due to the fact that the existing surface water drainage network on-site outfalls to the River Tolka, it is considered that there is a hydrological pathway to designated sites located within Dublin Bay. Site surveys were carried out on site between 2021 and 2023. These included, habitat, flora, wintering bird, mammal, amphibian and bat assessments.

No rare plant species, or plant species of conservation value were noted during the field assessment. No rare or threatened plant species were recorded in the vicinity of the proposed site. A single plant of Giant Hogweed was noted in 2021 and was treated. No other invasive plant species that could hinder removal of soil from the site during groundworks, such as Japanese knotweed, giant rhubarb or Himalayan balsam were noted on site.

Species of birds noted on site were recorded. Two years of wintering bird surveys were carried out. The site is not significant ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's). As outlined in the assessment "It was apparent that the preferred flightline routes for species such as Brent Geese and Curlew were to the south (birds likely following the Tolka River being a natural landmark) and to the north of the Hospital structure complex itself, although occasional flocks were recorded passing close and over the Hospital."

No protected terrestrial mammals were observed on site. No active setts were observed on site. The common frog (Rana temporaria) was not observed on site. There are no features within the site boundary that could be important to frogs. The common lizard (*Zootoca vivipara*) or smooth newt (*Lissotriton vulgaris*) were not recorded on site. Foraging activity of three species of bat (soprano pipistrelle (*Pipistrellus pygmaeus*), Leisler bat (*Nyctalus leisleri*) and common pipistrelle (*Pipistrellus pipistrellus*) were noted on site. No bats were noted emerging from buildings on site. No evidence of bats roosting was noted on site.

7.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

Despite the scale of the proposed works, the site's proximity to the River Tolka (100m), and the fact that surface water drainage from the site outfalls to an existing surface water drainage that ultimately outfalls to the River Tolka, it is considered that there is an indirect hydrological pathway to downstream designated conservation sites. In the absence of mitigation, there is potential for effects on downstream designated conservation sites. The impact of the development during construction phase will be a loss of existing habitats and species on site. It would be expected that the flora and fauna associated with these habitats would also be displaced.

Operational Phase

Once constructed, the site would be seen as a stable ecological environment. However, in the absence of mitigation, appropriate measures should be taken to prevent surface water run-off into adjacent habitats and in particular the River Tolka. Numerous discussions took place within the project team, including specific meetings between Altemar, the landscape architect and the architect, to discuss methods to improve biodiversity on site. Biodiversity enhancement measures will be included across the site. This includes areas of native planting, meadows, swift boxes and additional bird boxes, bat boxes and a sensitive lighting strategy.

7.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

- A project ecologist will be appointed and consulted in relation to all onsite drainage during works. Consultation with the project ecologist will not involve the formulation of new mitigation measures for the purposes of protecting any European Site and relate only to the implementation of those mitigation measures already stated in the submission or the formulation of mitigation for other purposes.
- All site clearance works methodologies will have prior approval of a project ecologist.
- Staging of project will be carried out to reduce risks of onsite drainage to the River Tolka and subject to the approval of a project ecologist. A drainage strategy has been outlined for the construction stage. This will be followed and monitored by the project ecologist.
- Local drainage connections, gullies and watercourses will be protected from dust, silt and surface water throughout the works.
- All onsite drainage network connections will be blanked off and sealed at the first phase of the construction works.
- There will be no entry of solids or petrochemicals to the drainage network or groundwater during the works.
- The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained.
- Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis.
- Pre-Construction survey for bats. If bats are found roosting on site a derogation licence will be required from the NPWS prior to construction.
- Removal of woody vegetation will be outside of bird nesting season.

No significant environmental impacts are likely in relation to the construction of the proposed development following the implementation of mitigation measures.

Residual Effects: Slight effects / site / Negative effect / Not significant /short term/likely. Standard mitigation will be in place on site.

Operational Phase

- Standard operational mitigation measures as outlined in the engineering report will be in place to protect surface water networks from pollution.

No significant environmental impacts are likely in relation to the operation of the proposed development following the implementation of mitigation measures.

Residual Effects: Slight effects / site / Negative effect / Not significant / long term/likely. Standard mitigation will be in place on site.

7.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

As part of the assessment of the impact of the proposed development, account has also been taken of cumulative projects, i.e. developments that are currently permitted or under construction within the surrounding area, but whose environmental impact are not yet fully realised within the existing environmental baseline. Following a review of projects located in proximity to the proposed development it was determined that no significant projects are proposed or currently under construction that could potentially cause in combination effects on designated conservation sites. Given this, it is considered that in combination effects on biodiversity, with other existing and proposed developments in proximity to the application area, would be unlikely, neutral, not significant and localised. It is concluded that no significant effects on designated conservation sites will be seen as a result of the proposed development alone or in combination with other projects.

8.0 AIR QUALITY

8.1 INTRODUCTION

Chapter 8 provides an overview of the existing air quality conditions in the proposed development site, identifies the relevant air quality standards and guidelines, describe the sources of air pollution associated and potential impacts of the proposed development, define mitigation measures that will be implemented to minimise the potential air quality impacts, and define the residual effects of the proposed development after the implementation of mitigation measures.

8.2 BASELINE ENVIRONMENT

Air quality monitoring programs have been undertaken in recent years by the EPA and Local Authorities. The most recent EPA published annual report on air quality "*Air Quality In Ireland 2021*" (EPA 2022) details the range and scope of monitoring undertaken throughout Ireland.

Long-term NO_2 monitoring was carried out at the Zone A suburban locations of Rathmines, Ballyfermot, Dun Laoghaire and Swords for the period 2017 - 2021 (EPA, 2022). Long term average concentrations are significantly below the annual average limit of 40 µg/m^3 for the suburban locations. Average results range from 11 – 22 µg/m^3 (Table 8.4).

Continuous PM_{10} monitoring was carried out at the Zone A locations of Rathmines, Dun Laoghaire, Ballyfermot and Phoenix Park from 2017 - 2021. These showed an upper average limit of no more than 16 µg/m^3 (Table 8.5). Levels range from 9 – 16 µg/m^3 over the five year period with at most 9 exceedances of the 24-hour limit value of 50 µg/m^3 in Rathmines in 2019 (35 exceedances are permitted per year) (EPA, 2022).

Monitoring of both PM_{10} and $PM_{2.5}$ takes place at the station in Rathmines which allows for the $PM_{2.5}/PM_{10}$ ratio to be calculated. Average $PM_{2.5}$ levels in Rathmines over the period 2017 – 2021 ranged from 9 – 10 µg/m^3, with a $PM_{2.5}/PM_{10}$ ratio ranging from 0.60 – 0.75 (EPA, 2022).

In terms of the existing air quality environment, baseline monitoring data available from similar environments indicates that levels of nitrogen dioxide (NO_2), particulate matter less than 10 microns (PM_{10}) and particulate matter less than 2.5 microns ($PM_{2.5}$) are generally well below the National and European Union (EU) ambient air quality standards.

8.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the potential for nuisance dust.

There are a number of high sensitivity receptors (residential properties) in close proximity to the site at which dust impacts may occur. The surrounding area has been assessed as having a high sensitivity to dust soiling impacts and a medium sensitivity to dust related human health impacts. The magnitude of the demolition and construction works were assessed and it was determined that there was an overall high risk of dust soiling impacts from the construction phase and a medium risk of dust-related human health impacts. As a result a number of mitigation measures associated with high risk of dust impacts have been proposed within Section 8.6.1 of Chapter 8. Provided the dust mitigation measures are implemented, dust emissions are predicted to be short-term, negative and slight and will not cause a nuisance at nearby sensitive receptors.

Operational Phase

In terms of the operational stage air quality impacts will predominantly occur as a result of the change in traffic in the local areas associated with the proposed development.

Potential impacts to air quality during the operational phase of the proposed development are as a result of a change in traffic flows and volumes on the local road network. The changes in traffic were assessed against the Transport Infrastructure Ireland (TII) screening criteria for an air quality assessment and it was determined that there were a small number of road links that will experience a change in traffic of the required magnitude for a detailed air assessment.

8.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

The best practice dust mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health.

The residual effect of fugitive emissions of dust and particulate matter from the site will be ***short term, direct, negative*** and ***slight*** in nature, posing no nuisance at nearby receptors.

The residual effect of construction of the proposed development will be ***short term, direct, negative*** and ***imperceptible*** with respect to human health.

Operational Phase

The operational phase air quality assessment determined that there is no potential for significant impacts as a result of traffic related to the proposed development. It can therefore be determined that the impact to air quality as a result of altered traffic volumes during the operational phase of the proposed development is localised, neutral, imperceptible and long-term in relation to air quality.

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

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

The operational phase impact to air quality is ***long-term, localised, neutral, imperceptible*** and ***non-significant***.

The impacts to human health are ***long-term, direct, neutral***, ***imperceptible*** and ***non-significant***.

8.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

Construction Phase

According to the IAQM guidance (2014) should the construction phase of the proposed development coincide with the construction phase of any other development within 350 m then there is the potential for cumulative construction dust impacts to nearby sensitive receptors.

There is the potential for cumulative construction dust impacts should the construction phases overlap with that of the proposed development. However, the dust mitigation measures outlined in Section 8.6.1 will be applied throughout the construction phase of the proposed development which will avoid significant cumulative impacts on air quality.

The predicted cumulative impacts on air quality associated with the construction phase of the proposed development are deemed short-term, direct, localised, negative and slight.

Operational Phase

There is the potential for cumulative impacts to air quality during the operational phase due to traffic associated with other existing and permitted developments within the area. The traffic data provided for the operational stage air quality assessment included cumulative traffic.

Therefore, the cumulative operational phase impact is assessed within Section 8.5.3 and was found to have a neutral impact on air quality. The cumulative operational stage impact is long-term, localised, direct, neutral, imperceptible and non-significant.

9.0 CLIMATE

9.1 INTRODUCTION

Chapter 9 assesses the likely significant climate related impacts associated with the proposed development. Potential impacts to climate are likely as a result of greenhouse gas (GHG) emissions during both the construction and operational phase.

9.2 BASELINE ENVIRONMENT

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 Regulation 2018/842. The EPA state that Ireland had total ESR GHG emissions of 46.16 Mt CO_2eq in 2021. This is 2.71 Mt CO_2eq higher than Ireland's annual target for emissions in 2021. The EPA predict that Ireland can comply with the GHG targets for 2021 – 2030 provided full implementation of the measures outlined within the Climate Action Plan and the use of the flexibilities available.

9.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

There are some demolition works proposed as part of the proposed development, however, the primary focus of the proposal is to repurpose and refurbish buildings where possible which is preferable from a sustainability standpoint. Demolition is only proposed where the buildings are unsuitable for refurbishment. Depending on the final end-use of the demolition wastes, the associated embodied carbon has the potential to impact climate. Embodied carbon is carbon within building materials associated with their manufacture and end-of-life in this context. This has been considered as part of the demolition proposed. Mitigation will be required as part of the demolition works to reduce the embodied carbon impact. Where possible demolished materials should be re-used on site or sent to a suitably licenced waste facility for re-use on other sites. A number of mitigation measures have been proposed as set out in Section 9.6 of Chapter 9 these will reduce the impact to climate from both construction and operation. As the proposed development has proposed some best practice mitigation measures and is committing to reducing climate impacts where feasible, the development will comply with the do-minimum standards set through regulation (NZEB and Part L 2021), the impact of the proposed development in relation to GHG emissions is considered long-term, minor adverse and not significant.

The impact of the proposed development in relation to GHG emissions is considered ***long-term, minor adverse*** and ***not significant***.

Operational Phase

There is the potential for increased traffic volumes to impact climate during the operational phase. A detailed climate assessment of traffic emissions was conducted and the carbon dioxide (CO_2) emissions quantified. The emissions for the future years with the development in place are significantly below Ireland's climate targets for future years. The proposed development is located in an area with several sustainable modes of transport including train and bus. While there will be some vehicular emissions associated with the proposed development overall, the development has been designed to encourage more sustainable travel methods. The potential climate impact of the proposed development is considered neutral, long-term and imperceptible in relation to traffic emissions.

In addition to greenhouse gas emissions the vulnerability of the proposed development to climate change has been assessed. This was conducted by determining the sensitivity of the area to various climate hazards and the likelihood of the climate hazards occurring on site. Overall, there were no significant residual climate change related risks.

The impact of the proposed development in relation to GHG emissions is considered ***long-term, minor adverse*** and ***not significant***.

9.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. Section 6 of the Demolition Justification Report prepared by Passive Dynamics which accompanies this planning application details a number of measures to reduce the embodied carbon of the demolition works.

During the construction phase the following best practice measures shall be implemented on site to prevent significant GHG emissions and reduce impacts to climate.

Operational Phase

A number of measures have been incorporated into the design of the development in order to mitigate against the impacts of future climate change. For example, adequate attenuation and drainage have been incorporated into the design of the development to avoid potential flooding impacts as a result of increased rainfall events in future years. These measures have been considered when assessing the vulnerability of the proposed development to climate change (see Section 9.5.3.2).

9.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

With respect to the requirement for a cumulative assessment PE-ENV-01104 (TII, 2022a) states that *"for GHG Assessment is the global climate and impacts on the receptor from a project* are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable."

However, by presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. Therefore, the assessment approach is considered to be inherently cumulative.

10.0 NOISE AND VIBRATION

Chapter 10 of the EIAR provides information on the assessment of noise and vibration impacts on the surrounding environment during both the construction and operational phases of the development.

10.1.1 Baseline Environment

The baseline environment was quantified by undertaking environmental noise surveys, the results of which are presented within the full EIAR chapter. The baseline noise surveys determined that the noise environment was largely dominated by noise from local road networks as well as bird song and general activities within the local area.

10.1.2 Potential Impacts of the Proposed Development

Construction Phase

Construction noise impacts will vary at various receivers throughout the construction phase of the proposed development. The main construction activities in relation to noise are:

- Demolition of existing structures;
- Site Strip/Excavation
- Substructure
- Superstructure
- Façade and internal fit out.

Without mitigation the worst case effect of the construction phase will be ***negative***, ***very significant*** and ***temporary***..

Operational Phase

The noise impacts relating to the operational phase of the proposed development will relate to:

- Mechanical Plant and Services
- Additional Traffic on Public Roads

The noise impacts relating to mechanical plant and services are likely to be ***negative***, ***not significant*** and ***long-term*** if guidelines and recommendations within the EIAR chapter are followed. The noise impacts relating to Additional Road Traffic on Public Roads will be ***negative***, ***not significant*** and ***long term***.

10.1.3 Mitigation and Residual Effects (Post-Mitigation)

Construction Phase

Mitigation measures to be implemented during the construction phase are discussed within the full EIAR, these measures include but are not limited to:

- Selection of quiet plant;
- Control of noise sources;
- Screening;
- Hours of work;
- Liaison with the public; and
- Monitoring.

After mitigation it is anticipated that the residual worst case effect of the construction phase noise will be ***negative***, ***moderate to significant*** and ***temporary***.

Operational Phase

Mitigation measures to be implemented during the operational phase are discussed within the full EIAR these measures mainly relate to the selection of quiet plant as well the suppression of break out noise from items of mechanical plant.

There are no mitigation measures discussed for the mitigation of road traffic noise within the EIAR chapter.

After mitigation it is anticipated that the residual effect in relation to the mechanical plant and services noise will be ***neutral***, ***not significant*** and ***long term***.

The residual impact of the traffic on the surrounding road will be ***negative***, ***not significant*** and ***long term***.

10.1.4 Cumulative Impact of the Proposed Development

Construction Phase

Cumulative noise impacts in relation to construction noise are unlikely to occur due to the scale of the proposed development with construction noise associated with the development likely to dominate the surrounding noise environment. The noise contribution of other sites would need to be equal to those associated with the proposed development in order to result in any cumulative effect.

Operational Phase

The noise limits set within the EIAR are designed to avoid any significant increase in the prevailing background noise environment. There is not expected to be a cumulative effect in relation to either the mechanical plant noise or road traffic noise during the operational phase of the proposed development.

11.0 LANDSCAPE AND VISUAL

11.1 INTRODUCTION

Richard Butler MILI MIPI of Model Works Ltd undertook the Landscape and Visual Impact Assessment. The chapter should be read in conjunction with the verified photomontages (Appendix 11.1) submitted under separate cover.

11.2 RECEIVING ENVIRONMENT

The Site

The site of the proposed hospital and residential development (excluding off-site works) is a 9.46 ha land parcel lying to the north of Richmond Road in Dublin 3. The lands are predominantly greenfield, although there are several buildings/building clusters, including:

1) Along the site frontage to Richmond Road: (a) the Crannog Day Care Hospital, and (b) a cluster of three buildings inside the entrance to Richmond House, including Brooklawn House (protected structure) beside the road.

2) Richmond House, a protected structure (in the Dublin City Development Plan 2022-2028).
3) St Vincent's Hospital, a complex of buildings incorporating three protected structures.
4) Other sundry structures.

The five protected structures on the site are all valued cultural and architectural heritage features and they are sensitive to change affecting the buildings themselves and their context landscapes. Currently these buildings and their environs are in relatively poor condition. Therefore, while sensitive, they could benefit from landscape change. Additionally, the hospital buildings are removed from the public realm and make limited contribution to the landscape character and visual amenities of the area as experienced by the public. There are no designations (such as Conservation Area or Architectural Conservation Area) affecting the site.

The green spaces, which occupy the majority of the site, can be divided into four main spaces as follows:

1) The north field: This is a large, roughly square (c. 175m x 165m) grassland field to the north west of the hospital complex.
2) The lower field: This is a smaller, rectangular field at a level below the north field, to the rear of the Crannog day hospital.
3) The hospital garden: This is a large, enclosed garden to the south of St Vincent's Hospital, featuring numerous mature trees, lawn areas and a sports court.
4) The east field. This is an amenity grassland area surrounded by lines and stands of mature trees. It lies to the south east of the hospital, beside the hospital garden.

The Arboricultural Impact Assessment Report prepared by CMK Horticulture and Arboriculture Ltd states that a total of 277 no. trees have been identified on the site. 12.6% of the trees are classified as being of high value; 68% are of moderate value; 19.4% are of low value (including 17 no. trees which were recommended for removal due to their poor quality). The greatest concentration of mature, high value trees is in the hospital garden and around the east field to the south of the existing St Vincent's Hospital complex. There are also numerous trees around the modern hospital buildings (proposed to be demolished) to the north of the historic buildings and in the hospital parking area. The north field and the lower field are characterised by a relative absence of trees.

In the Dublin City Development Plan 2022-2028 the site is zoned Z12 ('institutional land with future development potential'), Z15 ('community and social infrastructure') and Z1 ('sustainable residential neighbourhoods'). The development or redevelopment of the lands has thus been deemed acceptable in principle (since the DECP was subject to Strategic Environmental Assessment). The site's development is also supported by the national policy and DCDP policy of urban consolidation. The site must be recognised as a land use/development asset, being largely unused, only 2.5km walk from the city centre, 750m from both Fairview and Drumcondra urban villages, well served by public open space in the vicinity, and by public transport.

The Site Environs

The following summarises the key landscape receptors:

- Richmond Road passing to the south of the site is the spine of a landscape corridor of distinctly urban character. Roadside development ranges from historic bungalows to period houses, modern apartment blocks up to five storeys, small shops and offices, wholesalers, industrial sites, petrol stations, a park and a sports stadium. This diversity creates capacity to accommodate change, and the condition of the streetscape and roadside developments/plots is sub-optimal in places. The site in its current condition makes no positive contribution to the character and visual amenity along Richmond Road, and its redevelopment has the potential to enhance this important element of the receiving environment.

- Immediately to the west of the site, behind the Richmond Road corridor, is a small light industrial strip and two large zoned open spaces – the Stella Maris F.C. Dublin Port Stadium and the Ierne Social and Sports Club. Together these grounds wrap around the south and west sides of the site's north field. While forming a beneficial open space buffer on the one hand, the sports facilities are also potential receptors of landscape and visual change. The football ground is less sensitive due to the nature of the sport. The Ierne pitch and putt course is more sensitive as the players are more likely to appreciate their surroundings and likely enjoy the unenclosed, green setting of the golf course.

- To the north of the site are two residential estates, Grace Park Wood (an example of 21st century urban consolidation on former institutional land) and Griffith Court (a mid-20th century estate of detached and semi-detached houses). These estates benefit from the currently unused condition of the north field, and they are susceptible to change on the site. It should be noted that while the alignment of the Grace Park Wood streets frames views south across the site, the houses themselves are perpendicular to this axis. The principal views from the houses (from the front and rear windows and the rear gardens) are therefore to the east or west, i.e. away from the site. The apartment buildings are the exception to this. The same is true for most of the houses in Griffith Court, although there is one row of houses at the southern edge of the estate, which back onto the site boundary.

- To the east of the site is a 19th century residential neighbourhood off Philipsburgh Avenue, comprised of Lomond Avenue, Waverley Avenue, Melrose Avenue and Inverness Road. This is an area of particularly strong character (due to the uniformity of land use and architecture). Inverness Road, which runs parallel to the site's east boundary, is a Residential Conservation Area.

11.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

During construction the site and immediate environs would be heavily disturbed by construction activities and the incremental growth of the buildings on site. This would have a negative effect on views/visual amenity and landscape character locally (due to a large site being in a disturbed condition).

The significance and quality of the construction phase effects on each viewpoint are summarised in Table 1 below. The most significantly affected views would be those from nearby to the north (Grace Park Wood and Griffith Court estates) and west (the

Ierne Sports and Social Club). The effects would reduce with increasing distance from the site.

Operational Phase – Visual Effects

33 no. viewpoints were selected for detailed assessment of the proposal's potential visual effects informed by verified photomontages. The viewpoints were selected to represent the key elements and character areas of the receiving environment, and to provide visualisations of the proposal (in the form of photomontages) from a wide range of directions and distances from the site. The effects on each viewpoint are summarised in Table 1 below.

Table 1 *Assessment of visual effects - summary*

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual (long term)	Construction (temporary)	Operation (long term)	Residual (long term)
RICHMOND ROAD IN THE VICINITY OF THE SITE								
1	Richmond Rd at Convent Ave junction	Medium	Low	Low	Low	**Not significant negative**	**Slight neutral**	**Slight neutral**
2	College Ave approaching St Vincent's entrance	Low-Medium	Low	Low	Low	**Not significant negative**	**Slight neutral**	**Slight neutral**
3	Richmond Rd approaching Richmond House entrance	Medium	Medium	Low-Medium	Low-Medium	**Slight negative**	**Moderate positive**	**Moderate positive**
4	Richmond House entrance/avenue	Medium	High	Medium	Medium	**Moderate negative**	**Moderate positive**	**Moderate positive**
5	Richmond Rd opposite Crannog entrance	Low	High	Very High	Very High	**Moderate negative**	**Significant positive**	**Significant positive**
6	Richmond Rd approaching Crannog frontage from the west	Medium	Medium	High	High	**Slight negative**	**Moderate positive**	**Moderate positive**
7	Richmond Rd to west of site	Medium	Low	Low	Low	**Not significant negative**	**Slight positive**	**Slight positive**
MIXED DENSITY RESIDENTIAL AREA TO SOUTH WEST OF SITE								
8	Waterfall Ave	Medium	Medium	High	High	**Moderate negative**	**Significant positive**	**Significant positive**
9	Grace Park Ave	Medium	Low	Low-Medium	Low-Medium	**Slight negative**	**Slight neutral**	**Slight neutral**
RICHMOND ROAD TO WEST OF THE SITE								
10	Richmond Road at Grace Park Road junction	Medium	Negligible	Low	Low	**Not significant negative**	**Slight neutral**	**Slight neutral**
11	Richmond Road to west	Medium	Negligible	Low-Medium	Low-Medium	**Not significant negative**	**Slight neutral**	**Slight neutral**
DRUMCONDRA ROAD								
12	Drumcondra Rd at Richmond Rd junction	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
13	Drumcondra Rd at Clonturk Park junction	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
14	Drumcondra Rd at Ormond Rd junction	Medium	Negligible	None	None	**Not significant negative**	**No effect**	**No effect**

CLONTURK PARK AND GRACE PARK OPEN SPACE								
15	Clonturk Park	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
16	Grace Park public open space	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
IERNE SOCIAL AND SPORTS CLUB AND GRACE PARK GARDENS								
17	Ierne Social and Sports Club parking area	Medium-High	Medium	High	High	**Moderate negative**	**Significant neutral**	**Significant neutral**
18	Grace Park Gardens	High	Negligible	Low	Low	**Slight negative**	**Slight neutral**	**Slight neutral**
GRACE PARK ROAD TO NORTH OF SITE								
19	Grace Park Rd at entrance to St Joseph's/Grace Park Wood estate	Medium-High	Medium	Medium	Medium	**Moderate negative**	**Significant neutral**	**Significant neutral**
20	Grace Park Rd at junction with Grace Park Terrace	Medium	Negligible	Negligible	Negligible	**Not significant neutral**	**Not significant neutral**	**Not significant neutral**
GRACE PARK WOOD ESTATE								
21	Grace Park View (road) and open space adjacent to site	Medium-High	Medium	Medium-High	Medium-High	**Moderate negative**	**Moderate neutral**	**Moderate neutral**
22	Grace Park Grove – mid distant view	Medium-High	Medium	Medium-High	Medium-High	**Moderate negative**	**Moderate neutral**	**Moderate neutral**
23	Grace Park Close – close-up view	Medium-High	Medium	High	High	**Moderate negative**	**Significant negative**	**Significant negative**

24	Grace Park Close – distant view	Medium-High	Medium	Medium-High	Medium-High	**Moderate negative**	**Moderate neutral**	**Moderate neutral**
GRIFFITH COURT								
25	Griffith Court – western street	Medium-High	Low-Medium	Medium	Medium	**Moderate negative**	**Moderate negative**	**Moderate negative**
26	Griffith Court – beside entrance to St Vincent's Fairview Community Unit	Medium	Low	Low	Medium	**Slight negative**	**Slight neutral**	**Slight neutral**
VICTORIAN NEIGHBOURHOOD OFF PHILIPSBURGH AVENUE EAST OF THE SITE								
27	Philipsburgh Avenue junction with Lomond Avenue	Medium-High	Negligible	Negligible	Negligible	**Not significant neutral**	**Not significant neutral**	**Not significant neutral**
28	Lomond Avenue approaching post office and east site boundary	Medium	Low	Medium	Medium	**Slight negative**	**Moderate positive**	**Moderate positive**
29	Melrose Avenue	High	Negligible	None	None	**Not significant negative**	**No effect**	**No effect**
AREA OF MIXED CHARACTER ON RICHMOND AVENUE TO SOUTH EAST								
30	Richmond Avenue	Low	Negligible	None	None	**Not significant negative**	**No effect**	**No effect**

DISTANT VIEWS TO SOUTH EAST AND SOUTH								
31	Ballybough Luke Kelly Bridge	Low-Medium	Negligible	Low	Low	**Slight negative**	**Slight positive**	**Slight positive**

32	Clonliffe Road junction with Distillery Road	Medium	Low	Low-Medium	Low-Medium	**Slight** **negative**	**Slight-Moderate** **neutral**	**Slight-Moderate** **neutral**
33	Distillery Road – northern end approaching the Tolka River	Medium	Low	Low-Medium	Low-Medium	**Slight** **negative**	**Slight-Moderate** **neutral**	**Slight-Moderate** **neutral**

Operational Phase – Landscape Effects

11.3.1.1 Landscape Character and Sensitivity to Change

The site contains several protected structures. These buildings are sensitive to change affecting the buildings and their contexts, but currently they are in relatively poor condition and could benefit from improvement. There are no designations (such as Conservation Area or Architectural Conservation Area) affecting the site.

The site also contains extensive unused areas, several modern buildings of no cultural heritage significance, parking areas, etc. The lands are zoned Z12 ('institutional land with future development potential'), Z15 ('community and social infrastructure') and Z1 ('sustainable residential neighbourhoods'). Therefore the development or redevelopment of the lands has been deemed acceptable in principle (the DCDP having been subject to Strategic Environmental Assessment). The site is 2.5km walk from the city centre, 750m from both Fairview and Drumcondra urban villages, well served by public transport and by public open space in the vicinity. Therefore, given the policy of urban consolidation, the site must be considered a land use/development asset of strategic importance.

The site is part of an urban landscape of diverse character, including the mixed use Richmond Road corridor, sensitive 19th and 20th century residential streets and estates of suburban character, and modern mixed and higher density developments. There are several examples of 21st century urban consolidation on previously institutional or industrial sites in the area (e.g. the cluster of Richmond Hall, Weir House, Riverview and the Lofts apartments, Griffith Wood in Marino, and Grace Park Wood). There is a concentration of sports facilities in the area (including the Ierne Social and Sports Club and Dublin Port Stadium adjacent to the site, Tolka Park and Belvedere Rugby Ground). Extensive institutional lands/uses remain, including the site itself. In this diverse receiving environment there is varying sensitivity to the type of development proposed.

Taking the above factors into account, the landscape sensitivity can be classified 'Medium' (definition: *Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in landscape policy at local or county level and the principle management objective may be to consolidate landscape character or facilitate appropriate, necessary change*).

11.3.1.2 Magnitude of Landscape Change

- At 9.46 ha (the proposed hospital and residential development site, excluding off-site works) the site is large for the urban context (in which development plots are typically smaller).
- Comprising a new hospital building, nine new apartment buildings of up to 13 no. storeys, the refurbishment and re-purposing of five protected structures, and extensive open space, the proposed development is of large scale.
- The proposed buildings are somewhat removed from the streets/public realm to the south (Richmond Road). The modest height of the proposed new hospital limits the extent change perceptible to the to the east.

- To the west the public realm and most sensitive receptors are buffered from the site by the Dublin Port Stadium and Ierne Club. However, these open spaces are themselves receptors and would experience a high magnitude of change.

- To the north, the proposed buildings are exposed to view from two neighbouring estates, Grace Park Wood, and Griffith Court.

- Additionally, due to the height of the proposed Block DE, which is intended to have a 'landmark' function, the development would be visible in certain long-distance views - from the south (Distillery Road), and west (along Richmond Road and Clonturk Park from Drumcondra Road).

- The development would cause a permanent, irreversible change to the landscape, i.e. the transformation of the site from institutional in use, with large areas inaccessible and unoccupied by development, to a high density residential neighbourhood incorporating several re-purposed protected structures, alongside a new hospital.

In summary, the magnitude of landscape change which would result from the development is 'high' (definition: *Change that is moderate to large in extent, resulting in major alteration to key elements, features or characteristics of the landscape, and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the landscape*).

11.3.1.3 Significance and Quality of Landscape Effects

Measuring the magnitude of change against the landscape sensitivity, **the significance of the landscape effects is predicted to be 'significant'** (EPA definition: *An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment*).

The 'significant' classification reflects (a) the scale of the site and the proposed development, and (b) the fact that the proposal is deliberately a departure from the existing character of (most of) its immediate environs. It is driven by the policy of compact growth, the purpose of which is to see the introduction of new buildings of larger scale to previously lower density urban landscapes. The Building Height Guidelines, NPF and DCDP recognise that such change needn't necessarily be (or be considered to be) negative. Developments of density and scale that cause change in landscape character and the composition of views can be designed with consideration for their context, so that their effects, while significant, are not unduly harmful to the receiving environment.

The classification of the landscape effects as positive, neutral or negative is discussed in Section 11.4.2 below.

11.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

The Construction Environmental Management Plan by OCSC (March 2023) submitted with the planning application states that perimeter hoarding will be erected around the site and identifies additional site management measures which would mitigate the visual effects of construction to some extent. However, some negative landscape and visual effects are unavoidable in the construction process, which is inherently and unavoidable unsightly.

Given the importance of the existing trees to be retained on site, particular attention should be paid during construction to the tree protection and monitoring measures recommended in the Tree Protection Strategy, Appendix III of the Arboricultural Assessment, Arboricultural Impact and Tree Protection Report prepared by CMK Horticulture and Arboriculture Ltd.

No additional measures are proposed for the mitigation of landscape and visual impacts during construction.

proposed for the mitigation of landscape and visual impacts during construction.

Operational Phase

The proposed development is the culmination of a considered design process, weighing the development opportunity of the strategic land resource and certain characteristics of the context (e.g. the mixed use urban character of Richmond Road, the buffering effect of the open space to the west of the site, etc.) against the sensitivities which also exist (e.g. the lower density residential neighbourhoods to the north and east). The proposal takes account of and responds to its varied context.

The proposal was amended following receipt of the DCC LRD Opinion, which requested justification of the proposed building heights specifically in relation to sensitive receptors in the receiving environment. These receptors are the neighbouring residential estates to the north. To reduce/mitigate the visual effect of the development on these receptors (e.g. Viewpoints 21-25), the height of Block F has been reduced by one floor, from 10 no. to nine storeys.

It is unavoidable that a high density development on a site of close to 9 ha in a mixed but predominantly low density urban area will have some significant effects on the landscape and views. The assessment has found that the majority of the receiving environment would experience positive or neutral effects. Only at two locations, i.e. Viewpoint 23 (Grace Park Close) and Viewpoint 25 (Griffith Court) would a negative visual effect be experienced. These effects are already mitigated by measures embedded in the design, and could only be excluded completely by a substantial reduction in scale of several of the proposed buildings.

Given (a) the weight of positive effects identified for the rest of the receiving environment, (b) the demonstrably high urban design and architectural quality of the proposal and its potential placemaking effects (as indicated by the analysis in Table 11.8 of the main LVIA chapter*), (c) the site’s strategic urban location, and (d) the policy of compact growth, such a reduction in scale is not recommended. Therefore no mitigation measures are recommended additional to those already incorporated in the design.

* To inform the classification of the effects as positive, neutral or negative, the proposal has been assessed against the relevant criteria in Table 3 of Appendix 3 of the DCDP 2022. The assessment found that overall, the proposed development is of a high urban design and architectural quality.

11.4.1.1 Positive Landscape Effects

An important part of the receiving environment, and certain key characteristics of the landscape, would experience positive effects.

- The most significant would be the effects on the Richmond Road corridor, in which the urban character would be strengthened and the quality/condition of the built environment substantially enhanced. The introduction of the new plaza at the site entrance, activated by the retail frontage to Block A, would be a significant positive addition to the public realm. Both of the protected structures visible from the street (Richmond House and Brooklawn House) would be restored and their immediate environs enhanced, with benefit to the historic buildings themselves and the areas from which they are visible.

- Another significant positive effect would be the re-purposing of the historic buildings of St Vincent's Hospital as a hub of community facilities. This includes (a) a community hall in the chapel, (b) a creche in the former convent, (c) a café, (d) community library and (e) co-working facility in the former school, and (f) a gym in the former hospital buildings. This concentration of community uses in the restored historic buildings would create a new 'place' of high environmental quality and strong identity, benefitting the new neighbourhood and the wider landscape and community.

- The proposed 'central park', comprised of a series of interconnected lawn areas framed by planting - and enclosed/defined by the new apartments and restored historic buildings - would add a significant new green infrastructure asset to the urban landscape. A key characteristic of this space is its connectivity to the external public realm, making the park available to the public as both open space and movement corridor.

- This would contribute to the development's significant positive impact on the permeability of the landscape. Currently, the large site is closed off from the public realm and is a major impediment to (efficient) pedestrian and cycle movement in the area. The opening of entrances in the north and south boundaries, coupled with the provision of walking and cycling routes through linear open spaces crossing the site, would substantially improve permeability in the area.

- Another positive landscape effect would be the substantial increase in tree cover on the site despite the introduction of the new buildings. The Arboricultural Impact Assessment identified 277 no. trees on the site. The proposed development would require the removal of 122 no. trees (in addition to 17 no. trees which were deemed unsuitable for retention/requiring removal). A total of 420 no. new trees are proposed to be planted. There would thus be a significant net gain in tree cover on the site.

11.4.1.2 Neutral Landscape Effects

In addition to the positive effects, certain parts of the receiving environment are predicted to experience significant but neutral landscape effects. This includes the Ierne Social and Sports Club and Dublin Port Stadium to the west of the site. The proposed Blocks B, C and particularly DE would be prominent additions to views from these sports grounds, increasing their built/visual enclosure and shifting their character towards an urban condition.

Design measures have been taken to ensure that the buildings are not unsightly, including (a) the disaggregated form (with recesses and steps in height to reduce the massing), (b) highly articulated facades and a high quality materials palette, (c) the texture and natural colours of the brick, and (d) the rooftop gardens. These measures would combine with aspects of the context (the open space of the golf course and football ground and the existing trees) to integrate the building (Block DE) into the landscape despite its large scale.

However, it must be assumed that the receptors of this change (Ierne club members/ pitch-and-putt players) appreciate the unenclosed green environs of the facility, and they are likely to perceive the effects of the development as negative. While that response is natural and valid, it must also be recognised that (a) the golf course is an urban facility, close to the center of the city), (b) it is a substantial open space in itself (generating its own landscape/visual amenity), and (c) it is enjoyed by a small cohort of the community.

The users' (assumed) preference for keeping the adjacent lands (the site) free from development, or developed at lower intensity, must be weighed against considerations such as (a) compact growth policy, and (b) that the golf course creates a favourable context and amenity potential for the site as a residential land use asset.

If the lands are developed, the golf course and football ground will function as a spatial buffer for the large buildings, and as a visual amenity for the many new residents overlooking the course and pitch. These benefits counterbalance the negative effect on visual amenity that may be felt by the golf course users. Views/visual amenity experienced at the Ierne Club will be changed, but its value as a landscape and visual resource will be heightened. Hence the classification of the effects as significant but neutral.

11.4.1.3 Negative Landscape Effects

Only at two locations, i.e. Viewpoint 23 (Grace Park Close) and Viewpoint 25 (Griffith Court) have negative visual effects been predicted. In these areas/views the occupation/infilling of the site by built form, the screening of landscape features currently visible due to the north field's vacant condition (e.g. St Vincent's Hospital, Croke Park and the distant Dublin Mountains), and the general increase in built/visual enclosure would constitute a loss of visual amenity.

It must be recognised that those features that would be screened are visible only because the site is largely unused/undeveloped. In the central urban location this scenario is unsustainable and unrealistic to maintain. Any sustainable residential development on the site will result in some loss of visual amenity to the nearest parts of the neighbouring estates.

The photomontages show that the proposal seeks to limit and compensate for the loss of visual amenity through (a) responsive design (the positioning of the buildings away from the boundary, the stepping down in height towards the boundary, and the façade design and materials), and (b) the provision of open space continuity and generous screening vegetation.

It should also be noted that the Grace Park Wood houses are all aligned east-west. Therefore, the principle views from the houses (from front and rear windows, and rear gardens) are to the east or west, and not towards the site. The effects of the development will thus be experienced mainly on the estate roads and open space (as illustrated by the photomontages) and not from within the homes.

The exception to this is the Grace Park Wood apartment building, in which the apartments and balconies face the site - Block DE specifically. In recognition of this, Block DE is set back from the boundary behind an area of open space (part of the central park). This means that the new building would be 68.7m distant from the Grace Park Wood balconies. Therefore, while Block DE would be a prominent addition to views, it would not be overbearing. Additionally, the large number of new trees in the open space between the buildings would soften Block DE’s presence.

11.4.1.4 Summary

Considering (a) the weight of positive landscape effects identified for a large part of the receiving environment, (b) the demonstrably high urban design, architectural and landscape design quality of the proposal, (c) the consideration of the landscape context and sensitivities evident in the embedded mitigation, (d) the site’s strategic urban location, and (d) the national policy of compact growth, the landscape effects can be classified positive overall.

11.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

Of the projects identified for consideration of potential cumulative effects the most relevant to this assessment are (1) the proposed Richmond Road SHD scheme (ABP Ref. 312352-21) and (2) the proposed Leydens LRD scheme (LRD6006/23-S3).

The Leydens LRD site is across Richmond Road from the subject site and the Richmond Road SHD site lies just beyond that (approximately 70m from the subject site). The two schemes are conceived as phases 1 and 2 of a new high density neighbourhood on part of the former industrial/commercial zone between Richmond Road and the Tolka River. Between them they are comprised of four apartment blocks of up to ten storeys (with two blocks – Leydens B and C - connected by a shared ground floor/undercroft). The buildings include a significant quantity of retail, community and cultural uses in the ground floors.

To inform consideration of potential in combination effects, massing models of the Richmond Road SHD and Leydens LRD schemes were inserted into the photomontages produced for this assessment. Nine of the 33 no. views (Viewpoints nos. 03, 06, 07, 10, 16, 19, 31, 32, 33) would be affected by ‘in combination’ effects. ‘Cumulative views’ for these viewpoints have been included in the book of photomontages provided under separate cover (Volume 3 of the EIAR).

The area most significantly affected by cumulative effects would be the stretch of Richmond Road approaching and passing by the site from both sides (east and west). People travelling along the road would pass in between two new high density residential developments, and together they would change the character of views in this area, and the townscape character of the Richmond Road corridor. This area includes a row of houses opposite the Leydens LRD site and just to the west of the existing Crannog day care hospital (where the entrance plaza in front of Block A is proposed as part of the subject application). The following should be noted:

- The proposed development’s contribution to this change would be much less than the Leydens LRD scheme, which has buildings positioned along the street frontage. In contrast, the proposed Block A is set well back from the street behind a new plaza. Additionally, Block A is seven storeys tall (stepping up from a two storey retail volume fronting the plaza), whereas the Leydens LRD buildings are up to nine storeys along the street front.

- The change is not inappropriate. For well over 100 years Richmond Road has been a mixed use street of urban character, fronted by a wide variety of building typologies, scale and architecture. The further evolution of the Richmond Road corridor to incorporate 21st century high density development is appropriate given the street's history and character and its central urban location.

The other views (in addition to views along Richmond Road) potentially materially affected by cumulative impacts are the views from the south, i.e. Viewpoints 32 and 33 on Distillery Road. In these views the Leydens LRD site lies between the viewpoint and the subject site, and the Leydens LRD Blocks B and C would screen the proposed development from view. The Leydens LRD would effectively negate the proposed development's visual impact on these viewpoints.

12.0 ARCHAEOLOGY AND CULTURAL HERITAGE

12.1 INTRODUCTION

IAC Archaeology (IAC) has prepared this chapter to assess the effect, if any, on the archaeological and cultural heritage resource of the proposed St Vincents Hospital Fairview Redevelopment, Dublin 3

12.2 BASELINE ENVIRONMENT

There is one recorded monument within the proposed development area, the site of a castle (DU018-017). The zone of notification for this monument encloses a large portion of the southern extent of the proposed development area. There are six additional archaeological sites within 250m of the proposed development. The zone of archaeological potential associated with Dublin City is located c. 1.1km southwest of the proposed development area.

A review of the Excavations Bulletin (1970–2022) and the available excavation reports have revealed that a programme of archaeological monitoring was previously carried out in the north of the proposed development area in advance of the construction of the Fairview Community Unit. Archaeological monitoring was carried out for all topsoil stripping of the site access and compound as well as the larger development area. Nothing of archaeological significance was revealed as part of the topsoil stripping for the site compound.

A geophysical survey was undertaken across the accessible portions of the site in May 2021. The four surveyed areas were dominated by modern magnetic disturbance and no anomalies of archaeological origin could be identified. It should be noted that this does not indicate that no archaeological features are present within the site, as it is possible that the high levels of magnetic disturbance could mask more subtle responses. However, extensive archaeological monitoring of site investigation works was carried out within the proposed development area in April and May 2021. The works were carried out by IAC Archaeology and nothing of archaeological potential was discovered during this investigation.

Analysis of cartographic sources depict the proposed development area through a transformation from a demesne landscape to institutional use. The development of St. Vincent's Hospital can be traced through historic mapping. The historic maps also testify to the former presence of Richmond Castle (DU018-017) within the site, which is noted on Taylor's map of 1816. The historic OS maps also show the extent of the burial ground that is partially within the proposed development, which is the burial place of nuns from a number of different orders, including the Daughters of Charity of St. Vincent de Paul, who were involved in the foundation of St. Vincent's Asylum.

A field inspection, in conjunction with the paper survey, identified a number of sites of potential cultural heritage value, both within the boundaries of the proposed development and in the immediate surroundings. Of particular note is section of the southern demesne wall of Drumcondra Castle which survives, albeit it in a denuded state, in the western half of the proposed development area.

12.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

12.3.1.1 Archaeology

The recorded monument (DU018-017), Richmond Castle, does not possess any upstanding remains and is occupied by Richmond House, which will be retained as part of the proposed development. The zone of notification for this monument includes a portion of the southern extent of the proposed development area. There is a potential for previously unknown features associated with the castle to survive below ground within the relatively undisturbed green spaces in the southern portion of the site. In the absence of mitigation, there may be a direct moderate to very significant negative impact on surviving archaeological remains caused by ground works associated with the proposed development in this area.

Geophysical survey and monitoring of site investigation works within the development area did not result in the identification of any archaeological remains. It does remains possible that archaeological remains may survive within the relatively undisturbed areas of the proposed development. These may include features associated with the former demesne landscapes and gardens, as well as earlier features. The site of the gravel pit is also located partially within the proposed development area, which is listed in the Dublin City Industrial Heritage Record (DCIHR). This feature has since been backfilled. In the absence of mitigation, there may be a direct moderate to very significant negative impact on surviving archaeological remains caused by ground works associated with the proposed development in this area.

12.3.1.2 Cultural Heritage

CH01 is a section of the southern demesne wall associated with Drumcondra Castle. In the absence of mitigation, there will be a direct moderate negative impact on this feature caused by its removal prior to the construction of new buildings in the western half of the proposed development.

CH02 is the remains of a ruined outbuilding once associated with Richmond House. The ruins will be demolished as part of the proposed development, representing a direct negative moderate impact.

The structures identified as CH03, incorporating earlier fabric, will be retained as part of the proposed development and as such will not be impacted upon at construction stage.

CH06 is the site of the former Ruth Villa. The linear service route of the proposed development runs partially through this site. In the absence of mitigation, there may be a direct moderate negative impact on any surviving below ground remains caused by ground works associated with the development.

CH08 comprises a damaged statue located to the rear (north) of Brocklawn Lodge. The status will be retained in its currently position and will not be impacted upon by the construction of the proposed development.

CH10 comprises of the site of a pond, which has since been backfilled. The feature was located in proposed green space and will not be impacted upon by the proposed development.

The eastern portion of the original demesne landscape associated with Richmond House will be directly impacted upon by the proposed development, although much of the northern part of the demesne has already been development as part of the existing hospital complex. This represents a moderate negative impact. The western part of the landscape, which retains its mature demesne planting, will be retained as open green space.

The original southeast portion of demesne landscape associated with Drumcondra Castle will be directly impact by the construction of the proposed development. This part of the landscape is no longer directly associated with Drumcondra Castle, nor under the same ownership and has lost its original designed elements. Furthermore, the demesne to the immediate north of the proposed development area has been subject to residential development. Construction will result in a direct slight negative impact.

Operational Phase

12.3.1.3 Archaeology

No negative impacts during operation are predicted upon the archaeological resource.

12.3.1.4 Cultural Heritage

No negative operational impacts are predicted upon the CH sites retained within the proposed development area.

A direct negative moderate impact will occur during the operation of the development on the demesne landscape associated with Richmond House.

No operational impacts are predicted on the original demesne landscape associated with Drumcondra Castle, as this area is detached from the principal structure and residential development has occurred to the immediate north of the proposed development area (within the former demesne).

With regards to CH09 (Dublin Port Stadium and Ierne Sports and Social Club) CH04 (terraced housing to the east), slight indirect negative impacts are possible as a result of the alteration to setting arising from the operation of the proposed development. No operational impacts are predicted in relation to CH07.

12.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

12.4.1.1 Archaeology

Prior to the commencement of construction, a programme of archaeological testing will be carried out across all greenfield areas to be affected by the proposed development. This includes any ground disturbances proposed within the zone of notification associated with the recorded caste site (DU018-017). Archaeological testing will be carried out under licence from the National Monuments Service of the Department of Housing, Local Government and Heritage (DoHLGH) and in consultation with the Dublin City Archaeologist. If archaeological features or deposits are identified, further mitigation will be required, such as preservation by record or in situ. Any further mitigation will require agreement from the DoHLGH and the Dublin City Archaeologist.

12.4.1.2 Cultural Heritage

A full written and photographic record will be made of the remains of Drumcondra Castle demesne wall CH01 and the ruins of an outbuilding (CH02), prior to commencement of construction.

At CH06, the excavation of the proposed service trench will be subject to monitoring. This will be carried out by a suitably qualified archaeologist. If any features of archaeological potential are identified, further consultation will be required with the National Monuments Service of the DoHLGH, in consultation with the Dublin City Archaeologist.

A written and photographic record will be made of the existing Richmond House demesne and section of the Drumcondra Castle demesne to be affected by the construction of the proposed development.

Operational Phase

12.4.1.3 Archaeology

No mitigation is required for the archaeological resource at the operational phase of the development.

12.4.1.4 Cultural Heritage

As a record of Richmond House demesne will be made prior to the development going ahead, no additional mitigation is required as part of the operation of the proposed development.

It is not possible to mitigate the slight indirect negative impacts on CH04 to the east and CH09 to the west of the proposed development area.

12.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

A number of proposed and permitted developments, which have yet to be constructed and therefore do not form part of the receiving environment, have been reviewed in order to ascertain the potential for cumulative impacts upon the archaeological and cultural heritage resource.

No negative cumulative impacts upon the archaeological or cultural heritage resource have been identified, when considering the proposed development, the impact assessment and mitigation measures and the surrounding permitted and proposed developments.

13.0 ARCHITECTURAL HERITAGE

13.1 INTRODUCTION

Carrig Conservation assessed the architectural and historic environment impacts potentially arising from the proposed development on the lands of St. Vincent's Hospital complex, Fairview, Dublin 3.

This analysis assesses the buildings and other features of heritage significance, appraises the relationships between heritage assets and their settings, and assesses potential impacts from the site's proposed development for their respective fabric, character, and settings including the exceptional circumstances applicable to the project which justify, in accordance with Section 57(10) of the Planning and Development Act 2000 (as amended), the proposed demolition of certain curtilage structures and features of protected structure.

13.2 BASELINE ENVIRONMENT

The proposed development comprises the construction of a new mental health facility, the provision of apartment blocks, and the conservation and adaptation of the existing historic buildings. The proposed works will provide a much-needed purpose-built hospital for St Vincent's patients which will improve upon the existing facilities, while also creating a modern functional use for the historic structures, thereby ensuring their conservation and maintenance for future generations.

13.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

The proposed works to the protected parts of the hospital structure, Brooklawn, Richmond House, Rose Cottage and the Laundry will have a potential impact as it will alter the historic fabric resulting in loss of some heritage value. The proposed demolition of the westernmost range of the hospital complex, St. Teresa's Ward, and a number of later additions to the protected structures will represent a significant loss of historic fabric and will alter the current form of the hospital complex, and it is considered to be a significant and negative impact. The conservation and maintenance will extend the lifespans of the historic fabric and it is considered to be a positive impact.

Operational Phase

The completion of the development the impact of the new development and refurbishment works on the existing historic buildings and their landscape setting will have some potential impacts. The new mental health facility proposed to sit into the garden landscape to the south of the current hospital will represent a visual impact on the protected structures occupying a prominent location in the historic setting. The scale of the proposed residential buildings will also have a visual impact on the setting of the protected structures. The provision of a new fit-for-purpose hospital facility represents and the provision of high-quality residential accommodation will ensure sustainable use of the site which is a significant public benefit and it is considered to be a positive impact.

13.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

The conservation and refurbishment of the designated and non-designated structures on the site will represent and significant public and cultural benefit. The protected parts of the hospital structure, Brooklawn, Richmond House, Rose Cottage and the Laundry will be provided with sustainable and viable future uses and their fabric will be conserved and maintained, extending their lifespans. The alterations to the retained fabric and resulting loss of heritage value will be mitigated through quality conservation works and sensitive detailing. This impact will also be mitigated though the use of suitably qualified heritage contractors and in accordance with best practice methodologies.

These structures are considered to be within the curtilage of the protected structures, but their loss is considered to be balanced by the overall public benefit of the conservation of the protected structures, the detailed archival recording of structures proposed for demolition and the provision of new high quality designed accommodation and mental health facilities.

Operational Phase

The impacts of the new mental health facility will be balanced by good design whereby the building roofline sits below the historic buildings allowing some long views towards the historic complex. Its landscaping strategy will be integrated into the wider historic landscape and setting.

The new buildings will be set back from the range of protected structures allowing them to be considered as a whole within a new linear public landscape which will connect the site on an east-west axis. The loss of value resulting from the demolition of heritage structures is mitigated against through archival recording, the provision of high-quality residential accommodation and the facilitation of a viable redevelopment plan for the site.

Any harm caused to the historic setting will be mitigated against by the massing and landscaping strategies which will graduate the transition from historic garden to new residential infill parkland.

13.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

Construction Phase

Hoarding and other protective measures will be provided as required during the works to mitigate against potential harm to the protected structures represented by environmental changes arising from the construction works.

The retained features of the historic landscape will also be protected during the construction phase – this is outlined in more detail in the Arborist and Landscape Architects reports.

All proposed conservation works to the protected structures will be undertaken by suitably qualified heritage contractors and in accordance with best practice methodologies.

Operational Phase

On completion of the development the cumulative impact of the new development and refurbishment works on the existing historic buildings and their landscape setting will be significant and largely positive despite the loss of elements of the historic and protected structures.

Negative impacts on the fabric, character and setting of this historic complex is outweighed by the significant public benefit of the provision of modern fit-for-purpose hospital facilities, ancillary facilities to the residential component, central public park serving the wider community and new modern apartments – all of which are urgently required. The development allows St. Vincent's Hospital Fairview to continue operating from this location where it is embedded into the social, cultural and historical fabric of the city.

The landscaping strategy in this area seeks to retain as many of the mature tress as possible, providing a buffer between the new and the historic buildings, and retaining the historic landscape character to the west of the p

14.0 MATERIAL ASSETS TRAFFIC AND TRANSPORTATION

14.1 INTRODUCTION

This chapter assesses the potential impact of the proposed development in terms of traffic and transportation. This chapter aims to provide a detailed and conservative assessment of the potential impact of the proposed development on the operation of the links and junctions which form the local road network.

14.2 BASELINE ENVIRONMENT

The receiving environment is urban in nature. The existing primary artery through the study area is Richmond Road which is just over a kilometre long and parallels the course of the River Tolka. The road connects Drumcondra Road and Grace Park Avenue on the western end with Fairview Strand and the Luke Kelly Bridge on the eastern end. The access to the development lands will be directly on Richmond Road, through the modification of two existing junctions.

Outside of the study area, development-generated traffic will dissipate considerably and so is expected to have a negligible impact on the operation of the wider network. While there is substantial variation in the type of traffic travelling on the links locally, during peak travel hours, they would primarily be expected to carry commuter traffic.

14.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

The peak traffic hours have been defined as 08:45-09:45 and 18:00-19:00 based on the results of the traffic surveys combined with the trip generation estimates for the proposed development. The normal permitted construction working hours are 08:00 to 19:00 on a weekday. As a result, staff travelling in private vehicles will arrive and depart the site outside of the peak traffic hours.

It is considered that the impact of the construction phase on Traffic and Transport will be **likely** and **adverse** but **significant** and **short-term**.

Operational Phase

The analysed junctions indicate that sufficient excess capacity is available to accommodate the development trips. One junction showed that during the Design Year, there could potentially be some capacity issues, although it should be noted that it was shown that this will not be caused by the development. Given that the development is not the cause, and the assumed growth rates are considered conservative, especially considering the relatively unknown impact on trip patterns in future caused by the pandemic, it is not recommended that any mitigation measures be employed at this stage. The link capacities for the study area road network will continue to operate within acceptable limits for all scenarios assessed.

It is considered that the impact of the operational phase on Traffic and Transport will be **likely**, **neutral**, **slight,** and **long-term.**

14.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

The following mitigation measures will be employed during the Construction Phase:

- An appropriately limited amount of on-site parking will be provided to encourage staff to car share and travel by the numerous public transport options serving the locality. However, the provision will be adequate to prevent overspill parking in the local area;
- Heavy vehicles will facilitate the movement of materials to and from the site including excavated materials and deliveries. Export of excavated material from the site will be minimised as much as possible and waste will be reduced through the reuse/recycling of materials where possible. Furthermore, heavy vehicles travelling to and from the site will be spread across the course of the working day with efforts made to limit the number of arrivals and departures during the peak traffic hours where possible;
- The majority of contractor vehicles are expected to arrive and depart just before and after the site opening and closing hours respectively, with a small number, spread across the course of the day;
- The peak hour vehicle movements for the construction phase are notably lower than that predicted for the operational stage.
- Mitigation measures proposed include the provision and implementation of a Construction & Environmental Management Plan.

It is considered that the impact of the construction phase with mitigation measures on Traffic and Transport will be **likely** and **adverse** but **moderate** and **short-term**.

Operational Phase

The following mitigation measures will be employed during the Operational Phase:

- An appropriate number of car parking spaces;
- Car-sharing spaces;
- An appropriate number of bicycle parking spaces;
- A Mobility Management Plan (MMP);
- Cargo & electric bike spaces;
- An appropriate communication and tenant management system;
- Parking management systems;
- Motorcycle parking spaces; and
- EV parking spaces.

Provided the mitigation measures are implemented and achieved, the predicted effect of the operational phase on Traffic and Transport will be **likely**, **positive**, **slight,** and **long-term**.

14.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

With respect to permitted developments which has yet to be completed, several developments have been investigated. These developments have either already been constructed or are awaiting approval. The only development which has been granted approval and is yet to be constructed, of the developments investigated, is SHD ABP Ref.: 310860-21 - Clonliffe Road Holy Cross College, Clonliffe Road, Dublin 3 and Drumcondra Road Lower, Drumcondra, Dublin 9. However, the location of this development is such that it is not anticipated to have an impact on the area affected by the development, ie Richmond Road. Any potential impact will be small and is accounted for in the background traffic growth.

15.0 MATERIAL ASSETS WASTE

15.1 INTRODUCTION

AWN Consulting undertook the waste management assessment. The receiving environment is largely defined by Dublin Council (DCC) as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

15.2 BASELINE ENVIRONMENT

There will be waste materials generated from the demolition and refurbishment of the existing buildings onsite, boundary treatments on site, and associated site clearance works. There is currently waste generated at the proposed development site from the existing development.

15.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

Construction Phase

During the demolition and construction phase the mismanagement of waste, including the inadequate storage of waste, inadequate handling of hazardous waste, the use of inappropriate or insufficient segregation techniques, and the use of non-permitted waste contractors, would likely lead to negative impacts such as waste unnecessarily being diverted to landfill, litter pollution which may lead to vermin, runoff pollution from waste, fly tipping and illegal dumping of waste. In the absence of mitigation, the effect on the local and regional environment is likely to be **long-term, significant** and **negative**.

Operational Phase

The potential impacts on the environment during the operational phase of the proposed development would be caused by improper, or lack of waste management. In the absence of mitigation, the effect on the local and regional environment is likely to be ***long-term, significant*** *and* ***negative***.

15.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

During the demolition and construction phase, typical construction waste materials will be generated which will be source segregated on-site into appropriate skips/containers, within designated waste storage areas and removed from site by suitably permitted waste contractors as required, to authorised waste facilities, by appropriately licensed waste contractors. While the accurate keeping of waste records will be undertaken. All waste leaving the site will be recorded and copies of relevant documentation maintained.

This will all be overseen by the main contractor, who will appoint a construction phase Resource Manager to ensure effective management of waste during the excavation and construction works. All construction staff will be provided with training regarding the waste management procedures on site.

A carefully planned approach to waste management and adherence to the site-specific Resource and Waste Management Plan (Appendix 15.1) and chapter 15 during the construction phase, this will ensure that the effect on the environment will be ***short-term, neutral*** and ***imperceptible.***

Operational Phase

During the operational phase, waste will be generated by the residents, tenants, operators and staff. Dedicated waste storage areas (WSAs) have been allocated throughout the development for the use of staff. The WSAs have been appropriately sized to accommodate the estimated waste arisings from the development. The WSAs 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 off-site for re-use, recycling, recovery and/or disposal.

An Operational Waste Management Plan (OWMP) or Strategy will has been prepared and is included as Appendix 15.2. The OWMP provides a strategy for segregation (at source), storage and collection of wastes generated within the development during the operational phase including o Organic waste; Dry Mixed Recyclables, Mixed Non-Recyclable Waste, Glass, Waste electrical and electronic equipment (WEEE) including computers, printers and other ICT equipment, Hazardous waste (including Medical and Biological), Cooking oil, Cleaning chemicals (paints, adhesives, resins, detergents, etc.), Furniture (and from time-to-time other bulky waste) and Abandoned bicycles.

This Plan/Stratergy will be supplemented, as required, by the operator with any new information on waste segregation, storage, reuse and recycling initiatives that are subsequently introduced.

Provided the mitigation measures outlined in the OWMP (appendix 15.2) and in chapter 15 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.***

15.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

Construction Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase. Due to the high number of waste contractors in the DCC region, as provided from the National Waste Collection Permit Office and the EPA, there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would be generated by all of the developments.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the cumulative effect will be ***short-term, imperceptible*** and ***neutral.***

Operational Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place. All of the current and potential developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate any potential cumulative impacts associated with waste generation and waste management. As such the cumulative effect will be a ***long-term, imperceptible*** and ***neutral.***

16.0 MATERIAL ASSETS UTILITIES

16.1 INTRODUCTION

This chapter assesses ownership and access, built services and infrastructure, which have not already been addressed elsewhere in this EIA Report. The associated built services and infrastructure in the vicinity of the site are summarised in the following sections; further detail is provided within the planning application documentation.

16.2 BASELINE ENVIRONMENT

During construction of the initial phases of the proposed development, construction traffic will access the site via Richmond Road (Crannóg) and exit via same. There are existing 10 / 20 kV underground cables and 400 / 230 V overhead LV lines surrounding the site. There is a low-pressure natural gas distribution pipeline which is present in the site, which serves the existing St Vincent's Hospital building. An existing 525 mm concrete storm water sewer within the site boundary flows in the southerly direction towards Richmond Road before discharging to the 1350 mm sewer on Richmond Road. Irish Water records a 300 mm foul sewer within the site boundary with a 900 mm concrete foul sewer in Richmond Road. Irish Water records show an existing 3- and 5-inch cast iron watermain within the site and a 6-inch watermain on Richmond Road. There is an extensive EIR network connection present in ground ducts in the vicinity of the development. There appears to be existing Virgin Media overhead lines traversing the site to the existing hospital.

16.3 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

<u>Construction Phase</u>

During the construction phase there are potential short-term nuisances such as dust, noise, as well as the potential for pollution of groundwater or the existing drainage ditches associated with demolition, excavations and construction. In addition access for construction traffic has the potential to cause delays along access road if not adequately mitigated. The potential impact associated with land use and property for the construction phase will be ***localised, negative, significant*** and ***short term*.**

A temporary connection to an existing ESB substation will be used for the construction phase of the proposed development. The power requirements for the construction phase will be relatively minor and therefore the power demand for the construction phase will have a ***neutral, short-term*** and ***imperceptible*** impact.

Surface water run-off during the construction phase may contain increased silt levels or otherwise become polluted from construction activities. The potential impacts associated with surface water run-off from the proposed development during the construction phase without mitigation measures is ***negative, not significant*** and ***short-term.***

The existing foul water and watermains connections previously utilised by buildings on the site will be used for all temporary welfare facilities during construction. It is concluded the potential impacts on foul drainage infrastructure and water supply from the proposed development during the construction phase are ***short-term, neutral*** and ***imperceptible*.**

Telecommunications including fibre required during the construction phase will be provided via mobile data, or a wireless connection where available. It is concluded the potential impacts on telecommunications from the proposed development during the construction phase are ***short-term, neutral*** and ***imperceptible*****.**

Operational Phase

During the operational phase the Proposed Development is not anticipated to generated any significant air (including odour), noise or water emissions during normal operating conditions. The potential impact associated with land use and property for the operational phase will be a ***localised, neutral, not significant*** and ***long term*****.**

Initial contact has been made with both the ESB and Gas Networks Ireland , and there are currently no issues with the provision of the required power to the proposed development, as such there is a ***long-term, neutral*** and ***not significant*** effect on power supply.

Surface water runoff from roads, car parking areas, and the proposed petrol station can potentially contain elevated levels of contaminants such as hydrocarbons. In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water infrastructure are ***negative***, ***not significant,*** and ***long-term***.

A PCE application form has been submitted to Irish Water (IW). IW have confirmed that the connection of the Hospital to the existing wastewater network is currently feasible prior to any works. Connection of the remainder of the Proposed Development is also feasible subject to Storm Sewer Separation works. Connection to the existing watermains network is currently feasible subject to upgrade works to increase the capacity of the Irish Water network. There is a ***long-term, neutral, not significant*** effect on foul water and water supply infrastructure during the operational phase of the proposed development.

The Telecommunications Report – Section 3.2 of the Building Height Guidelines (2018) undertaken by ISM concludes that the proposal being made by the Applicant within its submission to DCC allows for the retention of important Telecommunication Channels. As such there is a ***long-term, neutral*** and ***not significant*** effect on telecommunications infrastructure during operation of the proposed development.

16.4 MITIGATION AND RESIDUAL EFFECTS (POST-MITIGATION)

Construction Phase

Ongoing consultation with Gas Networks Ireland, DCC, Irish Water, EirGrid and ESB Networks and other relevant service providers within the locality will be carried out. This will ensure compliance with their guidelines and any requirements they may have, minimising the risk of significant disruption of services to local and business community.

The works contractor will be obliged to put best practice measures in place to ensure that there are no interruptions to the power supply, foul drainage infrastructure and water supply, unless this has been agreed in advance.

Strict quality control measures will be undertaken while laying pipes to minimise or eradicate infiltration and ex-filtration.

As outlined in the CEMP (OCSC, 2022), mitigation measures with regard to surface water are as follows:

- Soil will be immediately loaded into a removal truck and sent offsite to avoid the possibility of any leachate, should the soil remain on-site in soil heaps;
- In addition, should any water be encountered during the excavation operations, this will be pumped directly to the wastewater system to avoid the water entering the surface water network;
- Stockpiling of contaminated materials will be avoided where possible;
- Storage tanks / container facilities will have appropriate bunding within the designated area; and
- Adequate drainage will be designed and installed during construction work to manage surface water runoff and prevent contaminates entering the surface water system.

The implementation measures within each chapter and detailed in Section 14.6.1 will ensure that the residual impacts of the proposed development on material assets will be ***neutral, imperceptible,*** and ***short term*** for the construction phase.

Operational Phase

No mitigation measures are required in relation to power supply, foul drainage or water supply infrastructure, as consultation with IW and the ESB has confirmed sufficient capacity in the existing networks, subject to upgrades.

The proposed development stormwater drainage network design includes sustainable drainage systems (SuDS) these measures by design ensure the stormwater leaving the site is of a suitable quality. A Class 1 bypass fuel separator is to be provided immediately upstream of the final manhole discharging from site prior to surface water discharge to the public surface water network.

To mitigate the impact the proposed development will have on the existing poor mobile phone signal in the area and provide both the occupants of the proposed development and the local area with adequate voice and data services to meet modern demands a total of 12 no. support poles and associated telecommunications equipment, cabinets and screening have been proposed.

The implementation of mitigation measures within each chapter will ensure that the residual impacts on the material assets during the operational phase will be ***neutral, not significant*** and ***long term*****.**

16.5 CUMULATIVE IMPACT OF THE PROPOSED DEVELOPMENT

Construction Phase

The proposed development and other surrounding development will require site clearance, excavations and levelling which will generate localised requirement for soil removal and/or import, power and water supply and wastewater discharge.

However, provided standard mitigation measures set out in the EIA Reports for these developments are adhered to or where EIA does not apply, provided that planning conditions are implemented, the cumulative impact will be ***short-term, negative*** and ***not significant.***

Operational Phase

The proposed development and all permitted developments considered are required to engage with DCC, Irish Water and ESB to ensure that there is sufficient capacity to cater for the increase in water and wastewater and electricity requirements. Based on known current and known future developments there is adequate capacity of supply available within the local environs. In developing long term plans for security of supply, these National Authorities for water and energy supply are required to develop resources in compliance with sustainable environmental planning.

The cumulative impacts associated with other material assets will be ***long-term negative*** and ***not significant*.**

17.0 INTERACTIONS

In accordance with the guidance not only are the individual significant impacts required to be considered when assessing the impact of a development on the environment, but so must the interrelationships between these factors be identified and assessed.

Chapter 17 the EIA report discusses the potential interactions and relationships between the environmental factors considered in the previous chapters, during both the demolition/construction and operational phases of the proposed development Table 17.1 of Chapter 17 presents a summary of the interactions.

The chapter assesses the interactions between human beings, fauna and flora population and human health; biodiversity; land, soil, water, air, climate, and landscape; and material assets, cultural heritage, and the landscape. The chapter summarises and assesses the identified interactions, taking into account the design and mitigation measures set out in the previous chapters.

The proposed development will create significant residential capacity which will have a positive benefit to the area in which the development is located.

Overall, the interactions between the proposed development and the various environmental factors are generally considered to be not significant or negative but short-term in duration. Mitigation measures are proposed throughout this EIA Report to minimise any potentially negative impacts.

CHAPTER 1

INTRODUCTION

CHAPTER 1 CONTENTS

1.0 INTRODUCTION

1.1 PROPOSED DEVELOPMENT

This Environmental Impact Assessment (EIA) Report has been prepared on behalf of St. Vincent's Hospital Fairview (herein referred as 'the Applicant') who intend to apply for planning permission development at the site of St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The proposed development site (c. 9.46 hectares) is located at and surrounding St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3.

In this chapter of the EIA Report, the proposed development is introduced, the Environmental Impact Assessment (EIA) process is summarised, the methodology used for preparing the EIA Report is described, the competency of the EIA Report authors is outlined, the consultation activities conducted up to this point are outlined, as well as details of any additional environmental related reports and/or assessments required under Legalisation or EU Directives other than the EIA Directive (Directive 2011/92/EU as amended by 2014/52/EU).

1.1.1 Site Location and Proposed Development

The site contains protected structures under RPS Ref.: 2032 (St. Vincent's Hospital old house/convent, including plastered extension to the west, including entrance porch to convent. Two-storey over garden level brick building (with granite steps and entrance door surround) on south front. Four-storey pedimented brick pavilion, with stone trimmings, to the west (including granite balustrading at parapet level). Railings in front of convent building on north side), RPS Ref.: 8788 (Richmond House, including former chapel and courtyard with outbuildings) and RPS Ref.: 8789 (Brooklawn, a 'House', including red brick wall and two gate piers). The application site includes an area of the public road / footpaths (extending for approximately 0.8km) to facilitate service connections via Griffith Court, Philipsburgh Avenue and Griffith Avenue, part of the open space within Grace Park Wood to facilitate a pedestrian / cycle connection, and part of Richmond Road to facilitate service connections and associated upgrades. The site is bound by the Grace Park Wood residential development to the northwest; Griffith Court, the 'Fairview Community Unit' nursing home, Fairview Day Centre, Gheel Autism Services and a graveyard to the north; the An Post Fairview Delivery Service Unit on Lomond Avenue and properties on Inverness Road, Foyle Road and Richmond Avenue to the east; existing residential and commercial properties on Richmond Road and Convent Avenue to the south and Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC, and Ierne Sports and Social Club to the west of the site.

The location of the Proposed Development is shown in Figure 1.1.

The site is bound by the Grace Park Wood residential development to the northwest; Griffith Court, the 'Fairview Community Unit' nursing home, Fairview Day Centre, Gheel Autism Services and a graveyard to the north; the An Post Fairview Delivery Service Unit on Lomond Avenue and properties on Inverness Road, Foyle Road and Richmond Avenue to the east; existing residential and commercial properties on Richmond Road and Convent Avenue to the south and Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC, and Ierne Sports and Social Club to the west of the site.

In summary, the proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard design apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

This development will hereinafter be referred to as the ‘Proposed Development’. A full description of the development is provided in Chapter 2 (Description of the Proposed Development).

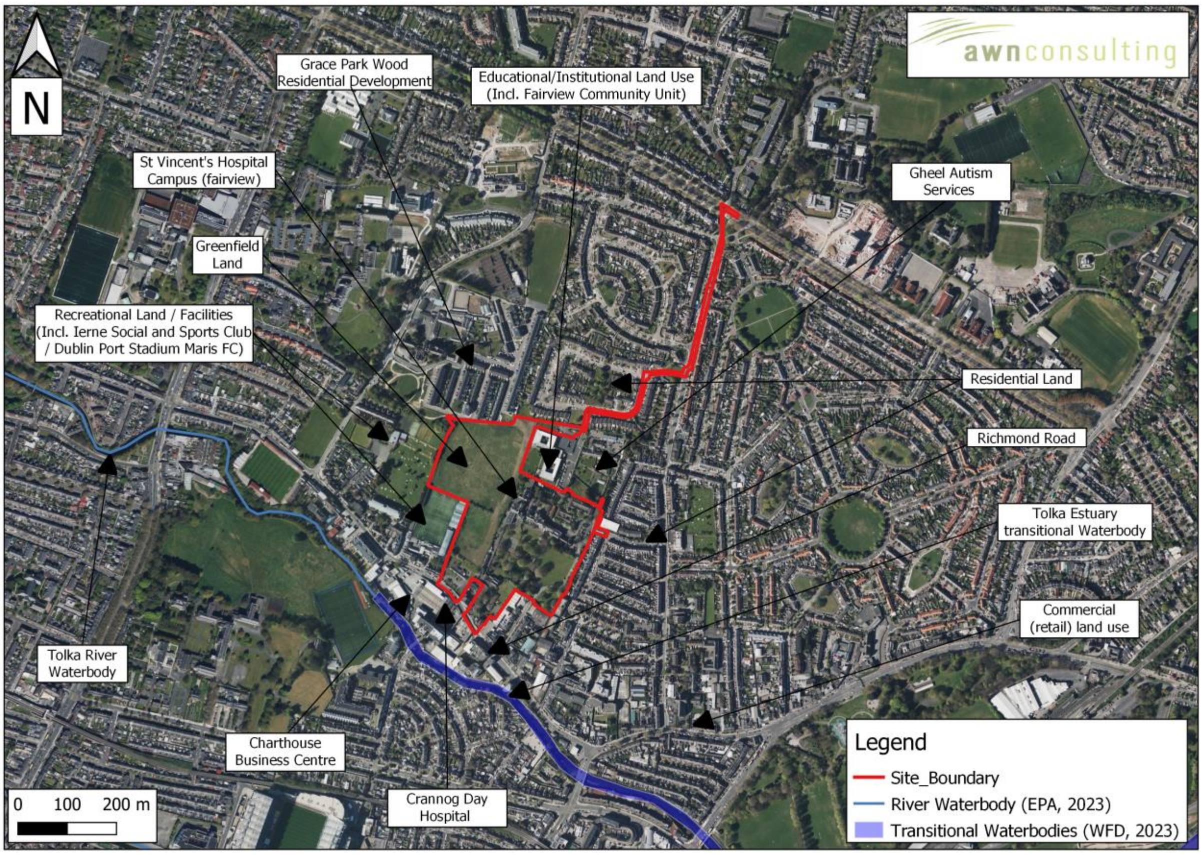


Figure 1.1 *Site Location (Indicative site Boundary Line Shown in Red)*

1.2 RELEVANT LEGISLATIVE REQUIREMENT FOR ENVIRONMENTAL IMPACT ASSESSMENT

Environmental Impact Assessment (EIA) is an essential tool in the implementation of EU environmental legislation. According to the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018) the objective of the Directive 2011/92/EU as amended by 2014/52/EU ('the EIA Directive'), is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for EIA, prior to development consent being given, of public and private developments that are likely to have significant effects on the environment.

The requirement for EIA Report is set out in the EIA Directive (Directive 2011/92/EU as amended by 2014/52/EU); the EIA Directives have been transposed into existing Irish planning consent procedures i.e., the *Planning and Development Act 2000 as amended* (the Act) and *Planning and Development Regulations, 2001 as amended* ('the Regulations').

The process involves the preparation of an Environmental Impact Assessment Report (EIAR) by the applicant. This report is then subjected to scrutiny by the competent authority, who will also consult with the public, relevant prescribed bodies, and any other affected Member States. The competent authority will analyse the EIAR as well as any other pertinent information before arriving at a reasoned conclusion regarding the probable significant effects of the proposed development on the environment.

The EIA Directive lists projects for which an EIA is mandatory (Annex I) and those projects for which an EIA may be required (Annex II) of the EIA Directive (2011/92/EU and 2014/52/EU), these Annex are transposed into Schedule 5 of the *Planning and Development Regulations 2001 as amended*. The EU Member States can choose to apply thresholds for Annex II projects or use a case-by-case examination, or a combination of both, to assess where EIA is required. In Ireland, a combination of both has been applied.

Ireland's type of projects for which an EIA is mandatory is set out in the Schedule 5 Part 1 and Part 2 of the Regulations. The EPA Guidance (2022) requires an assessment beyond the general description of the project and to consider the component parts of the project and/or any processes arising from it.

In considering the wider context and the component parts of the proposed development AWN have identified that under Schedule 5, Part 1, of the Regulations there are no thresholds of relevance to the proposed development. The thresholds of relevance to the proposal from Schedule 5, Part 2 of the Regulations are Class 10(b), Class 14 and Class 15; which are set out and discussed below.

Class 10. Infrastructure projects

(b) *(i) Construction of more than 500 dwelling units.*

(ii) Construction of a car-park providing more than 400 spaces, other than a car-park provided as part of, and incidental to the primary purpose of, a development.

(iii) Construction of a shopping centre with a gross floor space exceeding 10,000 square metres.

(iv) Urban development which would involve an area greater than 2 hectares in the case of a business district, 10 hectares in

the case of other parts of a built-up area and 20 hectares elsewhere.

(In this paragraph, "business district" means a district within a city or town in which the predominant land use is retail or commercial use.)

Under Class 10(b)(i) the threshold is '*more than 500 dwelling units'. Under* Class 10 (b)(iv) the appropriate threshold is considered to be '*10 hectares in the case of other parts of a built-up area and 20 hectares elsewhere'.*

The total site area for the proposed works is c. 9.46 hectares (ha), the site location is located within an inner suburban area; the pragmatic approach is to consider the area to be 'part of a built-up area'. The Proposed development does not exceed the threshold of 10 hectares under Class 10 (b)(iv).

The proposed development comprises 811 no. dwelling units, and therefore the proposed development exceeds the threshold of 500 dwelling units set out in Class 10(b)(i). EIA is mandatory under this Class 10(b)(i).

Class 14. Works of Demolition

Works of demolition carried out in order to facilitate a project listed in Part 1 or Part 2 of this Schedule where such works would be likely to have significant effects on the environment, having regard to the criteria set out in Schedule 7.

The proposed development includes works of demolition in order to facilitate the proposed development such works will give rise to effect on the environment. While EIA is not mandatory under this Class of development, simply due to demolition works occurring, further consideration of the effects on the project are undertaken within this EIA Report to determine the significance of effects related to the demolition works.

Class 15.

Any project listed in this Part which does not exceed a quantity, area or other limit specified in this Part in respect of the relevant class of development but which would be likely to have significant effects on the environment, having regard to the criteria set out in Schedule 7.

The proposed development includes interventions in the environment that may (in the absence of mitigation measures) give rise to significant effects. While EIA is not mandatory under this Class of development, on the basis of effects alone, further consideration of the likelihood of significant effects on the project are undertaken within this EIA Report.

This EIA Report details the studies undertaken by the applicant in order to informs the Planning Authority, statutory consultees, other interested parties and the public in general about the likely effects of the project on the environment.

1.2.1 Relevant Legislation, Policy, and Guidelines

This EIA Report has been prepared in accordance with the most relevant guidance and legalisation, including the following:

- EIA Directive (2011/92/EU) as amended by EIA Directive (2014/52/EU)
- Planning and Development Act 2000 (as amended)

- Planning and Development Regulations 2001 (as amended)
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (Department of Housing, Planning and Local Government, 2018)
- *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022)
- *Guidance on the preparation of the Environmental Impact Assessment Report* (European Commission, 2017)
- *Draft Advice Notes for Preparing Environmental Impact Statements* (EPA, 2015)

1.2.2 Format of the EIA Report

The Chapters within this EIA Report have been laid out using the grouped format structure, the EIA Report examines each environmental factor in a separate chapter (the chapters are listed in Table 1.1). The EIA chapters have been prepared by a suitably qualified expert(s) and have considered the construction and operational phases of the Proposed Development under the following headings:

- Assessment Methodology;
- Receiving Environment;
- Characteristics of the Proposed Development;
- Potential Impacts of the Proposed Development;
- Mitigation Measures;
- Monitoring or Reinstatement Measures;
- Residual Impacts of the Proposed Development; and
- Cumulative Impacts of the Proposed Development

While EIA has the focus on the Proposed Development, each of the specialist EIA Report chapters considers the potential cumulative impact (as far as practically possible) of the Proposed Development with the any future development and the cumulative impacts with developments in the locality (including planned and permitted developments). The cumulative impacts for each environmental topic are assessed within the relevant specialist chapters of this EIA Report. A description of projects that have been assessed cumulatively with the proposed development are provided in Chapter 2 (Section 2.7) of this EIA Report.

Interactions i.e. the interrelationship between each environmental aspect, are also assessed as they occur in within each chapter. Chapter 17 of this EIA Report shows where interactions have been identified and how they have been addressed.

The EIA Report, and supporting appendix documents are presented in four volumes as follows:

- Volume 1 Non-Technical Summary and EIA Report Main Chapters
- Volume 2 EIA Report Appendix
- Volume 3 Verified Photomontages
- Volume 4 Architectural Heritage Impact Assessment and Appendices

This EIA Report draws on and has been informed by the project design; all additional reports and drawings are included with the full planning application package and are referred as appropriate in each to EIA Report chapter.

1.3 CONSULTATION

The scope of the EIA Report has been defined at an early stage of the planning process in order to identify and ensure that the environmental studies address all the relevant issues. This included a review of the context of the development site, locality, and previously permitted development, and of the development proposed to identify the matters to be covered within this environmental impact assessment.

The Applicant and the Proposed Development project team have liaised with the relevant departments of DCC in advance of lodgement of this application. The Large-Scale Residential Development (LRD) process comprises three mandatory stages, including Stage 1 which is a Section 247 consultation with the Planning Authority (under section 247 of the planning & Development Act, 2000, as amended).

A summary of the Section 247 pre-application consultations undertaken by the Applicant with Dublin City Council is included in the Architectural Design Statement. In addition, the applicant / design team have liaised with statutory bodies (including the Water Services, Roads/Transportation department of DCC, Irish Water, EirGrid, ESB, Irish Water) by correspondence during the course of the EIA Report preparation.

A LRD Meeting was undertaken with the Planning Authority on the 18th of November 2022, in accordance with Section 32A of the Planning and Development Act 2000 (as amended) in relation to a person seeking the opinion of the Planning Authority prior to an LRD application. The LRD Opinion was received on 15th December 2022 which states that "*the Planning Authority is of the opinion that the documentation submitted in accordance with Section 32B of the Act constitutes a reasonable basis for an application for Large-scale Residential Development subject to the applicant addressing the issues outlined below in any future application."*

AWN and the other respective EIA contributors/authors have incorporated all relevant advice and comments received from consultees into the relevant chapters of this EIA Report.

The structure, presentation and the non-technical summary of this EIA Report, as well as the arrangements for public access, all facilitate the dissemination of the information contained in this EIA Report. A core objective is to ensure that the public and local community are aware of the likely environmental impacts of projects prior to the granting of consent.

Public participation in the EIA process will be affected through the statutory planning application process. Information on this EIA Report has also been issued for the Department of Housing, Planning and Local Government's EIA Portal.

1.4 CONTRIBUTORS TO THE EIA REPORT

The preparation and co-ordination of this EIA Report has been completed by AWN Consulting in conjunction with experienced subject matter experts. Each environmental specialist of the applicants project team was commissioned having regard to their previous experience in EIA; their knowledge of relevant environmental legislation relevant to their topic; familiarity with the relevant standards and criteria for evaluation relevant to their topic; ability to interpret the specialised documentation of the construction sector and to understand and anticipate how their topic will be affected during construction and operation phases of development; ability to arrive at practicable and reliable measures to mitigate or avoid adverse environmental impacts; and to clearly and comprehensively present their findings.

The role and responsibility of each contributor, their qualifications and relevant experience are detailed in Table 1.1 below, along with the corresponding EIA Report chapter.

Table 1.1 *Roles and Responsibilities in the EIA Report*

Volume 1	Chapter Title	Consultant
Chapter 1	Introduction	AWN; Catherine Keogan
Chapter 2	Description of Proposed Development	AWN; Catherine Keogan
Chapter 3	Alternatives	AWN; Catherine Keogan
Chapter 4	Human Health and Population	AWN; Niamh Kelly
Chapter 5	Land, Soils, Geology and Hydrogeology	AWN; Luke Maguire, Marcelo Allende
Chapter 6	Hydrology	AWN; Luke Maguire, Marcelo Allende
Chapter 7	Biodiversity	Altemar Marine and Environmental Consultants; Bryan Deegan
Chapter 8	Air Quality	AWN; Ciara Nolan
Chapter 9	Climate	AWN; Ciara Nolan
Chapter 10	Noise and Vibration	AWN; Stephen Smyth, and Dom Wright
Chapter 11	Landscape and Visual	Modelworks; Richard Butler
Chapter 12	Archaeology and Cultural Heritage	Irish Archaeological Consultancy; Faith Bailey
Chapter 13	Architectural Heritage	Carrig Conservation International Ltd.; Caitríona O'Connor
Chapter 14	Material Assets -Traffic and Transportation	O'Connor Sutton Cronin and Associates; Wian Marais
Chapter 15	Material Assets - Waste Management	AWN; Chonaill Bradley
Chapter 16	Material Assets - Utilities	AWN; Catherine Keogan, and Sarah Tierney
Chapter 17	Interactions	AWN; Catherine Keogan
Volume 2		**Consultant**
EIA Report Appendices		EIA Team contributors
Volume 3		**Consultant**
Verified Photomontages		Modelworks
Volume 4		**Consultant**
Architectural Heritage Impact Assessment		Carrig Conservation International Ltd

The qualifications and experience of key personnel who have prepared this EIA Report is outline below.

Project Director

- **Teri Hayes** (BSc MSc PGeol EurGeol, Dip Planning & Environmental Law) is a Director and Senior Hydrogeologist with AWN Consulting with 25 years of experience in water resource management, environmental assessment and environmental licensing. Teri is a former President of The International

Association of Hydrogeologists (IAH, Irish Group) and is a professional member of the Institute of Geologists of Ireland (IGI) and European Federation of Geologists (EurGeol). She has qualified as a competent person for contaminated land assessment as required by the IGI and EPA. Her project experience includes contributions to a wide range of complex Environmental Impact Statements, planning applications and environmental reports for Industry Infrastructure and residential developments. She has considerable experience in undertaking planning applications and licence applications. Teri has written and provided technical review and training on environmental programmes for both the public and private sector and has considerable experience in public presentations, stakeholder liaison and acting as a legal witness.

Co-ordinator / Selected Chapters

- **Catherine Keogan,** Catherine is an Environmental Consultant in AWN Consulting with ongoing roles in impact assessment, licensing, environmental compliance and project management. Recent projects include; Pharmaceutical EIAR management and planning applications, IE Licence compliance and Project Management. Catherine has over 30 years' experience in waste and water management, environmental compliance, environmental licensing, and planning in large scale industrial and renewable energy projects. Catherine has a B. Sc (Analytical Science) from DCU and Post Graduate Diploma from Dundalk IT in Renewable Energy Technology Systems and has experience working in the environmental consultancy, planning, and regulatory fields in Ireland, the UK, Europe, South Africa and Kenya.

Assistant Co-ordinator/Selected Chapters

- **Jonathan Gauntlett.** Jonathan is a Principal Environmental Consultant at AWN Consulting, specializing in impact assessment, licensing, environmental compliance, and project management. Jonathan has worked on a wide range of development applications, including Large Residential Developments, Strategic Infrastructure Development, and Local Authority Applications. Jonathan has experience in various sectors such as ICT, warehousing, pharmaceutical, residential development, infrastructure projects, and the energy sector. With over 10 years of expertise in environmental compliance, planning, and management of Environmental Impact Assessments, licensing, and urban planning, he holds a BSocSc (Environmental Planning) and BBA (Economics) from Waikato University in New Zealand. Jonathan has worked in environmental consultancy, planning, and regulatory fields in Ireland, the UK, and New Zealand.

Human Health and Populations

- **Sarah Tierney** is an Environmental Consultant with AWN Consulting, working on projects involving EIA Reports, EIA screening and EPA licence applications for a range of developments, such as pharmaceutical plants and ICT facilities. She holds a BA in Environmental Science from Trinity College Dublin and is a member of the Environmental Sciences Association of Ireland.

Land, Soils, Geology, Hydrogeology and Hydrology

- **Marcelo Allende** is an Environmental Consultant at AWN with over 15 years of experience in Environmental Consulting and water resources. Marcelo holds a degree in Water Resource Civil Engineering from the University of Chile. He has worked on a wide of range of projects including multi-aspect environmental investigations, groundwater resource management, hydrological and hydrogeological conceptual and numerical modelling, due diligence reporting, surface and groundwater monitoring and field sampling programmes on a variety of brownfield and greenfield sites throughout Ireland as well as overseas in Chile, Argentina, Peru and Panama.

- **Luke Maguire;** is an Environmental Consultant at AWN with over 2 years of experience in Environmental Consulting and water resources. Luke holds a B.Sc. in Geoscience from Trinity College Dublin and has worked on a range of developments including pharmaceutical plants, medical device facilities, ICT facilities and energy projects. Luke has experience in contaminated soil sampling and analysis, basement impact assessments and largescale dewatering processes.

Biodiversity,

- **Altemar: Bryan Deegan** (MCIEEM) is the primary ecological consultant. Bryan Deegan has 27 years' experience working in Irish terrestrial and aquatic environments, providing ecological consultancy. He has a Certificate in Science, Diploma in Applied Aquatic Science, BSc in Applied Marine Biology and a MSc in Environmental Science. Bryan has extensive aquatic and terrestrial fieldwork experience including flora and fauna (bird & mammal) surveys.
- **Hugh Delaney** provided specialist support to Bryan Deegan in relation to birds. Hugh Delaney is an ecologist (ornithologist primarily) having completed work on numerous sites with ecological consultancies over 10+ years. Hugh is local to the Dun Laoghaire-Rathdown area in Dublin and is especially familiar with the bird life and its ecology in the environs going back over 30 years.

Air Quality, and Climate

- **Ciara Nolan.** Ciara is an Environmental Consultant with AWN specialising in the field of Air Quality. She holds a BSc (Hons) in Energy Systems Engineering from University College Dublin and has also completed an MSc in Applied Environmental Science at UCD. She is an Associate Member of the Institute of Air Quality Management. She specialises in the fields of air monitoring, air dispersion modelling and EIA. She has been active in the field of air quality for 3 years with a primary focus on consultancy.

Noise and Vibration

- Stephen Smyth; Dr Stephen Smyth (Associate) holds a BAI and a PhD in Mechanical Engineering from TCD and is a member of both Engineers Ireland and the Institute of Acoustics. Stephen has worked in the field of acoustics since 2003 gaining experience in both environmental and architectural acoustics. He has been involved in the implementation of the European Noise Directive in both the Republic of Ireland and Northern Ireland. He has completed environmental noise studies for several national road schemes in Ireland including, the M7/M8 Portlaoise to Castletown/Cullahill, M7 Castletown to Nenagh, Dunkettle Interchange Improvement and the N5 Westport to Turlough schemes. Stephen has also completed architectural acoustic assessments of performance spaces, educational, commercial and cultural buildings in Ireland, Europe and the Middle East.

- Dom Wright, (Acoustic Consultant) holds a Diploma in Music Technology and has completed the Institute of Acoustics Diploma in Acoustics and Noise Control. He has previous knowledge and experience in the world of audio engineering and has amassed experience in both noise modelling and environmental noise surveying.

Landscape and Visual

- **Richard Butler MILI MIPI, Model Works Ltd**. Richard has degrees in Landscape Architecture (B.L.Arch, University of Pretoria, 1995) and Town Planning (MSc Spatial Planning, Dublin Institute of Technology, 2007) and is a member of the Irish Landscape Institute and the Irish Planning Institute. He has over 25 years' experience in development and environmental planning, specialising in Landscape and Visual Impact Assessment (LVIA). Assessment Of Environmental Impact

Archaeology and Cultural Heritage

- **Faith Bailey.** Faith Bailey is a Senior Archaeologist and Cultural Heritage Consultant with IAC Ltd. She holds an MA in Cultural Landscape Management (archaeology and built heritage) and a BA in single honours archaeology from the University of Wales, Lampeter. She is a licence eligible archaeologist and has over 13 years' experience working in commercial archaeology. Faith joined IAC in 2004 and in her capacity as Senior EIA Archaeologist, she has been responsible for the production and delivery of a large number of archaeological and built heritage desk top assessments, surveys, EIA, masterplans, LAP/SEA and management plans associated with all sectors of development in the Republic and Northern Ireland.

Architectural Heritage;

- **Caitríona O'Connor** MRIAI, RIBA Conservation Architect (RIAI Grade II) of is employed by Carrig Conservation International Ltd as a Senior Conservation Architect. Caitríona has over a decade of experience working on large scale architectural conservation projects in the UK, South East Asia and Jordan. As associate architect at Marcus Beale Architects in London, she led projects to conserve Grade I and II listed buildings across the southeast of England for clients including New College Oxford and West Dean College or Arts & Conservation. She is a World Heritage specialist with an MSc in World Heritage Conservation, and prior to joining Carrig managed UNESCO's conservation programmes at the Petra World Heritage Site in Jordan.

Material Assets - Traffic and Transportation

- **Wian Marais** is employed by OCSC as a Senior Roads & Traffic Engineer. He holds a Bachelor of Engineering (Civil) and Engineering Honours (Transportation). He holds memberships as a Profession Engineer in the Engineering Council of South Africa and is a Professional Member of the Institute of Municipal Engineering of Southern Africa. Wian has experience in preparing and delivering traffic and transport studies and models, mobility management plans and Transport Impact Assessment chapters for a number of developments in the Republic of Ireland.

Material Assets - Waste Management

- **Chonaill Bradley** Chonaill Bradley (BSc ENV AssocCIWM) of AWN Consulting. Chonaill Bradley is a Principal Environmental Consultant in the Environment Team at AWN. He holds a BSc in Environmental Science from Griffith University, Australia. He is an Associate Member of the Institute of Waste Management (AssocCIWM). Chonaill has over seven years' experience in the environmental consultancy sector and specialises in waste management.

Material Assets – Utilities

- **David Doran** is an Environmental Consultant with AWN Consulting with over 2 years' experience in the environmental sector. David has a MSc in Environmental and Energy Management (Hons) and is an Affiliate member of the Charted Institute of Waste Management. Recent projects include; Strategic Housing Development / Large Scale Residential Developments, office developments, logistics park developments and other residential, commercial and industrial developments. Inputs for these include EIA Screening Reports, Waste Management EIAR Chapters, Operational and C&D/Resource Waste Management Plans and Human Health EIAR Chapters.

1.5 DESCRIPTION OF EFFECTS

The quality, magnitude and duration of potential effects are defined in accordance with the criteria provided in the EPA EIA Report Guidelines 2022 as outlined in Table 1.2.

Table 1.2. *Description of Effects as per EPA Guidelines (2022)*

Characteristic	Term	Description
Quality of Effects	Positive	A change which improves the quality of the environment (for example, by increasing species diversity, or improving the reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative/Adverse	A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).
Describing the Significance of Effects[1]	Imperceptible	An effect capable of measurement but without significant consequences
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
	Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
	Significant Effects	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment

[1] For the purposes of facilitating the Competent Authority in conducting Environmental Impact Assessment as defined by Annex 1 of the EU Directive, the terms "imperceptible effects", "not significant effects", "slight effects", and "moderate effects" used within this report, while exhibiting varying degrees of impact, are all considered to be without significant consequence.

Characteristic	Term	Description
	Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound Effects	An effect which obliterates sensitive characteristics
Describing the Extent and Context of Effects	Extent	Describe the size of the area, the number of sites, and the proportion of a population affected by an effect.
	Context	Describe whether the extent, duration, or frequency will conform or contrast with established (baseline) conditions (is it the biggest, longest effect ever?)
Describing the Probability of Effects	Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
	Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Describing the Duration and Frequency of Effects	Momentary Effects	Effects lasting from seconds to minutes
	Brief Effects	Effects lasting less than a day
	Temporary Effects	Effects lasting less than a year
	Short-term Effects	Effects lasting one to seven years.
	Medium-term Effects	Effects lasting seven to fifteen years
	Long-term Effects	Effects lasting fifteen to sixty years
	Permanent Effects	Effects lasting over sixty years
	Reversible Effects	Effects that can be undone, for example through remediation or restoration
	Frequency of Effects	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
Describing the Type of Effects	Indirect Effects (a.k.a secondary or Off-site effects)	Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative Effects	The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
	'Do Nothing Effects	The environment as it would be in the future should the subject project not be carried out
	`Worst case' Effects	The effects arising from a project in the case where mitigation measures substantially fail
	Indeterminable Effects	When the full consequences of a change in the environment cannot be described
	Irreversible Effects	When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost

Characteristic	Term	Description
	Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect
	Synergistic Effects	Where the resultant effect is of greater significance than the sum of its constituents (e.g. combination of Sox and NOx to produce smog)

1.6 ADDITIONAL ASSESSMENTS REQUIRED

The additional reports and/or assessments that will be required to support the planning application under Legislation or EU Directives other than the Environmental Impact Assessment Directive in respect of the proposed development are described below.

1.6.1 The Floods Directive (Directive 2007/60/EC)

The Floods Directive (Directive 2007/60/EC) establishes a framework for the assessment and management of flood risks, with the aim to reduce the adverse consequences on human health, the environment and material assets.

The Floods Directive requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. The Floods Directive also reinforces the rights of the public to access this information and to have a say in the planning process.

The Floods Directive must be implemented in tandem with the WFD. In Ireland, the OPW is the national authority assigned with the implementation of the Floods Directive, which was transposed into Irish law by the EU (Assessment and Management of Flood Risks) Regulations SI 122 of 2010.

A Site-Specific Flood Risk Assessment (FRA) has been prepared by OCSC in accordance with the Planning System and Flood Risk Management Guidelines for Local Government (2009). This Site-Specific FRA is included as a separate report with the planning application.

1.6.2 Habitats Directive (Directive 92/43/EEC) and Birds Directive (Directive 2009/147/EC)

The main EU legislation for conserving biodiversity is the Directive 2009/147//EC of the European Parliament and of the Council of November 2009 on the conservation of wild birds (Birds Directive); and the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive).

The environmental sensitivity of the Proposed Development site in respect of Natura 2000 sites designated pursuant to the Habitats Directive and the Birds Directive been considered with reference to the application Appropriate Assessment Screening which comprises an initial impact assessment of a project; examining the direct and indirect impacts that it might have on its own or in combination with other plans and projects, on one or more Natura 2000 sites in view of the sites' conservation objectives.

The 'Appropriate Assessment Screening' and the 'Natura Impact Statement' has been prepared for the proposed development by Altemar Environmental Consultants and are included with the planning application.

1.6.3 Water Framework Directive (Directive 2000/60/EC)

The Water Framework Directive (WFD) (Directive 2000/60/EC) requires all Member States to protect and improve water quality in all waters. The WFD is one of the key overarching instruments in the protection of waters and includes subordinate directives or water-related legislation that have been developed in response to the Water Framework Directive.

The WFD requires ‘Good Water Status’ for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. ‘Good status’ means both ‘Good Ecological Status’ and ‘Good Chemical Status’.

The WFD does not require site specific assessments to be undertaken by a developer. It lays down standards for the quality of designated waters (“guide” values as well as “imperative” values) and requires Member States to monitor the quality of designated waters and to take measures to ensure that they comply with the minimum standards[2].

A screening assessment for the Water Framework Directive Assessment has been prepared by AWN consulting in response to the requirements of the Water Framework Directive and is included as Appendix 6.1 to this EIA Report This WFD Screening Assessment relies on information provided in the Land, Soils, Geology and Hydrogeology Chapter (Chapter 5) and Hydrology (Chapter 6) of the EIAR and should, therefore, be read together with these chapters.

1.7 FORECASTING METHODS AND DIFFICULTIES IN COMPILING THE SPECIFIED INFORMATION

Forecasting methods and evidence used to identify and assess the significant effects on the environment for each environmental aspect are set out in each chapter.

There were no significant difficulties in compiling the specified information for this EIA Report. Any issues encountered during the assessment of individual factors are noted within the relevant chapters.

[2] Handbook on the Implementation of EC Environmental Legislation, Section 5 – Water Protection Legislation (European Commission, 4th Ed. 2016)

CHAPTER 2

DESCRIPTION OF THE PROPOSED DEVELOPMENT

awnconsulting
A Trinity Consultants Company

CHAPTER 2 CONTENTS

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 INTRODUCTION

This chapter presents the description of the project comprising information on the site, design, size and other relevant features of the proposed development based on the draft design. The scope of this chapter aligns with the legalisation and guidance material as set out in the EIA Directive (2011/92/EU) as amended by EIA Directive (2014/52/EU), as well as the relevant guidance documents Environmental Protection Agency (EPA) *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022), European Commission (EU) *Environmental Impact Assessment of Projects; Guidance on the preparation of the Environmental Impact Assessment Report* (European Commission, 2017), and *Draft Advice Notes for Preparing Environmental Impact Statements* (EPA, 2015).

This chapter summarises the existing site, the proposed development, and the existence of the project as set out within the *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2022). This guidance advises that description of the existence of the project should define all aspects of the proposed lifecycle of the facility, including:

- Description of Construction;
- Description of Commissioning;
- Operation of the Project;
- Changes to the Project; and
- Description of Other Related Projects.

This chapter draws on and has been informed by the project design and summarises the key relevant details of the proposed development and its lifecycle as it relates to EIA Report. This description is not exhaustive, and as such this report should be read in conjunction with the full application package that includes complete elevations and plans, layout plans including utilities and building drawings. The specialist assessments reported in this EIA Report have been conducted using this description, and the full application package as a guide to the details of the development under consideration.

2.2 DESCRIPTION OF THE EXISTING DEVELOPMENT SITE

The proposed development site is c. 9.46 hectares of the located at located at St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The site location is shown in Figure 2.1 and Figure 2.2 below.

The subject site is located at and surrounding St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The site contains protected structures under RPS Ref.: 2032 (St. Vincent's Hospital old house/convent, including plastered extension to the west, including entrance porch to convent. Two-storey over garden level brick building (with granite steps and entrance door surround) on south front. Four-storey pedimented brick pavilion, with stone trimmings, to the west (including granite balustrading at parapet level). Railings in front of convent building on north side), RPS Ref.: 8788 (Richmond House including former chapel and courtyard with outbuildings) and RPS Ref.: 8789 (Brooklawn, a 'House', including red brick wall and two gate piers). The application site includes an area of the public road / footpaths (extending for approximately 0.8km) to facilitate service connections via Griffith Court, Philipsburgh Avenue and Griffith Avenue, part of the open space within Grace Park Wood to facilitate a pedestrian / cycle connection, and part of Richmond Road to facilitate service connections and associated upgrades.

The site is bound by the Grace Park Wood residential development to the northwest; Griffith Court, the ‘Fairview Community Unit’ nursing home, Fairview Day Centre, Gheel Autism Services and a graveyard to the north; the An Post Fairview Delivery Service Unit on Lomond Avenue and properties on Inverness Road, Foyle Road and Richmond Avenue to the east; existing residential and commercial properties on Richmond Road and Convent Avenue to the south and Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC, and Ierne Sports and Social Club to the west of the site.

The eastern portion of the site includes the principal hospital buildings and ancillary structures. The western and southern sections of the site are relatively undeveloped. The site is primarily accessed from Richmond Road. The surrounding context of the site includes a mix of residential, commercial and amenity uses with building heights ranging from 1 to 6 storeys. The historic buildings are described in detail in the Chapter 13 (Architectural Heritage) of this EIA Report and the Architectural Heritage Impact Assessment included in Volume 4 of this EIA Report.

The site is in an Inner Suburb location, defined as the areas beyond the inner city which comprise the 19th century built-up areas of Dublin City, including Drumcondra to the north east of Dublin City Centre, approximately 2km north-east of O’Connell Street and c. 700m east of DCU St. Patrick’s Campus. The site is within walking distance of the Drumcondra Road QBC bus stop to the west (650m) and Fairview Strand Bus routes to the east (550m). The site is also approximately 1.6km from Drumcondra Rail Station and 1.7km from a DART and inter-city rail connection at Clontarf Road DART station on the Dublin-Belfast railway line.

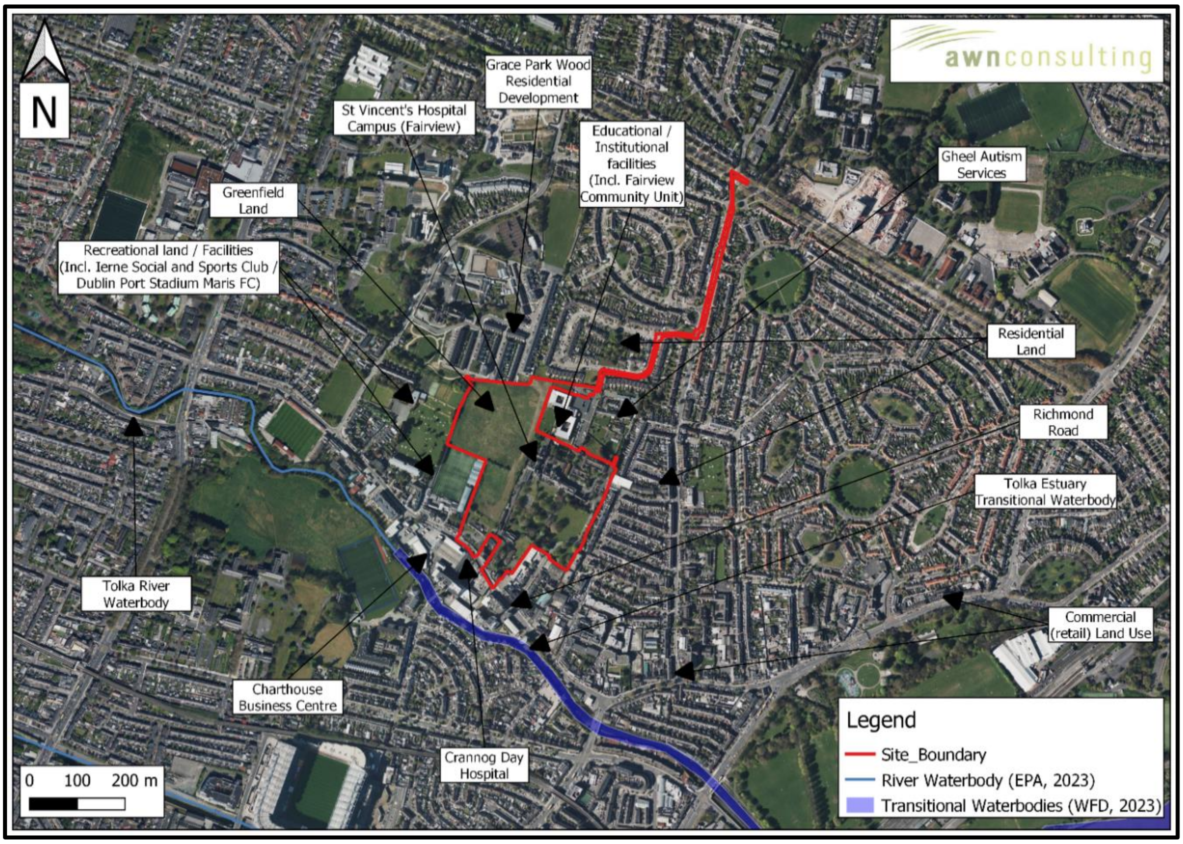


Figure 2.1 *Location of Subject Site*

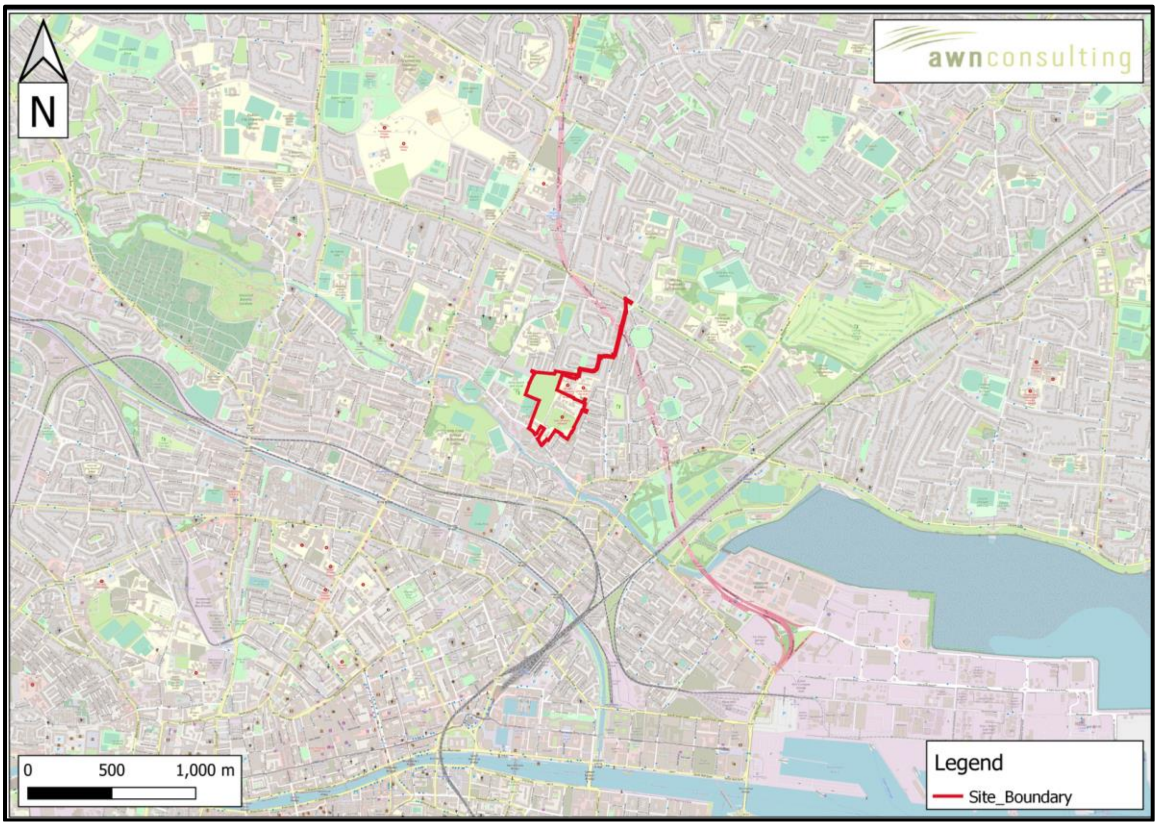


Figure 2.2 *Site Location Map showing the site in relation to Dublin City Centre (source Google Maps)*

2.2.1 St Vincent's Hospital Fairview

St Vincent's Hospital Fairview is a Public Voluntary Hospital founded in 1857 and managed by the Daughters of Charity until 1997. Today the Hospital is under the direction of a Board of Governors and the day-to-day management is the responsibility of the Chief Executive Officer and Executive Management Team. In 1971 the Eastern Health Board began to use St Vincent's Hospital for the treatment of acute psychiatric patients. Subsequently St Vincent's changed from being a private hospital into a Public Voluntary Hospital.

St. Vincent's Hospital, Fairview works in partnership with the Health Service Executive and the Mater Misericordiae University Hospital, to provide psychiatric care to the population of Dublin North Central. The Hospital provides mental healthcare (inpatient, outpatient and day patient) to the local population of Dublin North City and surrounding areas (including Counties Louth, Meath, Cavan and Monaghan).

Because of the age and condition of the buildings the facilities are simply no longer consistent with current requirements and modern health care standards. It is increasingly difficulty to eliminate risks of self-harm or dangers to the health and welfare of patients and staff in such unsuitable and deteriorating conditions. The following existing buildings are no longer suitable for use because of their condition:

- Richmond House
- Brooklawn
- Luttrell's House; Top 2 floors of Hospital Building
- St Teresa's.

Latterly, Covid demonstrated the difficulty in management of infectious diseases. This poses a disproportionate drain on human and financial resources of the Hospital.

The current staff complement in St Vincent's Hospital is 177 paid employees and 210 in total, comprising: 15 Doctors (10 of which are HSE and rotational doctors), 92 Nursing Staff (including 17 students), 16 Agency Nurses, 5 Nursing Support Staff, 34 Domestic and Catering staff (including 3 Agency), 31 Administrative Staff, 4 Technical and Support Staff, 4 Security Staff (Agency) and 9 other staff. During visiting hours, up to 109 additional personnel can be on site during early weekday visiting times. The Hospital operates on a 24/7 basis. Medical, Nursing and related support staff operate on a shift basis.

Typically shifts are 07.30 – 20.30; 0800 – 2000; 2015 – 0800; 0700 – 1500 (Catering); 0900 – 1800 (Catering), 0800 – 1600 (Admin); 0900 – 1700 (day reception); 1700 – 2100 (night reception).

In addition to Hospital Staff, additional specialist services are provided by external medical personnel, various Therapists, Dietician etc. Support services are augmented by contractors as required.

Specific access is required for Ambulances, both to the main entrance and to a secluded area at the rear. Access is required for deliveries of food, laundry, Fuel, Maintenance, Procurement Deliveries and Landscaping activities.

St Vincent's Hospital provides catering services to the Fairview Community Unit (a 100 bed Community Nursing unit located on the main St Vincent's campus, to the north of the Hospital.

On any given weekday the number of personnel on site ranges from 78 to 109, excluding visitors. In the evenings and overnight, the number of personnel on site is 16 comprising: 5 in St Louise's Ward, 2 in St Mary's Ward, 2 in POA, 4 in Adolescence, 1 Duty Doctor, 1 Security Staff and 1 Night Supervisor.

2.2.2 Existing Site Utilities, Infrastructure and Access

The grounds of the Hospital are accessed from the south (Richmond Road) and are designated as private property with their use currently restricted to Hospital staff and patients.

Existing ESB infrastructure which services the hospital and surrounds the site includes 10/20kV underground cables and 400/230V overhead LV lines.

The natural gas infrastructure within the vicinity of the site is managed by Gas Networks Ireland. There is a low-pressure distribution pipeline which is present in the site, which serves the existing St Vincent's Hospital.

Telecom infrastructure to the surrounding area is provided by EIR. There is an extensive EIR network connection present in ground ducts in the vicinity of the development in front of the site along Richmond Road and also surrounding the site in existing developments. Virgin Media network ducting is also present in the road at main entrance to the site and also services the surrounding area.

The majority of rainwater from the existing hardstanding areas and rooftops is discharged to the combined infrastructure, with minor areas of the site discharge to the storm water sewer on Richmond Road. Rainfall is also currently allowed to infiltrate naturally from the greenfield areas.

Wastewater and stormwater drainage is discharged via a 300 mm combined sewer within the site boundary, with a 900 mm concrete sewer in Richmond Road. This 900 mm sewer flows in an easterly direction and is treated off site at Ringsend Wastewater Treatment Plant.

Public records indicate an existing 525 mm concrete storm water sewer within the site boundary. This sewer flows in the southerly direction towards Richmond road before discharging to the 1350 mm sewer on Richmond Road. This storm sewer discharges to the Tolka River immediately downstream of the site.

Potable water is supplied to the site via a 3 and 5-inch cast iron main within the site and a 6-inch main on Richmond Road.

2.2.3 Protected Structures

The site includes of 3 no. protected structures,

1. St. Vincent's Hospital buildings (RPS Ref.: 2032) referred to as Block K in the planning application documentation.
2. Richmond House (RPS Ref.: 8788),
3. Brooklawn (RPS Ref.: 8789)

These buildings are to be retained and reused, with internal and external works required for the repurposing and to ensure their long-term future. Further information is set out in Chapter 13 (Architectural Heritage) of this EIA Report, Volume 4 of the

EIAR, the Architectural Design Statement and the Architectural Conservation Report by Scott Tallon Walker which accompanies this application.

2.2.4 Dublin City Development Plan 2022-2028 Land Use Zoning Objectives

The Site is subject to three different land use zonings namely 'Z1 – Sustainable Residential Neighbourhoods', 'Z12 – 'Institutional Land (Future Development Potential) and 'Z15 - Institutional and Community' under the Dublin City Development Plan 2022-2028 shown in Figure 2.4 below. For further detail on the land use zoning objectives refer to the Planning Report and Statement of Consistency in respect of the St. Vincent's Hospital Fairview Redevelopment prepared by John Spain Associates which accompanies this application.

2.2.5 Seveso and COMAH SITES

The Chemical Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015) or 'COMAH' regulations define the "consultation distance" as a distance or area relating to an establishment, within which there are potentially significant consequences for human health or the environment from a major accident at the establishment, including potentially significant consequences for developments such as residential areas, buildings and areas of public use, recreational areas and major transport routes.

Establishments are either lower tier establishments or upper-tier COMAH sites with above threshold quantities of dangerous substances present, and to which the provisions of the COMAH regulations apply. The Proposed Development does not meet or exceed the threshold for either lower or upper tier inclusion.

The Health and Safety Authority (HSA) list of Notified Seveso Establishments, and the Environmental Sensitivity Mapping webtool (https://enviromap.ie/), has been reviewed to identify if the Proposed Development falls within the consultation distance of any nearby Seveso Establishments. The closest Notified Seveso Establishments to the Proposed Development are:

The closest Notified Seveso Establishments to the Proposed Development are a concentration of establishments situated at Dublin Port, located c. 2.1 km from the Proposed Development. This consists of the 6 no. Upper Tier Establishments:

- Calor Teoranta (TQ);
- Fareplay Energy Ltd (Dublin Port);
- Indaver Ireland Ltd (TQ);
- Tedcastles Oil Products (Y1);
- Tedcastles Oil Products (Y2); and
- Valero Energy (Ireland) Ltd.

Additionally, the following 4 no. Lower Tier Establishments are located at Dublin Port:

- Circle K (Terminal 1);
- Circle K (Yard 3);
- ESB (North Wall); and
- Iarnrod Eireann (North Wall).

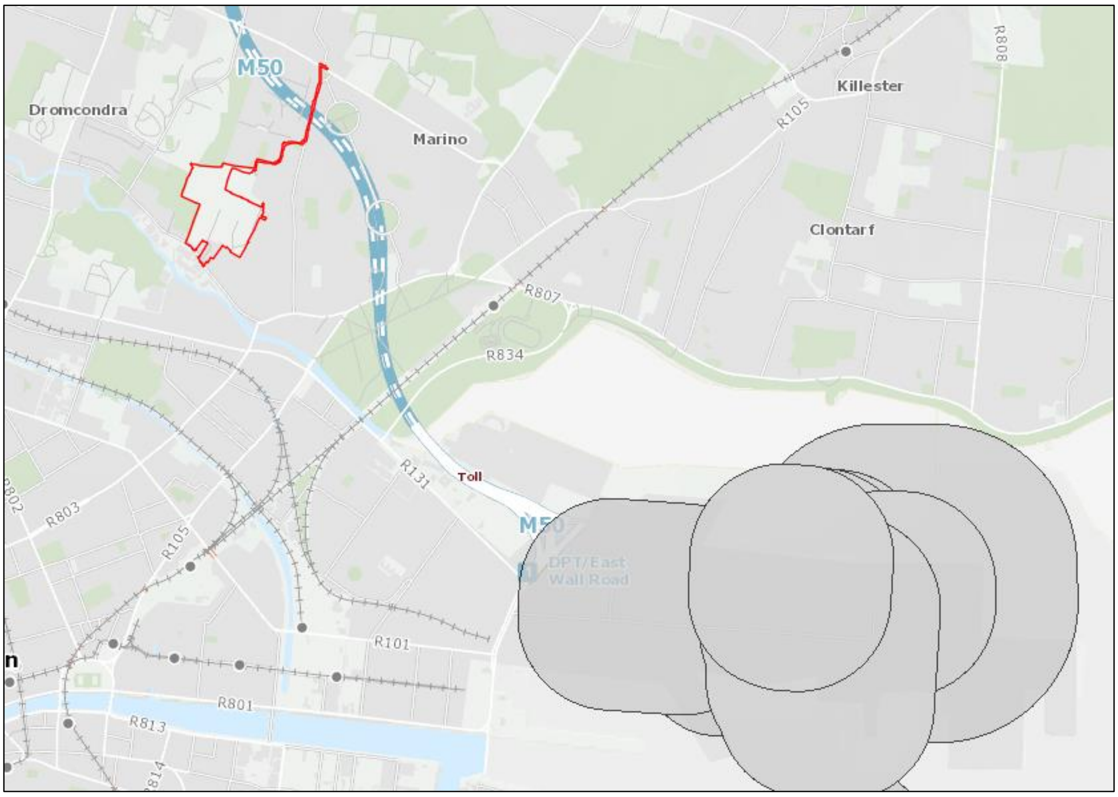


Figure 2.3 *Consultation Distances of Seveso Establishments within the vicinity of the Proposed Development site (indicative in red)*

The Proposed Development is not a Seveso facility, and is not located within the consultation distance of any notified establishment. Therefore, there are no implications for major accident hazards at the Proposed Development site.

2.2.6 EPA Licenced Facilities

The EPA (2023) has been reviewed in the vicinity of the site there are no. 12 existing EPA Licenced sites located within the Study Area, a combination of IE, IPPC and Waste Licences, that could potentially give rise to cumulative effects.

Table 2.1 *EPA Licenced Facilities nearby to the Proposed Development Site*

Registration number	Name	Category	License type	Distance (km)
P0220	Everlac Paints Ltd	Industry	IEL	0.3 km
P0298	Cahill Printers Ltd	Industry	IEL	1.2 km
W0083	Lower Oriel Street	Waste	Waste	1.3 km
P0537	Rentsch Dublin Limited	Industry	IPPC	1.5 km
P0212	Lithographic Web Press Limited	Industry	IPPC	1.6 km
P0054	Mater Misericordiae University Hospital	Industry	IEL	1.6 km
W0035	Sita Environmental Ltd	Waste	Waste	1.8 km
W0042	Dean Waste Company Ltd (Upper Sheriff Street)	Waste	Waste	1.9 km
W0097	Swalcliffe Limited	Waste	Waste	2.0 km
P0345	Brooks Thomas Limited	Industry	IPPC	2.0 km
P0111	Independent Newspapers Ltd	Industry	IEL	2.2 km

Registration number	Name	Category	License type	Distance (km)
P0468	Everlac Paints Limited	Industry	IPPC	2.5 km

2.3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

The detailed description of the development is as follows:

- The construction of a new part two and part three storey hospital building, providing mental health services (with a total gross floor area (GFA) of 7,188 sq.m), accommodating 73 no. beds, and including treatment/consultation rooms, education rooms, reception, family visitation and resource areas, therapy areas, multifaith rooms, staff and visitor canteen/café, staff offices, back of house areas including changing facilities, public and staff circulation areas, plant rooms and zones, and related servicing areas. The hospital includes 2 no. courtyards at ground floor level, a terrace at first floor level, and open space adjacent to the building to be used by patients and staff. A total of 76 no. car parking spaces (including 39 no. EV charging spaces), 50 no. bicycle spaces and 4 no. motorcycle spaces are proposed for the new hospital. A facilities management building, with a GFA of 149 sq.m, is located northwest of the new hospital building and will accommodate a generator area, a disposal hold area, an ESB substation, a MV switch room, a LV off loader room and a plant area.
- Richmond House and associated structures (RPS Ref.: 8788) will be refurbished for hospital administration use, with a GFA of 397 sq.m, and the proposed refurbishment works include the removal of an external staircase and balcony, removal of some internal walls, internal renovations, repair of the facades, repair and renewal of rainwater goods, and all associated conservations works.
- Brooklawn (RPS Ref.: 8789) will be refurbished for hospital administration use, with a GFA of 301 sq.m, and the proposed refurbishment works include the removal of an external staircase, replacement of rooflights, removal of some internal walls, internal renovations, repair of the facades, repair and renewal of rainwater goods, and all associated conservations works.
- Rose Cottage will be refurbished and extended for hospital administration use, with a GFA of 161 sq.m, and the proposed refurbishment works include the removal of a

single storey extension, provision of a single storey extension to the southeast, and all associated works.

- The Laundry building will be refurbished for hospital administration use, with a GFA of 135 sq.m, and the proposed works include the demolition of the adjacent electric hub building to the north, the adjoining structures to the south of the building, and the refurbishment of the building including replacement rooflights and door and window opes, and all associated conservations works.
- The Gate Lodge building will remain in residential use, to be used by visiting members of staff to the new hospital.
- The new hospital, associated buildings and grounds (as described above), are proposed on a hospital site of c. 2.67 ha.
- The proposal includes the demolition of existing structures on site with a GFA of 5,872 sq.m, including the (1) westernmost range of the hospital building, which includes St. Teresa's and the Freeman Wing, (2) extensions to the south and north of the main hospital building, including the conservatory extension, toilet block extension, an external corridor, toilet core, lift core, and stair core (which are all part of / within the curtilage of RPS Ref.: 2032), (3) hospital buildings and outbuildings located to the north of the existing main hospital building, (4) St. Joseph's Adolescent School building located in the southeast of the site, (5) Crannog Day Hospital building located in the southwest of the site, and (6) extensions to the Laundry building and Rose Cottage.
- The change of use, refurbishment, alterations, and extensions, to the existing St. Vincent's Hospital buildings, part protected structures under RPS Ref.: 2032 (referred to as Block K), from lower ground to third floor level to provide for a mixed use building including community facilities, commercial uses, and residential amenities and facilities. The building will be separated into 4 no. parts (Block K1, K2, K3 and K4). Block K1 includes a gym at ground and first floor levels and residential amenities and facilities at second and third floor levels. Block K2 includes a café and a community library at ground floor level and co-working spaces at first, second and third floor levels. Block K3 includes a childcare facility over three levels at lower ground, ground and first floor level, and Block K4 is proposed as a community hall. The alterations to the existing buildings to facilitate the change of use includes the removal of external walls, a stair core, external elements to the northern and southern façade, internal walls, windows and doors, new rainwater goods, associated repairs and alterations, the construction of a new lift and stair core for Block K1, K2 and K3, and all associated conservation works. A part one to part four storey building is proposed as an extension to the western end of Block K (referred to as Block J and which is described below).
- Block A is a part two to part seven storey building comprising a 2 storey retail unit at ground and first floor levels and a total of 58 no. standard design apartment (SDA) units from ground to sixth floor level with 7 no. studio units, 27 no. 1 bed units, 18 no. 2 bed units, and 6 no. 3 bed units. Private balconies / terraces for the apartments are provided on the east, south and west elevations.
- Block B is an eight storey building comprising 86 no. SDA units with 54 no. 1 bed units, 23 no. 2 bed units, and 9 no. 3 bed units. Private balconies / terraces for the apartments are provided on the west and east elevations.
- Block C is a part six to part seven storey building, above a lower ground floor / basement level, comprising 82 no. SDA units with 40 no. 1 bed units and 42 no. 2 bed units, with a residential amenity area at ground floor level. A communal roof terrace is proposed at sixth floor level. Private balconies / terraces for the apartments are provided on the west, east, and south elevations.
- Block D-E is a part five to part thirteen storey building, above basement level, comprising 199 no. Build-to-Rent (BTR) units with 7 no. studio units, 88 no. 1 bed units, and 104 no. 2 bed units. Residential amenity and facility areas are proposed at

ground, sixth, and twelfth floor levels. Five communal roof terraces are proposed, one terrace at fifth floor level, two terraces at sixth floor level, one terrace at ninth floor level, and one terrace at twelfth floor level. Private balconies / terraces for the apartments are provided on the west, east, north and south elevations.

- Block F is a part four to part nine storey building, above basement level, comprising a café/restaurant and residential amenity area at ground floor level and 118 no. BTR units with 1 no. studio unit, 63 no. 1 bed units, 46 no. 2 bed units, and 8 no. 3 bed units. Private balconies / terraces for the apartments are provided on the west, east, south and north elevations.
- Block G is a part four to part nine storey building comprising 139 no. SDA units with 1 no. studio unit, 71 no. 1 bed units, 54 no. 2 bed units and 13 no. 3 bed units, with a residential amenity area at ground floor level. Private balconies / terraces for the apartments are provided on the west, east, south, and north elevations.
- Block H is a five storey building comprising 30 no. SDA units with 1 no. studio unit, 10 no. 1 bed units, 14 no. 2 bed units and 5 no. 3 bed units. Private balconies / terraces for the apartments are provided on the west, east, south, and north elevations.
- Block J is a four storey building, which is an extension to Block K (St. Vincent's Hospital building- RPS Ref.: 2032), comprising 13 no. SDA units with 6 no. 1 beds and 7 no. 2 beds, and residential amenities and facilities at ground floor level. Private balconies / terraces for the apartments are provided on the north, west and south elevations.
- Block L is a part four to part six storey building comprising 86 no. SDA units with 1 no. studio unit, 28 no. 1 bed units, 41 no. 2 bed units and 16 no. 3 bed units. Private balconies / terraces for the apartments are provided on the north, east, south, and west elevations.

- A proposed basement / lower ground floor level is located below and accessed via Blocks C, D-E and F, and includes a total of 240 no. car parking spaces allocated for the residential development (including 6 no. accessible spaces, 7 no. car share spaces and 120 no. EV charging spaces), 9 no. bicycle stores providing a total of 947 no. cycle spaces (including cargo bikes and electric bikes), 13 no. motorcycle spaces, 15 no. storage units, bin storage areas, an ESB substation and switchroom, various plant rooms and lift and stair cores.
- A total of 16 no. car parking spaces and 817 no. bicycle spaces are proposed at surface level for the proposed residential, commercial, and community uses.
- Access to the new hospital and associated grounds is provided from Richmond Road and Convent Avenue, with separate internal access points. A separate vehicular access to the residential development is provided from Richmond Road. The development includes a proposed pedestrian / cycle connection to Griffith Court, requiring alterations to the service yard of the Fairview Community Unit, pedestrian / cycle connections to the Fairview Community Unit campus to the north (providing an onward connection to Griffith Court), a pedestrian / cycle connection to Grace Park Wood, and makes provision internally within the site for a potential future connection to Lomond Avenue / Inverness Road.
- The proposal includes public open space, including allotments, children's play areas, a central park, a linear park and an entrance plaza, with a set down area at Richmond Road, and communal open space at surface level.
- The proposed development includes an enclosed heat pump area located to the south of Block D-E and west of Block C, and 6 no. ESB substations in Blocks A, B, C, D-E, F, and G.
- The proposal also includes provision of internal access roads, pedestrian and cycle infrastructure, associated set down areas, bin and bike stores, alterations to existing landscape features, landscaping, boundary treatments, lighting, telecommunications infrastructure at roof level of Block B, green roofs, lift overruns and plant at roof level,

site services, including a watermain connection / upgrade via Griffith Court, Philipsburgh Avenue and Griffith Avenue, site clearance, and all associated site works.

The detailed description of the proposed development is provided in the public notices and key aspects of relevance to each chapter are discussed within the EIAR.

The locations of the proposed buildings and overall site layout / masterplan is discussed in Scott Tallon Walker (STW) Architectural Design Statement. Please refer to drawing SVRD-STW-ST-00-DR-A-022003 in the planning application pack for an overall site layout.

The overall site layout is shown in Figure 2.6 below.

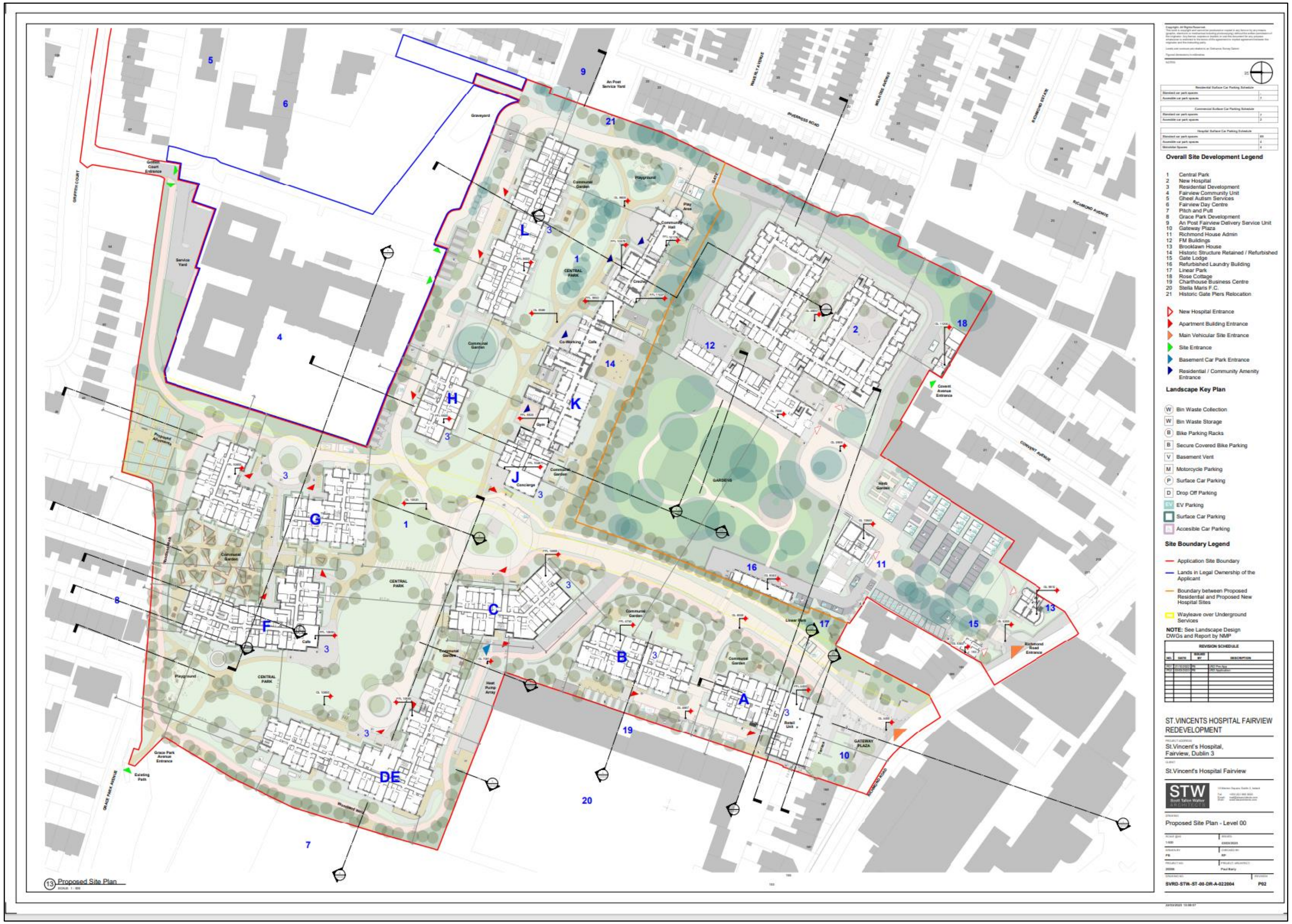


Figure 2.4 *Proposed Site Layout (Source Drawing no. SVRD-STW-ST-00-DR-A-022003).*

2.3.1 Proposed Demolition Works

The proposal includes the demolition of existing structures on site with a GFA of 5,872 sq.m, including the westernmost range of the hospital building, which includes St. Teresa's Wing, the Freeman Wing, and extensions to the south and north of main hospital building, including the conservatory extension, toilet block extension, an external corridor, toilet core, lift core, and stair core (which are all part of / within the curtilage of RPS Ref.: 2032), St. Joseph's Adolescent School located in the southeast of the site, 2 no. hospital buildings and associated hospital outbuildings located to the north of the existing hospital building and Crannog Day Hospital located in the southwest of the site. The demolition works within the existing hospital building to be retained includes external walls and associated structures, external elements to the northern and southern façade, internal walls, windows and doors.

The extent of demolition is shown in drawing SVRD-STW-ST-ZZ-DR-A-022101 included with the planning application.

2.3.2 Proposed Residential Units

The residential units are proposed to be contained within 9 no. apartment buildings (A, B, C, D-E, F, G, H, J and L) on site, ranging from 2 to 13 no. storeys. The proposal is for 811 no. residential units including 317 no. Built-to-Rent apartments and 494 no. standard apartments, and 4,802 sq.m of residential amenity space. The proposed mix for the residential units is as follows:

- 18 no. studios (2%)
- 387 no. 1 bed apartments (48%)
- 349 no. 2 bed apartments (43%)
- 57 no. 3 bed apartments (7%)

A detailed breakdown of the proposed accommodation for each block is provided in the Housing Quality Statements prepared by STW Architects. The following Table 2.2 summarise the apartment types per block within the proposed development.

Table 2.2 *Schedule of apartment types per block*

Block	Totals	Studio	1-Bed	2-Bed	2-Bed (3p)	3-Bed
A	58	7	27	18	0	6
B	86	0	54	22	1	9
C	82	0	40	42	0	0
DE	199	7	88	104	0	0
F	118	1	63	44	2	8
G	139	1	71	41	13	13
H	30	1	10	13	1	5
J	13	0	6	7	0	0
L	86	1	28	41	0	16
Total	811	18	387	331	17	57

The locations of the proposed buildings and overall site layout / masterplan is discussed in STW Architectural Design Statement.

A proposed basement level is located below Blocks C, D-E and F and is accessed via Blocks C, DE, and F and includes a total of 240 no. car parking spaces allocated for the residential development (including 6 no. accessible spaces, 7 no. car share spaces and 120 no. EV charging spaces), 9 no. bicycle stores for a total of 947 no. cycle spaces (including cargo bikes and electric bikes), 13 no. motorcycle spaces, 15 no. storage units, bin storage areas, an ESB substation and switchroom, and plant rooms. This section of basement extends to 11,774 m2. The basement is located;

- c. 15m from the boundary to the site
- c. 30m from the extension to the protected structures on the site

The proposal includes a landmark building to the northwest of the site, at the western end of the central park. The highest part of Block DE, which acts as a local landmark, is situated in a location that will mark places of local visual and functional importance, whilst being suitably separated from sensitive uses and helping to frame the Central Park to the east. The maximum height of the building, and therefore of the proposed development, is 46.1 m. The Architectural Design Statement prepared by STW demonstrates the location of the proposed landmark building and general building heights across the site is justified and that the height is proportionate to the surrounding context and corresponds to the significance of their role and location. The buildings will form meaningful local landmarks, enhance the distinctiveness of the area, and will have a positive contribution to place making, legibility and character of the area.

2.3.3 Proposed Hospital Building(s)

The proposed part two and part three storey hospital building, providing mental health services (with a total gross floor area (GFA) of 7,188 sq.m), accommodating 73 no. beds, and including treatment/consultation rooms, education rooms, reception, family visitation and resource areas, therapy areas, multifaith rooms, staff and visitor canteen/café, staff offices, back of house areas including changing facilities, public and staff circulation areas, plant rooms and zones, and related servicing areas. The hospital includes 2 no. courtyards at ground floor level, a terrace at first floor level, and open space adjacent to the building to be used by patients and staff. A total of 76 no. car parking spaces (including 39 no. EV charging spaces), 50 no. bicycle spaces and 4 no. motorcycle spaces are proposed for the new hospital. A facilities management building, with a GFA of 149 sq.m, is located northwest of the new hospital building and will accommodate a generator area, a disposal hold area, an ESB substation, a MV switch room, a LV off loader room and a plant area.

Richmond House and associated structures (RPS Ref.: 8788) will be refurbished for hospital administration use, with a GFA of 397 sq.m, and the proposed refurbishment works include the removal of an external staircase and balcony, removal of some internal walls, internal renovations, repair of the facades, repair and renewal of rainwater goods, and all associated conservations works.

Brooklawn (RPS Ref.: 8789) will be refurbished for hospital administration use, with a GFA of 301 sq.m, and the proposed refurbishment works include the removal of an external staircase, replacement of rooflights, removal of some internal walls, internal renovations, repair of the facades, repair and renewal of rainwater goods, and all associated conservations works.

Rose Cottage will be refurbished and extended for hospital administration use, with a GFA of 161 sq.m, and the proposed refurbishment works include the removal of a single storey extension, provision of a single storey extension to the southeast, and all associated works.

The Laundry building will be refurbished for hospital administration use, with a GFA of 135 sq.m, and the proposed works include the demolition of the adjacent electric hub building to the north, the adjoining structures to the south of the building, and the refurbishment of the building including replacement rooflights and door and window opes, and all associated conservations works.

The Gate Lodge will remain in residential use, to be used by visiting members of staff to the new hospital.

The new hospital, associated buildings and grounds (as described above), are proposed on a hospital site of c. 2.67 ha.

The location of the new hospital is as close as possible to the existing mental health facility and will allow existing familiar and private access routes to be continued to be used.

The new building and landscape are being designed using principles of therapeutic architecture. Location of the new facility will allow patients to continue to use the outdoor space familiar to them.

2.3.4 Protected Structures Change of Use

The site includes 3 no. protected structures,

- Richmond House (RPS Ref.: 8788),
- Brooklawn (RPS Ref.: 8789) and the existing
- St. Vincent's Hospital buildings (RPS Ref.: 2032) referred to as Block K in the planning application documentation.

The application proposes the change of use of the existing hospital building to provide new community, social and residents amenities associated with the redevelopment of the overall landholding and the delivery of residential development on the site. The building which is to be retained will be separated into 4 no. parts (K1, K2, K3 and K4) and a fifth part will be added as an extension to the western end of the building (referred as Block J). See below Figure 2.7 an extract from the ground floor plan showing the details of the plan for block K.

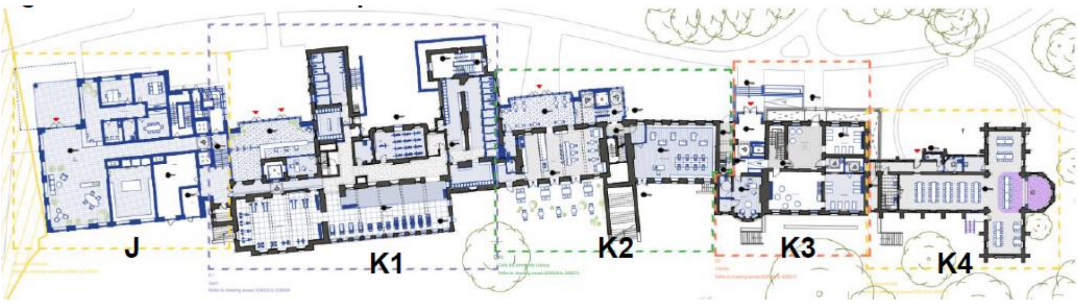


Figure 2.5 *Extract of Ground Floor Plan for Block K*

Further details of the proposed modifications are provided in the Architectural Conservation Report prepared by STW and assessment is provided in Chapter 13-Architectural Heritage and the Architectural Heritage Impact Assessment and Appendices included in Volume 4 of the EIA Report prepared by Carrig Conservation International.

2.3.5 Proposed Retail and Cafe Unit

A retail unit is proposed in Block A at ground and first floor levels to the southern part of the building. The GFA of the proposed retail unit is 765 sq.m.

2 no. cafe units are proposed in Block F and Block K2, both at ground floor. The GFA of the proposed café in Block F is 133 sq.m and in Block K2 is 160 sq.m.

2.3.6 Proposed Community / Social Infrastructure

In addition to the new hospital building, the proposal also includes for the change of use, refurbishment, alterations and extensions, to the existing St. Vincent's Hospital buildings, part protected structure under RPS Ref.: 2032 (referred to as Block K), from lower ground to third floor level to provide for a mixed use building including community facilities, commercial uses and residential amenities and facilities.

The building will be separated into 4 no. parts (Block K1, K2, K3 and K4). Block K1 includes a gym at ground and first floor levels and residential amenities and facilities at second and third floor levels. Block K2 includes a café and a community library at ground floor level and co-working spaces at first, second and third floor levels.

Block K3 includes a childcare facility over three levels at lower ground, ground and first floor level and Block K4 is proposed as a community hall. The alterations to the existing buildings to facilitate the change of use includes the removal of external walls, a stair core, external elements to the northern and southern façade, internal walls, windows and doors, new rainwater goods, associated repairs and alterations, the construction of a new lift and stair core for Block K1, K2 and K3, and all associated conservation works. A part one to part four storey building is proposed as an extension to the western end of Block K (referred as Block J and which is described below).

The proposal includes a communal garden for residents and roof terraces in Buildings C and D-E. Further residents' amenities are also provided within Buildings C, DE, F and G.

2.3.6.1 Childcare Facility

Block K3 is part of the protected structure of the existing hospital which was formerly a convent (Richmond Convent RPS Ref.: 2032) and it is proposed to reuse it in part for a new childcare facility with a proposed GFA of 730 sq.m at ground and first floor levels.

STW have estimated that the childcare facility has capacity to accommodate c. 77 childcare spaces, however, this could be greater depending on the end users requirements / operational model and given the generous size of 730 sq.m.

The childcare facility is part of the change of use of the existing hospital facility (Block K), along with a gym, a café, a co-working space, a library and a community hall that are detailed below. In total, for all the uses, 71 no. cycle spaces are proposed for Block K.

2.3.6.2 Community Library and Co-working Space

A community library is proposed in Block K2 at ground floor level with a GFA of 163 sqm. At first, second and third level of the same block a co-working space of 817 sqm is proposed.

2.3.6.3 Community Hall

It is proposed to use the existing chapel located to the east of the existing hospital as a community hall (referred as Block K4) over one level with a GFA of 243 sqm.

2.3.6.4 Gym

Block K1 is part of the protected structure (Hospital Building Phase 1 and part Phase 2 RPS Ref.: 2032) and it is proposed to provide a gym at ground floor level with a GFA of 1,459 sq.m. The first, second and third floor will be amenities only accessible by residents of the development, i.e. not for use by the wider public.

2.3.7 Proposed Landscape Design and Open Space

The Landscape Design Statement prepared by NMP Landscape Architecture discusses the public realm improvements and open space strategy for the proposed residential and hospital development.

This development will necessitate the removal of 122 trees. A further 17 category ‘U’ trees should be removed as they have either failed or in a state of advanced decline. CMK Hort + Arb Ltd. have undertaken an arboricultural assessment of trees on the proposed development site. The Arborist report by CMK has been submitted as part of the planning package. Niall Montgomery + Partners Architects (NMP) have considered the arborist findings in the Landscape Plan submitted with this planning application.

New planting is proposed to mitigate for the removal of existing trees with a new generation of proposed trees; “The proposed new trees will be located along streets and within public and communal spaces with the intention of mitigating existing tree loss. The trees will vary in specification of size and species. There will be a majority of trees selected from native tree species, be of deciduous and evergreen nature and varying habit. Clusters of trees rather than formal rows will dominate the landscape expression. There will be a total of 420 trees planted.” Please refer to Chapter 11 (Landscape and Visual), the Arborist report by CMK Hort + Arb Ltd. and the Landscape Plan by NMP for further details.

The proposal includes public open space, including allotments, children’s play areas, a central park, a linear park and an entrance plaza, with a set down area at Richmond Road, and communal open space at surface level. The proposal includes communal roof terraces on Block C and Blocks D-E and private balconies / terraces for the apartments.

The total Public Open Space area is 1.6 ha (26% of Net Residential Site Area) and a Communal External Space of 0.56 ha is also provided.

Please refer to Niall Montgomery + Partners Landscape Architecture landscape drawings and Landscape Design Statement for further details of the communal areas and also to Chapter 11 (Landscape and Visual) of this EIA Report.

2.3.8 Proposed Access, Transport and Parking

It is proposed to access to the hospital from Richmond Road and Convent Avenue, with separate internal access points. It is proposed to provide a separate access to the residential development from Richmond Road.

The application includes a proposed pedestrian / cycle connection to Griffith Court, requiring alterations to the service yard of the Fairview Community Unit, pedestrian / cycle connections to the Fairview Community Unit campus to the north (providing an onward connection to Griffith Court), and a pedestrian / cycle connection to Grace Park Wood, within the red line application site boundary. There is also a public walking / cycling trail along the landscaped perimeter of the residential development.

In addition, the application makes provision internally within the site for a potential future connection to Lomond Avenue / Inverness Road, i.e. through provision of a pedestrian / cycle path up to the application site boundary, with the potential future connection point identified on the site boundary by the relocated gate piers. This connection will be subject to delivery by others in the future, as these adjacent lands are in third party ownership and it was not possible to reach agreement with the adjacent landowner to include this land within the red line application site boundary.

The proposed connections ensure a high level of connectivity to surrounding areas and permeability through the site. The connections to the north of Block H and L to the Fairview Community Unit campus and onwards to Griffith Court and Phillipsburgh Avenue, also assists in encouraging east-west circulation through the central park and use of the activity track around the perimeter of the site, and ties in with existing pedestrian and cycle infrastructure in the area.

Please refer to Chapter 14 (Material Assets: Traffic and Transportation) of this EIA Report. the Traffic Impact Assessment, Mobility Management Plan, and the accompanying engineering drawings prepared by OCSC for further details on transport matters.

2.3.8.1 Proposed Entrances

It is proposed to provide 6 no. accesses to the subject site including 4 no. for the residential area and 2 no. for the hospital area.

The hospital area will be accessible by all type of users from Richmond Road and from Convent Avenue to the south of the site.

The main vehicular site entrance for the residential area is to be provided from Richmond Road to the south of the site area. 3 no. pedestrian accesses are to be provided from Grace Park Woods to the northwest of the site, via the service yard of the community care unit from Griffith Court to the north of the site and to the north of Block H and L to the Fairview Community Unit campus. A future potential connection to Lomond Avenue to the northeast of the site is also provided for, subject to delivery by others in the future.

The proposed linkage to Grace Park Woods will require works located outside of the site boundary and are therefore is subject to a letter of consent from a third party owner.

It is also proposed to provide works outside the site boundary along Richmond Road where 1 no. access is to be provided for the hospital area and 1 no. access is to be provided for the residential area. These works are subject to agreement with DCC and a letter of consent is included with this application.

The application site includes an area of the public road / footpaths (extending for approximately 0.8km) to facilitate service connections via Griffith Court, Philipsburgh Avenue and Griffith Avenue, as required by Irish Water, and the DCC letter of consent covers this part of the extended red line. The water connection upgrades will be delivered by / on behalf of Irish Water.

2.3.8.2 Vehicular, Cycle and Pedestrian infrastructures

The proposed development includes road, pedestrian and cycle upgrades and associated alterations to the road infrastructure within the application site boundary. The development includes the internal road to provide pedestrian, cyclist and vehicular access to the basement level.

A woodland walk is to be provided along the western boundary through the western part of the residential area and footpaths are proposed across all the residential area increasing significantly the permeability of the site.

2.3.8.3 Residential Development: Car, Motorcycle and Cycle Parking Provision

In respect to parking provision, provision is made for 247 no. car parking spaces, including 124 no. EV spaces (50%), 20 no. car share spaces and 13 no. disabled spaces, for the residential units within the basement (240 spaces) and 7 no. at surface level, which will provide a ratio of 0.3 car parking spaces per apartment.

Provision is made for 1,702 no. cycle parking spaces for residential units within a covered, secure parking enclosure and open bike racks at surface level and secure bike parking areas at basement level.

2.3.8.4 Hospital Development; Car, Motorcycle and Cycle Parking Provision

It is proposed to provide 76 no. car parking spaces, including 39 no. EV spaces and 4 no. mobility impaired parking bays, for the hospital development which complies with the requirement of 1 no. ca parking space per 100 sq.m in Zone 2. 4 no. motorcycle parking spaces are provided in the hospital area.

Provision is made for 50 no. cycle parking spaces including 42 no. long stay spaces and 8 no. short stay spaces for the hospital unit, and 71 no. cycles parking spaces are provided for the gym, café, co-working, library, childcare facility and community hall.

2.3.9 Proposed Architectural Design and Layout

The site layout, overall massing, scale and architectural design has evolved following consideration of key site features, and constraints and opportunities. Please refer to the Design Statement prepared by STW for details of the design strategy and architectural justification for the proposed development.

For a further detailed description of the development and the proposed architectural design, please refer to the Architectural Design Statement prepared by STW.

2.3.10 Proposed Site Utilities and Ancillary Infrastructure

2.3.10.1 Proposed Stormwater

It is proposed to separate the surface water and wastewater drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and wastewater sewer networks respectively.

The proposed development is to be served by a sustainable drainage system (SuDS) that is to be integrated with the developments landscaping features and is typically to comprise green roofs, blue podium, intensive landscaping, pervious paving and filter drains, rain gardens, infiltration basins, trapped road gullies, flow control devices, attenuation storages.

All SuDS are to be provided, wherever practicable, and are designed in accordance with best practice, DCC's SuDS Design and Evaluation Guide, and the CIRIA C753 (The SuDS Manual) guidance material, with development discharge rates restricted to greenfield runoff equivalent, which is significantly less than existing scenario. The proposed development is to be served by a sustainable drainage system integrated with the developments landscaping features and is typically to comprise green roofs, blue podium, intensive landscaping, pervious paving and filter drains, rain gardens, infiltration basins, trapped road gullies, flow control devices, attenuation storages.

The overall development is divided into a number of surface water sub catchments as a result of the natural topography, site layout, and other site constraints. All surface water runoff is to be attenuated (restricted to the greenfield equivalent runoff rate for design rainfall events up to, and including, the 1% AEP) and treated within the new development site boundary, before ultimately discharging to the existing public surface water network on Richmond Road.

Further details on the proposed design of the surface water drainage and sustainable drainage systems incorporated within the design is set out in the Engineering Services Report (OCSC, 2023) included with the planning documentation and on the accompanying engineering drawings R517-OCSC-XX-XX-DR-C-0500 and R517-OCSC-XX-XXDR-C-0501 for details of the proposed drainage layout, which is to serve the proposed development.

2.3.10.2 Proposed Potable Water Supply

It is proposed to serve the proposed development by providing a new 200mm high density polyethylene (HDPE) connection to the Irish Water network. All proposed potable water design has been carried out in accordance with Irish Water's Code of Practice for Water Infrastructure, IW-CDS-5020-03.

The proposed connection is to be carried out in accordance with Irish Water's Code of Practice for Water Infrastructure, following a New Connection agreement with Irish Water, with a bulk water meter to be provided at the development's entrance.

Water saving devices are to be considered for use within the proposed development units, in order to conserve the use of water, as part of the internal fit-out. Water metering arrangements are to be upgraded at the connection location, to meet Irish Water's criteria. A bulk water meter is to be provided at the connection to the public watermain, at the development entrance, along with individual meters provided at the connection to each commercial and domestic unit. All metering is to be provided in accordance with Irish Water's requirements.

All new watermain infrastructure, installed to serve the proposed development is not to be offered to Irish Water for to be taken-in-charge.

A Pre-Connection Enquiry (PCE) (IW Ref Nr. CDS22004338) was prepared OCSC Consulting Engineers and submitted to Irish Water on the basis of the anticipated potable water demand for the proposed development site. A Confirmation of Feasibility was issued by Irish Water on the 31st of January 2023 and the COF letter states that the connection is feasible subject to upgrades. In order to accommodate the proposed connection upgrade works are required to increase the capacity of the Irish Water network as described further in Section 2.7.1 of this chapter.

It will be necessary to construct a watermain connection / upgrade via Griffith Court, Phillipsburgh Avenue and Griffith Avenue, and all associated site works, and these proposed public watermain upgrades are shown within the proposed application site boundary.

2.3.10.3 Proposed Foul Wastewater

All proposed wastewater sewer design has been carried out in accordance with Irish Water's Code of Practice for Wastewater Infrastructure. The existing site is currently a mix of greenfield and existing building, with existing combined sewer discharging to the public wastewater infrastructure.

It is proposed to provide a connection from each structure to the existing public wastewater network inside the site boundary. Irish Water records a 300 mm sewer within the site boundary with a 900 mm concrete sewer in Richmond Road. This 900 mm sewer flows in an easterly direction and is treated at Ringsend.

A Pre-Connection Enquiry (PCE) (IW Ref Nr. CDS22004338) was prepared by OCSC Consulting Engineers and submitted to Irish Water on the basis of the anticipated foul water flows for the proposed development site. A Confirmation of Feasibility was issued by Irish Water on 31st of January 2023 and the COF letter states connection is Feasible Subject to upgrades. The connection of the Hospital can proceed prior to any works as it will replace the existing Hospital and hence does not increase the overall load on the downstream network. In order to accommodate the proposed connection (excluding the Hospital) at the Premises, Storm Sewer Separation works are required to reduce the load on the downstream combined network.

2.3.10.4 Proposed ESB Infrastructures

Existing 10/20kV underground cables and 400/230V overhead LV lines are located in the surroundings of the site and will be able to power the proposed development.

6 no. substations are to be provided within the residential site, all sized accordingly based on the number of apartments within the development. Substations have been provided in Blocks A, B, C, F, G and D-E (double substation) where a core electrical load exceeds 200 kVA.

A Medium Voltage (MV) ESB connection has been designed into Block DE as the mechanical plant heat pump load shall exceed 500kVA, this is as per ESB requirements. Associated MV switch room and Transformer rooms have been included in the design.

The ESB sub-stations have been sized to accommodate the electrical loads associated with the future provision of EV charging to all parking spaces.

1 no. ESB Substation is to be provided on the FM building to the northwest of the Mental Health Facility within the hospital area.

Please refer to the Chapter 14 Material Assets of this EIA Report, M&E Utilities Report and to the drawing SVRD-IN2-ST-ZZ-DR-ME-0105 prepared by IN2 Engineering Design Partnership for more details.

2.3.10.5 Proposed Telecommunications

To provide an adequate allowance to support the density and scale of the Development with the appropriate level of telecommunication channels (mobile phone signal / voice and data services), the Applicant is seeking planning permission to install the following:

- 9No. support poles, affixed to ballast mounts on Apartment Block B rising 2.5 metres above parapet level. These support poles are sufficient to each accommodate 1No. 2m 2G/3G/4G antenna & 1No. 5G antenna each.
- 3No, support poles, affixed to the lift shaft overrun on the Development's Apartment Block B, rising 3metres above roof level. These support poles are sufficient to accommodate 2No. Ø0.3m Microwave links each.
- Together with all associated telecommunications equipment and cabinets ,
- To adequately screen the infrastructure, the support poles used for the antennae will be installed within Radio friendly GRP shrouds.

Independent Site Management ('ISM') has been engaged to provide a specific assessment that the proposal being made allows for the retention of important Telecommunication Channels ("Telecommunication Channels") such as microwave links, to satisfy the criteria of Section 3.2 of the Building Height Guidelines (2018). Please refer to Chapter 14 Material Assets of this EIA Report and to the ISM report Telecommunications Report which is included with this application.

2.3.10.6 Heat Pump Area

Enclosed heat pumps areas are to be provided to the south of Block DE and to the west of Block C, along the site boundary. An air source heat pump compound of 352 sq.m is located at ground level to the south of Block DE and air source heat pump compound of 65 sq.m is located at ground level to the west of Block C.

The historic buildings Rose Cottage, Richmond House, Brooklawn and the Laundry Building, and the proposed hospital are served by a local heat pump.

Blocks A, B, C, DE, F, and J are served from a centralised residential heat pump system.

Block L and K are served from an individual CO2 heat pump of natural gas system.

2.4 DESCRIPTION OF DEMOLITION, CONSTRUCTION, AND COMMISSIONING

The works during the construction and commissioning phase are summarised in Table 2.4 below.

Table 2.3 *Summary of key construction works*

Activity	Description of Activity
Site Preparation Works and Establishment of Construction Services	The primary activities that will be required during the Site preparation phase for the development will be the establishment of construction fencing and hoarding and site compound. The Site compound will provide office, portable sanitary facilities, equipment storage, parking etc for contractors for the duration of the works. The Site compound will be fenced off for health and safety reasons so that access is restricted to authorised personnel only. All areas under construction will be fenced for security and safety purposes and temporary lighting supplied, as necessary. Tree protection areas will be established at an early stage in line with the project arborists recommendations. All required

	enabling works and site investigations, surveying and setting out for structures, archaeological impersonation (if required) etc. are carried out.
Demolition works.	The proposed demolition works will continue throughout the construction phase and will be completed within the construction duration. Completion of Pre-Demolition Surveys including an asbestos survey and bat survey prior to works commencing; Stripping of hazardous materials; Removal of existing fixtures and fittings such as floors, doors, partitions, ceilings, windows, mechanical equipment and non-buried pipping & electrical services; Removal of all roof coverings and building envelope finishes. Support and then cut remaining roof structures before lowering to ground level for dismantling; Demolish internal walls and columns; Remove ground floor slab; Separation of demolition debris into different waste streams; Removal of all waste from site.
Site clearance and earthworks	This phase will include site clearance, vegetation removal, excavations and levelling of the Site to the necessary base level for construction. Excavate and remove material to the required formation including pile mat construction. This will require a bulk excavation and removal from the site. Surveying and setting out for structures. Rerouting of services/connections to services. Install granular fill for roads and footpaths. Excavations down to the lowest formation level (c. 4.5m below ground level). The Site preparation works will include the demolition and removal of the existing roads, watermains foul and surface water and utility pipework. The installation of site utilities, such as water supply, sewer lines, and storm drainage systems may also continue throughout the construction phase.
Foundations	Once the site is prepared, foundation works can begin. This involves excavating and pouring the concrete foundations for the building or structure. The foundations will generally be reinforced concrete pad footings incorporated into the concrete slabs. The basements will be excavated prior to commencement of construction on that phase. The basement will be constructed of Reinforced concrete. it is expected given the heights of the proposed superstructures that the foundations will be supported on pile groups with insitu pile caps. The basement slabs and perimeter walls will be waterproofed to ensure that ingress of ground water is negligible.
Structural and Building envelope works	The podium slab is intended to be in Cast insitu concrete in the order of 450mm thick, suitably stepped to provide lower areas for landscaped courtyard build-up and street/hard landscape build-up After the foundations are in place, the structural steel and building construction can begin. This involves erecting the steel framework for the building or structure and installing the exterior walls, roofing, and insulation. Once the structural works are complete, building envelope works can begin. This involves installing the roof, walls, and other components that make up the exterior envelope of the building or structure. The roofs are intended to support a selection of blue roofs for attenuation purposes, green biodiverse roofs, and landscaped areas. The supporting roof will be of concrete proprietary warrantied waterproofing system.
Installation of Services and Fitout	New electricity and telecommunications services infrastructure will be put in place to serve the various buildings. This will be carried out in accordance with the requirements of the various service providers / authorities. The fitout and commissioning of the units will be completed within the construction duration.
Landscaping	After the main construction works are completed on each phase the hard and soft landscaping and reinstatement works for that phase will be carried out in accordance with the proposed landscaping design.

2.4.1 Construction Duration and Indicative Phasing

It is anticipated that the proposed development will be delivered in 2 no. main development phases (and subphases) as follows:

Phase 1 and 1A

- New Hospital providing mental health services
- New Apartments and associated open space in the Z12 lands, and linkages to Grace Park Woods and Griffith Court
- Full access maintained to the existing hospital facilities for patients and staff

Phase 1B

- New Welcome Gardens to Richmond Road
- Building A

Phase 2

- Decant all medical functions into the new buildings

Phase 2A

- Demolition of former hospital buildings
- Refurbish retained Protected and Historic Structures
- Buildings J, H and L
- Complete Public park North of Historic buildings and links to Fairview Community Unit to the north.

The phasing will include all necessary site clearance and preparation work, site development and construction. The construction phases will involve the excavation of soil and bedrock for the construction of building foundations, basement, carparking areas, access roads and filter drains, the surface / foul water drainage network and all ancillary works. The phasing will allow the provision or upgrading of any external infrastructure and services to be provided on a phased basis and provide an appropriate quantum of development and supporting infrastructure within each part of the overall scheme.

The site preparation works and establishment of construction services, demolition works, site clearance and earthworks, would occur within the first 6 month of each phase. Then works on the foundations / substructure and superstructure, façade, structural and building envelope works, installation of services and fitout would occur. Site demobilisation landscaping and reinstatements will be undertaken in the last 3 months of construction works timelines for each phase.

The duration of the construction phase has been estimated to approximately 48 months from commencement of development. On the basis of a grant of planning Phase 1 is intended to commence in Q1 2024 and estimated completion in Q2 2026; Phase 2 is intended to commence in Q4 2025 and estimated completion in Q1 2028. However, these are likely to be best case scenarios and accordingly a ten-year permission is being sought.

The development phasing will be developed as the design progresses and as part of the tender / detailed design stage. See Figure 2.8 below for the indicative phasing layout.

Figure 2.6 *Indicative Development Phasing (Source STW Design Statement)*

2.4.2 Demolition Works

The existing structures appear primarily to be of masonry and brick construction with timber upper floors and timber roofs. In addition to masonry there are certain elements within of reinforced concrete, structural timber and other construction techniques. The proposed demolition of the existing structures can only be undertaken once the new Hospital facility has been constructed and handed over. This will then allow the current users of the existing facilities relocate which will then allow the buildings to be demolished where required. The process of coordinating this and relocated equipment etc will be undertaken by the Hospital / Client and possibly proposed contractor.

An outline Demolition Method Statement for the proposed development has been prepared by OCSC sets out the detailed methodology for the demolition works. The Demolition Method Statement is provided for Planning Permission purposes only. The Contractor must develop a Construction Manage Plan including proposed demolition works prior to operations beginnning. The Contractor must ensure that all demolition material is managed, stored and disposed of in an appropriate manner in accordance with all relevant waste legislation. Work shall be carried out in accordance with BS EN 6187: 2011 Code of Practice for Full and Partial Demolition.

In addition, a demolition justification report, has been prepared by Passive Dynamics Sustainability Consultants to provide justification for the demolition of some of the existing buildings on the St Vincent's Hospital site as part of a wider gain to the overall scheme.

2.4.3 Site Preparation Works

Site preparation works will be required in order to facilitate the development. Such works will involve demolition, site clearance and excavation works.

This stage of the works will also include the establishment of the site facilities which will be housed at the contractor's compound. These facilities will include the following:

- Site Offices
- Site facilities (canteen, toilets, drying rooms etc.)
- Offices for Construction Management Team
- Secure compound for the storage of all on site machinery and materials
- Carparking

It is the intention to provide a main site accommodation and welfare facility on site. The principal contractor will be responsible for providing canteen and welfare facilities for the on-site operatives. These facilities will be maintained by the main contractor.

It is expected that the site compound will initially be set up along the Southern boundary of the site. This will allow for the efficient spread of resources through the site for construction traffic. The compound will be moved dependent on construction needs. Site offices will be provided on site for construction and management personnel. Appropriate levels of welfare facilities will be provided along with secure facilities for the storing of construction materials. Segregation will be employed on site to separate pedestrians from heavy equipment. Fenced off pedestrian walkways will be provided close to the site offices.

The initial work on site will include the erection of an appropriate standard hoarding around the entirety of the site in order to protect the workers and members of the public. The boundary to the site will be maintained at all times. Construction traffic will access the site via Richmond Road and exit via same Adequate site security will be maintained throughout the contract period.

2.4.4 Site Levelling and Basement Excavation

Prior to excavation works occurring further detailed Waste Soil Classification (WSC) may be undertaken which will inform the contractor of the potential outlets for disposal/remediation as required.

Excavations and levelling of the Site to the necessary base level for construction will require the excavation of an estimated 110,000 m^3 of top soil, subsoils and stones. The basements construction will require excavations down to the lowest formation level of c. 4.5 m below ground level).

The majority (but not all) of the topsoil stripped from the Site will be re-used on site for backfill (levels in some areas need to be raised) and landscaping with some export required. Any surplus topsoil material will be transported off site and disposed of at a fully authorised soil recovery site. It is predicted that all of the subsoil and stones will be removed from the Site and transported off site and disposed of at a fully authorised soil recovery site.

Soil requiring removal offsite will be removed from site regularly to ensure there is minimal need for stockpiling.

Any excavated material temporarily stockpiled onsite for re-use during reinstatement will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment etc.

During the excavation of the proposed basement and other excavation works dewatering (removing of perched groundwater) is necessary to create a dry working environment and prevent water from seeping into the excavation and flooding the construction site.

The piling Contractor will be required to carry out their works such that the effect of vibration on the adjacent buildings and surroundings is minimised, and that no damage to these results from construction activity on site. Refer to the Basement Impact Assessment carried out by OCSC for more details.

Basement Excavation Extent and Sequence

A section of basement is to be provided within the residential development. This section of basement extends to 11.774 m2. The basement is located.

- c. 15m from the boundary to the site
- c. 30m from the extension to the protected structures on the site

The basement construction sequence will consist of the following outline;

- Construction of load bearing piles from ground floor level.
- Excavations down to the lowest formation level (c. 4.5m below ground level).
- Temporary dewatering as may be required.
- Breaking down of pile foundations.
- Placing of waterproofing.
- Casting of lower ground floor slab.
- Casting of RC wall to perimeter.
- Continuation of ground floor and superstructure.

The lower ground floor works would be envisaged to be undertaken at the outset of the project and would be completed within the first 6 months of the works on site.

2.4.5 Construction Access and Parking

Pedestrian access will be strictly controlled. Only Safe Pass accredited personnel will be permitted on site and daily in-out attendance records will be maintained. Access will be strictly controlled via security personnel at the access point to the site.

Vehicular access to the site will be via Richmond Road access and will egress similarly The site access road will be strictly managed and controlled. A traffic management plan will be prepared in order to safely control construction traffic. Separate pedestrian access will be developed at the access point to the site in order to maintain vehicle and pedestrian segregation.

Taking into consideration the need to balance the promotion of sustainable travel against the risk of over spill parking, appropriate and limited on-site provision will be made for car parking by site construction personnel. Adequate numbers of cycle parking will be provided for site personnel and personnel will be encouraged to use public transport which is available in the surrounding area. A limited number of spaces will be provided for critical use such as the delivery of materials, tools etc. to prevent overspill parking onto the local road network. All vehicular access will be controlled at the gate where all access and egress will be recorded. All site personnel and delivery drivers will have to undergo site induction.

2.4.6 Construction Staffing and Working Hours

Employment levels across the project will vary depending on the construction programme and the extent of the activities occurring on the site. The contractor is to arrange car parking to cater for the demand.

Working hours will be restricted to 07:00 to 19:00 Monday to Friday and 08:00 to 14:00 on Saturdays. No Sunday or Bank Holiday work will be permitted. Out of hours working will be only permitted by arrangement with site management. Work outside of normal hours will be subject to approval by Dublin City Council.

2.4.7 Construction Traffic Numbers

The maximum vehicle/ truck movements per day at peak production and an estimated average vehicle/ truck movements to complete the development as detailed have been estimated as follows:

- 60 no. private vehicles per day from staff and site visitors i.e., 120 no. vehicle movements.
- 40 no. light goods vehicles per day from subcontractor staff i.e., 80 no. vehicle movements.
- 100 no. heavy goods vehicles per day during peak excavation process i.e., 200 no. vehicle movements.
- 40 no. heavy goods vehicles per day outside of the peak excavation periods i.e., 80 no. vehicle movements.

2.4.8 Construction and Demolition Waste

Careful extraction of materials will be undertaken to ensure that the highest proportion of the materials can be re-used. This will reduce the level of new materials required for the proposed site. This in turn reduces the impact on new resources and carbon emissions associated with the extraction, manufacture and transportation of materials to the site. Undertaking the demolition and enabling works upfront ensures that more time can be spent on the careful recovery of materials on site. Where appropriate, excavated material from the development site should be reused on the subject site. If any of the excavated spoil is found to be clean/inert, the site manager will investigate whether nearby construction sites may require clean fill material, to both minimise the costs of transport and to reuse as much material as possible. Any material used on another site will be done under Article 27 of the European Communities (Waste Directive) Regulations 2011.

During the construction phase, typical Construction and Demolition (C&D) waste materials will be generated which will be source segregated on-site into appropriate skips/containers, where practical and removed from 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. Construction basements and new foundations and the installation of underground services will require the excavation of a yet to be determined amount of made ground and subsoil. It is anticipated that there will be limited opportunities for reuse of this material onsite and some material will require removal for offsite reuse, recovery, recycling and/or disposal.

A site-specific Resource Waste Management Plan (RWMP) has been prepared by AWN Consulting Ltd to deal with waste generation during the demolition, excavation and construction phases of the proposed Development and has been included as Appendix 15.1 of this EIA Report.

2.4.9 Construction Equipment, Techniques and Materials

Equipment to be used during the construction of the facility will be typical of a project of this scale. In general, the following will be used:

- Tracked backhoe excavators.
- Tracked dumper or tractor and trailer;
- Articulated and rigid trucks ;
- Bulldozers, excavators, backhoes and ancillary equipment;
- Concrete delivery trucks and pumps;
- Scissor, boom and fork lifts Crane, Teleporter; and
- Chains / small tools, concrete vibrator.
- Delivery vehicles for concrete and materials

It is envisaged that normal construction techniques will be used without the need for specialist construction methods.

In so far as reasonably practical, construction materials will be from local sources. All imported material that will be used on site will be from approved sources and comply the European Construction Products Regulations (CPR).

There will be a requirement for deliveries of imported engineering fill (sands and gravels), and other construction materials include, steel structure, concrete, cladding, ducting and piping. Construction materials will be brought to site by road.

Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape of material along the public roadway.

It is envisaged that the contractor will maintain a tidy site and to operate a “just in time” policy for the delivery and the supply of materials for the works, particularly the final phase of the works when on site storage will be at a minimum. All materials will be stored on site as to minimise the risk of damage. A teleporter will be used for general unloading during the structural and envelope works. Unloading over the public roadway and path will be avoided.

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in a secure compound area within the contractors’ compound on site. Liquid materials, such as fuels for construction vehicles, will be stored within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications) to prevent spillage.

2.4.10 Site Utilities and Infrastructure During Construction

The existing water supplies and foul sewer connections to both these building will be used for all site temporary services.

The access road through the site has an existing ESB substation from which a temporary power supply will be taken. Should additional supply be required the intention is to apply to the ESB to increase supply through the existing ESB substation. In the event that generators be required HVO generators will be used to reduce carbon generation. Hybrid generators which currently work on HVO during the day and are backed up by battery at night will be used on a trial basis.

In relation to sewer discharge, foul waste from the site welfare facilities will be disposed of into the existing sewer connections. as noted above. For site dewatering (required for basement excavation and general site water management) the contractor will apply for a discharge licence to Irish Water for disposal to storm sewer. The site set-up will include a settlement/treatment tank which will include live telemetry to monitor quantities of water disposal to sewer. The contractor intends to review installing a recharge well where this water will be put back into the ground, removing the requirement for disposing to the local sewers.

For the Construction and Demolition phase, it is assumed that 500 staff will be required. It is estimated that the following water demands will be required during construction: domestic potable water, average daily demand of 2.92 l/s and a peak daily demand of 14.65 l/s. Domestic wastewater average daily discharge of 2.58 l/s, and peak daily discharge of 7.74 l/s.

Telecommunications including fibre required during the construction phase will be provided via a mobile connection.

2.4.11 Residential and Hospital Fit out.

The fitout process will typically begin after the construction of the superstructure is complete, which includes the main structural elements of the building such as the foundations, columns, and beams. Once the superstructure is in place, the focus will shift to completing the fit out of the residential blocks and hospital.

Fitout include includes the installation of the internal walls, doors, windows, and other finishes, as well as the installation of hospital-specific systems and components

The fitout process for the residential buildings will also include the installation of the architectural finishes, such as the flooring, wall finishes, and ceiling systems. The fitout process for hospital buildings is similar to that of residential buildings, but with additional considerations and requirements specific to healthcare facilities and the installation of hospital-specific systems and components, call systems, and patient monitoring systems, and the architectural finishes must meet the necessary hygiene control standards.

2.4.12 Landscaping/Reinstatement

Once the majority of the construction works are completed for that phase the landscaping will be completed in accordance with the specification of the project landscape architect and to the agreement with the local authority.

The landscaping process involves restoring the site by adding new plantings, trees, shrubs, grasses, and other features to create an attractive and functional outdoor space. This process may include installing irrigation systems, walkways, lighting, seating, and other amenities to enhance the usability of the outdoor space.

2.4.13 Commissioning

The commissioning involves a process of verifying and testing that all the building systems and components are functioning as intended and meeting the necessary standards and regulations. This process typically includes the mechanical, electrical, plumbing, and fire protection systems, as well as the architectural finishes and other elements of the building.

The commissioning process for hospital buildings also includes a comprehensive review of procedures and protocols to ensure that the building design and systems support the hospital's infection control program. This review may include testing for air quality and ventilation rates, checking the efficacy of the hospital's water treatment systems, and evaluating the functionality of the hospital's cleaning and sanitation procedures.

To carry out this process, specialist contractors will be mobilized, who will work on a phased basis as each block of the building is completed. The commissioning process will involve a series of tests and inspections to ensure that the building systems and components are functioning correctly and meeting the necessary standards. This may include testing the heating, ventilation, and air conditioning (HVAC) systems to ensure they are delivering the required airflow and temperature control, checking the plumbing systems for leaks and proper drainage, and testing the fire protection systems to ensure they are functioning correctly.

Commissioning will be carried out on a phased basis as block is completed. Commissioning will be carried out over a period of weeks and is included within the construction timelines in Table 2.6 above.

2.4.14 Potential Impacts and Mitigation Measures During Construction and Commissioning

There are potential short-term nuisances associated with demolition, excavations and construction such as dust, noise, as well as the potential for pollution of groundwater or the surface water infrastructure.

The main potential impacts during demolition, excavation, construction, and commissioning which require mitigation are:

- Control of construction run-off water in terms of silt runoff and dewatering, and disposal of construction water (see Chapter 5 (Land, Soils, Geology & Hydrogeology) and Chapter 6 (Hydrology) for further information);
- Impacts on human beings in terms of nuisances relating to the air quality of the environs due to dust and other particulate matter generated (see Chapter 8 (Air Quality) for further information);
- Potential impacts on Natura 2000 sites (SPA and SAC) linked to the proposed development site (See Chapter 7 (Biodiversity) and the accompanying Appropriate Assessment Screening and Natural Impact Statement);
- Potential impacts on human beings in terms of nuisances due to plant noise and vibration from equipment (see Chapter 10 (Noise and Vibration) for further information);

- Potential impacts on Archaeology, Architectural and Cultural Heritage during the demolition and excavation works (See Chapter 12 (Archaeology and Cultural Heritage), and Chapter 13 (Architectural Heritage) for further details;
- Effects on the road network (due to construction workers and other staff attending site (see Chapter 14 (Traffic and Transportation) for further information); and
- The generation of construction waste materials generated will be soil from excavation works and litter (see Chapter 15 (Waste Management) for further information).

In order to manage these short-term impacts a Construction Environmental Management Plan (CEMP) has been prepared by OCSC with input from AWN Consulting. The CEMP will be updated by the Construction Manager, Environmental Manager and/or Ecological Clerk of Works, as required if site conditions change, and for any planning conditions that may be imposed. The CEMP will be implemented and adhered to by the construction Contractor(s).

The potential for impacts depends on the type of construction activity being carried out in conjunction with environmental factors including prevailing weather conditions i.e. levels of rainfall, wind speeds and wind direction; as well as the distance to potentially sensitive receptors. This will be taken into consideration in the EIA Report.

2.5 OPERATION OF THE PROPOSED DEVELOPMENT

The proposed development, when operational, will generate typical anthropogenic impacts associated with the usual operation of a large-scale, residential, and apartment complex, and hospital. The main potential impacts are associated with additional traffic (and associated air emissions), and surface and foul water emissions, visual impacts, biodiversity, and wastes generation due to changes from the current undeveloped site to a build environment.

2.5.1 Residential Buildings

During the operational phase a Resident Management Team will be in place for the residential blocks as set out in the Hooke and McDonald Operational Management Plan included with the application documentation. The Resident Management Team will be primarily responsible for the following:

- Management and implementation of the parking and mobility strategy.
- Management of lease agreements and operational budgeting for the effective management of the common areas.
- Management of contractors and other requirements of efficient building and estate operation.
- Co-ordination of stakeholder and community events and engagement.
- Ensuring that the appropriate standards for resident behaviour are upheld, creating a secure and friendly environment.
- Management of delivery strategies to ensure full access to facilitate deliveries for all stakeholders as required.

The relevant features of the operational phase for the purpose of EIA are described in the corresponding specialist chapters.

2.5.2 St. Vincent's Hospital Building(s)

St. Vincent's Hospital, Fairview will continue to be operated by the current board of trustees to provide psychiatric care to the population of Dublin North Central. The development provides the construction of a new mental health facility will accommodate up to 73 single en-suite bedrooms, a variety of day-care facilities and a new Education Department. 76 no. car parking spaces are to be provided. The facility also includes a landscaped garden providing private and therapeutic environment for patients.

The proposed new hospital will include and utilise the retained and restored protected structures, Richmond House and Brooklawn,

The location of the new hospital is as close as possible to the existing mental health facility and will allow existing familiar and private access routes and outdoor spaces to be continued to be used. The new building and landscape are being designed using principles of therapeutic architecture. Please refer to the Architects Design Statement by STW for further details.

The current staff complement in St Vincent's Hospital is 177. During visiting hours, up to 109 additional personnel can be on site during early weekday visiting times. The Hospital operates on a 24/7 basis. Medical, Nursing and related support staff operate on a shift basis. The Hospital will continue to operate on a 24/7 basis and the existing shift times will be unchanged.

2.5.3 Operational Waste Management

Residential Waste

As with the construction phase, waste materials will be generated during the operational phase of the proposed development. Careful management of these, including segregation at source, will help ensure acceptable local and national waste targets are met.

The residents and tenants will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. The location of the bins within the units will be at the discretion of the residents and tenants. As required, the residents and tenants will need to bring these segregated wastes from their units to their allocated Waste Storage Areas (WSAs).

Dedicated communal waste storage areas have been allocated for the residents and tenants at ground and basement level. The waste storage areas have been appropriately sized to accommodate the estimated waste arisings. These 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 area by permitted waste contractors and removed off-site for re-use, recycling, recovery and/or disposal.

A separate Operational Waste Management Plan (OWMP) has been prepared for the operational phase of the proposed Development and is included as Appendix 15.2 in Volume 2 of the EIA Report.

Hospital Waste Generation and Waste Management

Healthcare waste is defined in the HSE and DOHC *Healthcare Risk Waste Management* publication as *"solid or liquid waste arising from healthcare"*. Waste materials generated will fall into two main categories, namely healthcare non-risk waste (i.e. non-clinical healthcare waste) and healthcare risk waste (hazardous). Hazardous waste has been further subdivided in this plan into non-clinical hazardous waste and clinical/risk waste.

The wastes generated will be segregated at source and separated into dedicated bins and containers. Dedicated waste storage areas (WSAs) will be strategically located within the development site boundary. Suitably permitted/licenced waste contractors will be engaged to collect the segregated wastes.

A separate Operational Waste Management Plan (OWMP) has been prepared for the operational phase of the proposed Development and is included as Appendix 15.2 in Volume 2 of the EIA Report.

2.5.4 Site Utilities and Infrastructure (Resource Consumption)

2.5.4.1 Potable Water Supply

In hospitals, potable water is used for similar purposes as in residential units, but with additional critical uses such as medical procedures and sanitation. Potable water is used to clean medical instruments and equipment, and maintain sanitary conditions in patient rooms, bathrooms, and other areas of the hospital. In addition, potable water is used for drinking and cooking for both patients and staff. The average and peak daily demands for potable water during operation of the hospital is estimated to be 0.65 l/s and 3.25 l/s respectively.

In residential units, potable water is typically used for a variety of purposes, such as drinking, cooking, bathing, and cleaning. It is important for residential units to have access to potable water in order to maintain good health and hygiene. The average and peak daily demands for potable water during operation of the residential units are estimated to be 6.44 l/s and 32.22 l/s respectively.

Further details on the proposed design of the potable water connection and upgrade works are set out within the Engineering Services Report (OCSC, 2023) included with the planning documentation and on the accompanying engineering drawings.

2.5.4.2 Surface Water Drainage

It is proposed to provide separate surface water and wastewater drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and wastewater sewer networks respectively.

The proposed development is to be served by a sustainable urban drainage system (SuDs) that is to be integrated with the proposed developments landscaping features and is typically to comprise green roofs, blue podium, intensive landscaping, pervious paving and filter drains, rain gardens, infiltration basins, trapped road gullies, flow control devices and attenuation storage.

The stormwater discharge from the site will be restricted using flow controls to the greenfield runoff rate calculated by OCSC as follows; Hospital catchments - 4.2 l/s (3.0 l/s/ha); and Residential catchments – 9.5 l/s (3.0 l/s/ha).

2.5.4.3 Foul Wastewater

The overall development is to be separated into 2nr. individual gravity wastewater catchments and is to be drained by a gravity wastewater network, based on the natural topography of the proposed development site. It is proposed to provide two individual connections to the existing 900mm public wastewater sewer on Richmond Road (one for the hospital and one for the residential part of the development). All proposed wastewater sewer design is to be carried out in accordance with Irish Water's Code of Practice for Wastewater Infrastructure. The foul wastewater discharged from the site will ultimately discharge to the Ringsend Wastewater Treatment Plant.

In hospitals, a foul wastewater connection is critical for maintaining a clean and hygienic environment for patients and staff. Foul wastewater from patient rooms, operating rooms, and other areas of the hospital must be carefully collected and transported to treatment facilities that can properly sanitize and dispose of the waste. The average and peak daily discharges of foul water during operation of the Hospital is estimated to be 0.57 l/s and 2.57 l/s respectively.

In residential units, a foul wastewater connection is necessary to collect and transport wastewater from toilets, sinks, showers, and other household plumbing fixtures to the sewage system. The average and peak daily discharges of foul water during operation of the Residential units is estimated to be 5.67 l/s and 17.03 l/s respectively.

Further details on the proposed design of the foul water drainage is within the Engineering Services Report (OCSC, 2023) included with the planning documentation and on the accompanying engineering drawings.

2.5.4.4 Natural Gas

Natural Gas will be used in the hospital kitchen for cooking purposes. The average daily use is predicted to be 0.25 MWh with a peak of 50kW / hr. Gas Networks Ireland, have confirmed there is sufficient gas capacity in the area to retain gas supply to these buildings and to provide to the new Hospital.

2.5.4.5 Electricity and Telecommunications

New electrical and telecommunications infrastructure will be developed to serve the proposed development.

For the mental health facility, the average daily electricity use has been predicted to be 2.8 MWh peaking at 4.8MW. The residential component of the proposed development will consume an average daily of 17.2 MWh daily average with a peak of 0.8 MW.

There are telecommunication lines in existence for telephone and broadband services in the area. There are existing in-ground ducts carrier ducts in the vicinity of the development in front of the site along Richmond Road and also surrounding the site in existing developments. A new EIR and Virgin Media ducting network shall be provided to the development so the option for provision is available to each household.

2.5.5 Access Arrangements and Parking / Transport

The proposed development incorporates several design elements (mitigation by design) intended to mitigate any significant impact on the surrounding road network during its operational phase. The physical aspects of parking and access arrangement are discussed further in the Traffic Impact Assessment prepared by O'Connor Sutton Cronin and Chapter 14 (Traffic and Transportation) of the EIA Report.

In its operational phase, the proposed development will generate regular vehicular trips on the surrounding road network. These trips would be predominately from the residents themselves, hospital staff and visitors but also from ancillary users such as crèche staff, waste collection, maintenance of private units and communal areas under contractual agreements. No additional trip generation was calculated for the hospital development as it is anticipated that the size of the hospital will remain as current, and just be moved to a new, updated facility.

The requirement for car parking and cycle parking provision has been based on a reduced car parking provision, which shall discourage higher vehicle ownership rates and excessive vehicular trips and a high provision of secure bicycle parking, which shall encourage bicycle journeys by both occupants and visitors.

2.5.6 Sustainability Energy Efficiency and Resource Use

Included with the application documentation is the *Climate Action Energy Statement* prepared by IN2 Engineering Design Partnership. This report aims to satisfy the legislative planning requirements by addressing how the overall energy strategy of the proposed development has been approached in a holistic manner, striving to meet the highest standards of sustainable building design such as passive solar design, high efficiency systems and use of renewable energy technologies. This reports also address how the proposed development will comply with NZEB (Part L 2021 Dwellings). The principles underpinning Part L compliance are energy demand reduction through passive measures and increased supply from renewable and efficient sources. The proposed design will follow this principle.

An energy and servicing strategy was analysed by IN2 comprising of

- Improvements to building thermal transmittance (U-Values), air permeability and thermal bridging with respect to Part L defaults.
- Centralised Heating and Hot Water Plant arrangement with Heat Interface Units (HIU's) local within every apartment.
- Renewable technologies comprising of Air Source Heat Pumps (ASHP's) plant delivering primary contribution to the annual heating and domestic hot water load.
- Local Heat Recovery Ventilation extracting stale air from apartment and supply fresh air to space within every apartment.

Water saving devices are to be considered for use within the proposed development units, in order to conserve the use of water, as part of the internal fit-out. Water metering arrangements are to be upgraded at the connection location, to meet Irish Water's criteria.

A bulk water meter is to be provided at the connection to the public watermain, at the development entrance, along with individual meters provided at the connection to each commercial and domestic unit. All metering is to be provided in accordance with Irish Water's requirements.

2.5.7 Potential Impacts During Operation and Mitigation Measures

The proposed development shall incorporate several design elements (mitigation by design) intended to mitigate the impact of the proposed development during the operational phase on the surrounding environment.

The main potential impacts during operation which require mitigation are:

- Impacts on human beings in terms of nuisances relating to the air quality of the environs due to dust and other particulate matter generated (see Chapter 8 (Air Quality) for further information);
- Potential impacts on Natura 2000 sites (SPA and SAC) linked to the proposed development site (See Chapter 7 (Biodiversity) and the accompanying Appropriate Assessment Screening and Natural Impact Statement);
- Impacts on human beings in terms of nuisances due to plant noise and vibration from mechanical and services plant (see Chapter 10 (Noise and Vibration) for further information);
- Interventions in the visual and landscape environment from the introduction of new buildings and structures (see Chapter 11 (Landscape and Visual) for further information);
- Effects on the road network due to residential users and staff (see Chapter 14 (Traffic and Transportation) for further information); and
- The management and segregation of operational waste generated from the residential and hospital areas (see Chapter 15 (Waste Management) for further information).

Each chapter of the EIA Report prepared assesses the potential impact of the operation of the proposed development on the receiving environment. Please refer to each specialist chapter respectively.

2.6 CHANGES TO THE PROJECT

The lifespan of the proposed development is not defined but it is anticipated that it will be maintained, and periodic upgrading and re-fit undertaken over the long-term (i.e. 15-60 years).

As set out in the Building Lifecycle Report (prepared by STW) a property management company will be responsible for compiling the service charge budget for the development for agreement with the Owners Management Company. It covers items such as cleaning, landscaping, refuse management, utility bills, insurance, maintenance of mechanical/electrical lifts/ life safety systems, security, property management fee, etc, to the development common areas in accordance with the Multi Unit Developments Act 2011 (“MUD” Act).

The Hooke and McDonald Operational Management Plan included with the application documentation set out the management strategy for the residential post construction in order to demonstrate how once operational, the mechanics of the property management and public realm maintenance will work in practice and be maintained to the highest standards.

The hospital will require ongoing maintenance that requires a comprehensive approach that prioritizes safety, security, and patient well-being. This may involve preventive and corrective maintenance, environmental design, staffing and training, compliance with regulations, and upgrades and renovations to keep pace with advances in mental health care. St. Vincent's Hospital, Fairview will continue to be operated by the current board of trustees to provide psychiatric care to the population of Dublin North Central.

If the proposed development is no longer required, then decommissioning and demolition will be subject to a separate planning application and associated EIA Report, as required.

2.7 DESCRIPTION OF OTHER RELATED PROJECTS

2.7.1 Irish Water Network Upgrades

In order to connect to the public watermain, upgrade works are required and it will be necessary to construct a watermain connection of c. 650 m in length of new and replacement 200-250 mm diameter watermain via Griffith Court, Phillipsburgh Avenue and Griffith Avenue, and all associated installation works.

The majority of the proposed watermain can be openly trenched, the trench is typically 600-750 mm wide (at base of trench) by 1200-1600 mm deep.

The majority of the excavations will occur on road or cycle path. For these concrete and asphalt/bitmac sections immediate permanent reinstatement will be carried out in accordance with CL.503 material in accordance with the design drawings and *IS 328:2021, GNI/AO/SP/007, Guidelines for Managing Openings in Public Roads 2017 (The Purple Book*) and to the approval of the local authority and/or private landowners, unless otherwise agreed with local authorities.

It is anticipated that a section no more than c. 100 m of trench will be opened at any one time. Reinstatement will be carried out immediately after pipeline installation and before moving on to the next 100 m section. This will require single lane closures along the public roads where works are occurring, allowing for traffic lane diversions and continued operation of the affected roads.

The lands where excavations are planned will be surveyed, prior to the commencement of works and all existing underground services will be identified and marked, warning posts will be erected for overhead cables, and temporary crossing points indicated.

2.7.2 Potential Impacts from Related Projects and Mitigation Measures

This EIA report has been prepared fully cognisant of the potential impacts associated with this related watermain works detailed above.

These watermain works have been included within the application site boundary; however, agreement will be reached with Irish Water regarding the undertaker of the works at connection application stage.

2.8 DESCRIPTION OF OTHER CUMULATIVE PROJECTS

As part of the assessment of the impact of the proposed development, account has also been taken of developments that are currently permitted and proposed within the surrounding area. The potential for Cumulative Impacts arising from these other related projects has been addressed within each specialist chapter of this EIA Report.

A preliminary assessment of potential cumulative effects on the environment is facilitated via the Source-Pathway-Receptor (SPR) model which is a multi-step process. The SPR methodology is a tool that ensures the most cautious means of assessment at the preliminary stages of a proposed development. The use of this tool ensures that all possible impacts are identified at a very early stage thus enabling further studies, mitigation measures or ameliorative actions to be put in place. The inherent use of the precautionary principle within the SPR methodology means that all potential for environmental impacts can be identified at a preliminary stage without any need for detailed studies, but rather upon available desktop information.

It is imperative to make clear that not all projects are capable of combining with the proposed development to result in potential cumulative effects. In order for there to be a potential cumulative effect all three elements of the SPR elements need to be present. If there is no pathway or functional link (direct or indirect) between the proposed development and a receptor, there is no potential for effect. Additionally, if there is no receptor within the area of a potential impact, there is similarly no effect as it does not cause harm to the environment due to the lack of a receptor.

The National Planning Application Map was consulted for the previous 5 years to identify notable applications (proposed development), or applications granted permission (permitted development) within that period. The National Planning Application Map includes planning application data sourced from the 31 individual local authorities across Ireland.

The review of the online planning tool noted a large number of changes of use, retention and other minor alterations in the vicinity of the proposed development. These proposed and consented development have been, where relevant, considered as a part of the overall project impact.

A list of relevant planning history within the vicinity of the subject site to identify relevant planned and permitted development that may be capable of combining with the proposed development and result in cumulative effects is shown in this section.

2.8.1.1 DCC Reg. Ref.: 3601/18 – No. 87 North Strand Road / Poplar Row, Dublin 3

Dublin City Council issued a final grant of permission on 7th December 2018, subject to 17 no. conditions, for demolition of existing structure on site & the construction of a five-storey mixed use development consisting of: ground floor commercial/ café unit, with 14 apartments (six one-bedroomed, seven two-bedroomed and one three-bedroomed) which include balconies to the north, southeast and west elevations with roof terrace on fourth floor level, internal bike storage, refuse store, new common pedestrian access from Poplar Row, with associated landscaping and site works.

Dublin City Council issued a final grant of permission for amendments to Reg. Ref.: 3601/18 on 1st July 2020 under Reg. Ref.: 2213/20, subject to 6 no. conditions, for the increase in height to six storeys and 3 no. additional units. We understand the development has been commenced and is nearing completion at time of writing.

The site is located to the south east of St. Vincent's Hospital and is now substantially complete.

2.8.1.2 Reg. Ref.: 2575/03 - Rear of 21 and 29 Richmond Avenue and, Site to Side of 31 Richmond Avenue, Fairview, Dublin 3

Dublin City Council granted permission on 12th November 2003, subject to 17 no. conditions, for the demolition of existing buildings at 21and 29 Richmond Avenue, the construction of 3 no. three to four storey blocks, over basement car park, comprising 48 no. apartments. Dublin City Council granted an extension of duration of this permission under Reg. Ref.: 2575/03/x1 until the 11th of November 2011.

Dublin City Council issued a split decision under Reg. Ref.: 6547/06, for amendments to the permitted development under Reg. Ref.: 2575/03 which comprise the addition of 1 no. unit on the penthouse level of Block A, increasing the number of floors in Blocks A and Blocks B (from 4 to 5 storeys over basement, inclusive of penthouse level), accommodating 10 no. extra apartments. Dublin City Council granted permission for the proposed additional apartment at penthouse level of Block A. Dublin City Council refused permission for the additional storey for Block A and B based on an insufficient quantum of car parking, that the development would contain insufficient proportion of family sized housing and the scale, height and density of development would represent overdevelopment of the site.

Dublin City Council granted permission under Reg. Ref.: 4155/08 for the demolition of the existing house and construction of a 6 storey development, above basement, of 10 no. apartments at No. 19 Richmond Avenue.

This development adjoins the application site to the southeast. The permission appears to have been partially implemented but not completed. We note that a second application to extend the duration under Reg. Ref.: 2575/03/x2 was subject to a FI request but no response was submitted and therefore the application was declared invalid.

2.8.1.3 Esmond Avenue LRD - Reg. Ref.: LRD6015/22-S3 – No. 61 Fairview Strand and No. 63 Fairview Strand, No. 59A Fairview Strand, at Warehouse on Esmond Avenue, at No.19 Esmond Avenue and No.21 Esmond Avenue and at rear No.19 Philipsburgh Avenue, Fairview, Dublin 3

DCC issued a notification of decision to grant permission on the 13th of December 2022 for an LRD application consisting of 114 apartments and 4 commercial units with a total combined gross floor area (excluding basements) of 9,456.15 sqm. The development included demolition of existing structures, construction of three new apartment blocks of 2 to 5 storeys in height, reinstatement of the 2 houses at No's 61 and 63 Fairview Strand to form 2 three bedroom apartments and reorder existing underground car park.

The notification of decision to grant is subject to 32 no. conditions. The application is currently subject to a third party appeal under ABP Ref.: 315584-23. A decision is due by the 8th May 2023.

The site is situated c. 500m to the southeast of St. Vincent's Hospital

2.8.1.4 Richmond Road SHD ABP Ref.: 312352-21 - No. 146A and 148-148A Richmond Road, Dublin

An SHD application was submitted to An Bord Pleanala on the 23rd of December 2021 on a site which is situated c. 500m to the east of the St. Vincent's Hospital application site. The development comprised the demolition of all existing structures and the construction of mixed use development of a café/retail unit and 183 no. BTR apartments in a part 6 No. to part 10 No. storey building over basement. The development also includes the construction of a new section of flood wall to the River Tolka along the site's southern boundary. The development will also include the repair and maintenance of the existing river wall on site adjacent to the River Tolka. The development also provides ancillary residential amenities and facilities and all associated development.

A decision was due to be made by the Board on the 22nd of April 2022, however, the statutory deadline was not met and there is no revised decision date available at present.

Further details of the application can be found on: www.richmondroadshd.ie

2.8.1.5 Reg. Ref.: 3657/21- 17 and 19 Richmond Avenue

Planning permission was granted by DCC, dated the 14th of April 2022, for development at 17 and 19 Richmond Avenue, 100m to the south east of the subject lands. The decision was subject to third party appeals to ABP and the target decision date was the 13/09/22, however, no decision has been issued to date.

The development applied for was described as follows in the public notices:

"The development will consist of; (A) Demolition of existing dwelling and existing steel shed to the rear of subject site. (B) The construction of 2 no. separate apartment blocks yielding a total of 27 no. apartments (21 no. 1-bed units and 6 no. 2-bed units), comprising (i) Block 1 - 6 storeys in height consisting of 6 No. 1-bed units and 6 No. 2-bed units (ii) Block 2 - 5 storeys in height consisting of 15 No. 1-bed units. (iii) Pedestrian access via Richmond Avenue. (iv) Provision of 60 no. bicycle parking spaces. (v) Communal open space including 2 no. roof gardens. (vi) Substation and Plant rooms. (vii) Bin Storage. (viii) All associated engineering and site development works necessary to facilitate the development."

Condition 3 of the notification of decision to grant clarifies that the permission granted is for 21 no. apartments, following revisions at FI stage and conditions attached to the decision.

This site is located to the south of the unfinished apartment development to the north, which consists of a four storey shell structure, which detracts from the amenity of the area.

2.8.1.6 Reg. Ref.: 5386/22 - Grace Park Wood, St. Joseph's, Grace Park Road, Drumcondra, Dublin 9

An application was submitted to Dublin City Council for retention and amendments to the permitted development under Reg. Ref.: 2991/15 and ABP Ref.: PL29N.245745. Retention permission related to revisions to the the public park at the entrance to Grace Park Wood and permission is sought for landscaping revisions to the permitted public park.

A request for further information was issued by Dublin City Council on the 8th February 2023.

2.8.1.7 Reg. Ref.: LRD6006/23-S3 - Leyden's Cash and Carry, Richmond Road, Dublin 3, D03 YK12

An application was submitted on 1st March 2023 for Large-scale Residential Development (LRD) comprising the demolition of existing industrial structures on site and the construction of a mixed-use development including artist studios, a creche, a retail unit, a gym and 133 No. residential units (65 No. one bed apartments and 68 No. two bed apartments). The development will be provided in 3 No. blocks ranging in height from part 1 No. to part 10 No. storeys. The site is 100m from the subject application site.

A decision is due to be made by the Planning Authority on the 25th of April 2022.

Further details of the application can be found on: www.leydenslrd.ie

2.8.2 Potential Impacts from Other Related Projects and Mitigation Measures

The potential for Cumulative Impacts has been addressed in each chapter of this EIA Report. The precise timeline for the construction of these developments is not known and as such, for the purposes of this EIA Report the precautionary principle has been applied by assessing in this EIA Report the potential for cumulative construction impacts occurring in tandem with the proposed development. The likely demolition/construction impacts to the environment arising from these permitted but not yet constructed developments have been identified by a review of the planning documents associated with each of the permitted (but not yet constructed) developments.

This EIA Report considers the likelihood for cumulative impacts associated with the operational phase of the proposed development and the operational phase of these permitted developments. The likely operational impacts to the environment arising from these developments have been identified by a review of the planning documents associated with each of the permitted developments.

CHAPTER 3

ALTERNATIVES

CHAPTER 3 CONTENTS

3.0 ALTERNATIVES

3.1 INTRODUCTION

The requirement to consider alternatives within an EIAR is set out in Annex IV (2) of the EIA Directive (2014/52/EU) which states:

> *A description of the **reasonable alternatives** (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.*

and in Schedule 6 (2)(b of the Planning and Development Regulations, 2001, as amended (“the Regulations) of the Regulations implement this requirement by requiring the following information:

> *“a description of the **reasonable alternatives** (for example in terms of project design, technology, location, size and scale) studied by the person or persons who prepared the EIAR, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects”*

Reasonable alternatives may include project design proposals, location, size and scale, which are relevant to the proposed development and its specific characteristics. The regulations require that an indication of the main reasons for selecting the preferred option, including a comparison of the environmental effects to be presented in the EIAR.

The Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) – states:

> *“The Directive requires that information provided by the developer in an EIAR shall include a description of the reasonable alternatives studied by the developer. These are reasonable alternatives which are relevant to the project and its specific characteristics. The developer must also indicate the main reasons for the option chosen taking into account the effects of the project on the environment.”*
>
> *“Reasonable alternatives may relate to matters such as project design, technology, location, size and scale. The type of alternatives will depend on the nature of the project proposed and the characteristics of the receiving environment. For example, some projects may be site specific so the consideration of alternative sites may not be relevant. It is generally sufficient for the developer to provide a broad description of each main alternative studied and the key environmental issues associated with each. A ‘mini- EIA’ is not required for each alternative studied.”*

As such, the consideration and presentation of the reasonable alternatives studied by the project design team is an important requirement of the EIA process.

This section provides an outline of the main alternatives examined during the design phase. It sets out the main reasons for choosing the development as proposed, taking into account and providing a comparison on the environmental effects.

This section assesses the evolution of development and the alternatives examined by the Applicant relating to the location, size and scale and project design and technology of the proposed development. This section provides a full justification for the proposed development and provides a comparison of the environmental effects of each alternative option.

The main alternatives examined throughout the design process are set out as follows:

- Do Nothing Alternative;
- Alternative Project Locations;
- Alternative Designs / Layouts;
- Alternative Processes; and
- Alternative Mitigation Measures.

This chapter describes the alternatives that were considered for the proposed development, where applicable, under each of these headings and the reasons for the selection of the chosen options, including a comparison of environmental effects.

3.2 DO NOTHING ALTERNATIVE

In the context of EIA the "do nothing" alternative refers to the option of not implementing the proposed project or activity and maintaining the current state or status quo. In other words, it is a scenario where no action is taken, and the environment is left unchanged.

If the proposed hospital and ancillary development are not carried out, the potential to replace the aging, unsuitable hospital buildings with a new state-of-the-art mental health facility on the same site and benefiting from the existing mature landscape will not be realised. The existing dilapidated historic structures of St. Vincents Hospital Fairview are not suitable for current medical / health uses.

If the proposed residential elements of the development are not carried out, the need for residential development in the area would remain, and as such, it would be necessary to construct a similar development at another location.

As noted in the Architects Design Statement by Scott Tallon Walker which accompanies this application, pedestrian access is currently limited to the Richmond Road entrances. Cycling infrastructure and local connectivity in the green network is interrupted or lacking. The development site within an area bound by Drumcondra Road, Richmond Road, Philipsburgh Avenue and Griffith Avenue, has poor permeability and restricted connectivity with the surrounding neighbourhood context. Should the proposed development not go ahead the opportunity for improved permeability and active movement for the local area would not be achieved.

Other potential opportunities that arise from the proposed development that would similarly not be realised if the “do nothing” alternative was to occur and include:

- Potential to provide new, high-density housing on underutilised land.
- Potential and to help fund the new hospital and refurbishment/re-use of the protected structures.
- Potential to integrate, enhance and protect the green network.

- Potential to create a new public space for adjacent neighbourhoods.
- Incentivise sustainable transport systems by providing new cycling and pedestrian infrastructure that connects with the existing network.
- Improve connections to nearby major public transport infrastructure (bus routes and Irish rail)
- Potential to provide new amenities that can be shared between future residents on the site and residents in the existing surrounding housing.

Should the proposed development not go ahead the ability to realise the potential opportunities outlined above will be unrealised. The lands would remain underutilized and would not maximise upon the development potential of the site.

3.3 ALTERNATIVE PROJECT LOCATIONS

The Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) Section 4.13 states that "some projects may be site specific so the consideration of alternative sites may not be relevant." Additionally, the Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA. 2022), states that in some instances alternative locations may not be applicable or available for a specific project which is identified for a specific location.

The Planning Report and Statement of Consistency prepared by John Spain Associates sets out that the Proposed Development is in accordance with the zoning and other relevant policies and objectives of the DCC Development Plan 2022-2028. The site is zoned as '' 'Z12 – 'Institutional Land (Future Development Potential) and 'Z15 -Institutional and Community' and the zoning objective of the land facilitates its use for the purposes of the proposed application.

The proposed development allows for the retention of the services offered by St. Vincents Hospital Fairview until the new Mental Health Facility is operational. The application site includes the existing St. Vincent's Hospital building and ancillary structures. No alternative locations for the new Mental Health Facility were considered as part of the EIA. The proposed development site is appropriately zoned, the area of open space immediately south of the existing hospital building is reserved for the new hospital, the proposed location was deemed the most suitable for the project. Consideration of an alternative location for the Mental Health Facility would equate to a 'do-nothing' alternative for the subject site.

The western and southern sections of the site are currently relatively undeveloped and can facilitate the proposed mix of residential, commercial and amenity uses. The Planning Report and Statement of Consistency prepared by John Spain Associates and the Masterplan Report prepared by Scott Tallon Walker and John Spain Associates concludes that overall, the subject lands are ideally located for a sustainable mixed use development, which provides a new mental health facility, supporting residential development and significant public open space, in an inner suburban location, in accordance with the primary Z12 and Z15 zoning objectives and in line with National and Regional Planning policy.

The location of the Proposed Development Residential Units was also chosen to complement the associated proximal developments such as the Lands at St. Joseph's Centre, Gracepark Road, Dublin 9 and Richmond Road developments.

Having regard to the site-specific nature of the Proposed Development further consideration of alternative site locations is not considered essential in respect of the EIAR legislation and guidance.

However, the SEA Environmental Report for the Dublin City Development Plan considered a range of alternatives in relation to the pattern of development (and in particular residential development) in the county as a whole. The options considered included a focusing development on strategically located and well services areas, the development of the city in a market-led manner, and the adoption of a phased approach with selected growth concentration (targeted at SDRAs, KDCs, and SDZ areas.

The alternative selected by the Local Authority was the focusing of growth on identified growth centres, with development to be in accordance with the policies of the NPF and the RSES, to support the existing urban centre, maintain and enhance existing development within a connected city context, prioritise growth in strategic, well services areas capable of delivering appropriate and sustainable development, and promote smarter travel policies, reduction in commuting, and increased walking and cycling.

The proposed development accords with the preferred option identified within the SEA for the City Development Plan, by providing residential and mixed use development, with a new hospital, on appropriately sited lands in accordance with the NPF and RSES, supporting the existing urban centre, providing for growth at a well serviced location, which facilitates walking, cycling, and public transport use as set out in the Traffic and Transport chapter of the EIAR, and the Mobility Management Plan submitted.

Given the current zoning of the site, the surrounding land uses, the proximity to similar associated developments, and the availability of necessary services and infrastructure, the Proposed Development is the most appropriate use for the site.

3.4 ALTERNATIVE DESIGN/LAYOUTS

A Masterplan was initially prepared by Scott Tallon Walker Architects (STW) (refer to Figure 3.1 below) which set out the overall design approach to the site. Please refer to the Architects Design Statement by STW which accompanies this planning application for further details on the complete design strategy of the proposed development.

The following constant features since this initial concept design of the proposed development have remained the same throughout the design process:

- create a new state of the art mental health facility
- retention of the majority of historic structures.
- respect for adjoining residential areas

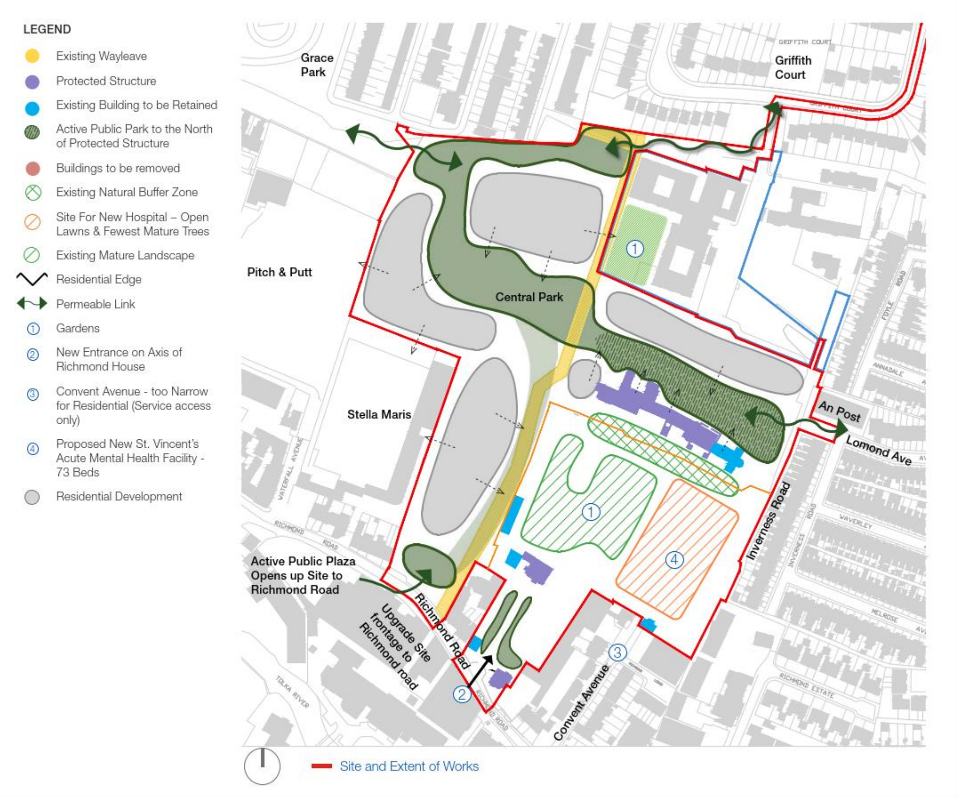


Figure 3.1 *Pre-Planning Design Concept (STW)*

3.4.1 Site Planning Principles for the Masterplan

Following a detailed context and site analysis and associated environmental constraints and opportunities, the key design strategies adopted were to:

- Open up the site by providing new links to the West, North and East.
- Refurbish the main Protected and Historic Structures to provide tenant and community uses.
- Create a new ‘Gateway Plaza’ off Richmond Road and enhancing the road where possible.
- Provide a large Central Park that runs the whole way across the site, from East to West,
- Address the existence of the refurbished Protected and Historic Structures.
- Create a new linear park linking the Gateway Plaza with the Central Park which follows the line of the existing services wayleave.
- Create a new entrance to the proposed new Mental Health Facility which makes use of the historic Richmond House and Brooklawn House and the associated tree-lined avenue.
- Develop the remaining parcels of land which are separated from adjacent residential developments and identify in the new green spaces areas identified appropriate for new residential development.

3.4.2 Design Evolution / Alternatives Considered

As outlined in the Architects Design Statement by STW a series of pre-planning meeting at various dates were held with DCC to discuss the proposed development at various stages throughout the design process:

The site layout evolved as follows to incorporate feedback from the pre-planning inputs leadings to various site layout considerations. Following engagement with Dublin City Council detailed consideration was given during the design process as to how the proposed hospital will operate in relation to the existing hospital buildings and the existing landscaping (including mature trees). The design was informed by environmental considerations including conservation of protected structures, retention of mature trees, increasing connectivity to the local area and enhancement of the site to the benefit of the local community.

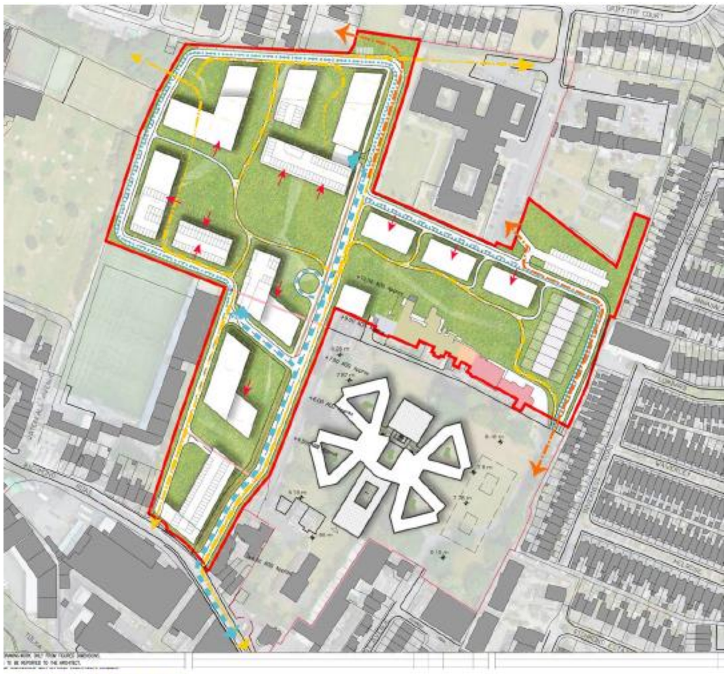
The design endeavoured to include an awareness to enhance the site's existing natural features which informed the character of vegetation chosen. The loss of habitat was addressed by the inclusion of native tree- and plant species within the vegetation palette and complimented with habitat boxes, etc. Built-in bat and swift boxes were incorporated within the buildings The biodiversity enhancements were co-ordinated with the Biodiversity Consultant Altemar.

The various site layout evolutions are discussed in greater detail in the Architect Design Statement by STW

3.4.2.1 Site Layout – Initial Concept Design

The initial site layout proposed the following components in March 2020 as shown in Figure 3.2 below. This initial layout was designed to show the proposed components of the development and their relative positions within the site. This included buildings, access roads, parking areas, landscaping, and other site features. The initial site layout included:

- 100 bed mental health facility
- Large East-West Central Park
- Narrow entrance from Richmond Road
- 13 new apartment buildings / blocks



Site Plan - March 2020

Figure 3.2 *Site Layout Initial Concept (STW March 2020)*

Through evaluating the initial site layout, the specialist team was able to identify potential environmental impacts such as poor traffic flow, and changes to the local landscape connectivity. Various iterations of the site layout as demonstrated in the Architects Design statement culminated in the design presented to Dublin City Council as part of the Large Scale Residential Development (LRD) Consultation Process on 16th November 2022.

3.4.2.2 Site Layout 16th November 2022

Site Layout November 2022 as shown in Figure 3.3 below was presented to Dublin City Council as part of the Large Scale Residential Development (LRD) Consultation Process on 16th November 2022. The meeting was held online attended by Dublin City Council, personnel and members of the design and developer team to present the design concept of the proposed development. The main differences between Site Layout presented and the initial Site Layout concept are outlined as follows.

- The northern end of Buildings DE was shortened to increase the size of the public open space and improve the connection between the Central Park and the link to Grace Park Wood in the northwest corner of the site. The distance between Buildings DE and F is also increased as a consequence.
- The tree-lined avenue from Richmond Road to Richmond House was maintained. The previously proposed Facilities Management building on the left of this avenue has now been relocated in the retained and refurbished Laundry Building.
- Building H was shortened to enable the retention of a mature oak tree in the communal open space between H and L.

See STW Proposed Site Plan SVRD-STW-ST-ZZ-DR-A-022004 for more detail

Figure 3.3 *Site Layout November 2022 Presented at LRD Preplanning Meeting (STW)*

3.4.2.3 Site Layout – Final and Chosen Design

During the pre-planning consultations related to the proposed development, a number of specific issues were raised by the local authority. These issues related to various aspects of the development, including its layout, size, and impact on the surrounding environment. The local authority provided constructive criticism which informed the final design.

The local authority's feedback was an important part of the design process, as it helped to identify potential issues and areas where improvements could be made. Please see Figure 3.4 below for the revised design which was developed by the design team to incorporate the above changes.

Figure 3.4 *Final Design (STW 2023)*

The key changes throughout the design development following internal review, newly adapted Development Plan requirements and as a result of pre-planning discussions with and LRD Opinion from DCC can be summarised as follows:

- The hospital footprint was reduced and moved to the Southeast corner of the site to avoid the removal of the majority of existing mature trees.
- The first Building (A) was moved North to create the Welcome Plaza off Richmond Road as a public space and more appropriately scaled entrance to this significant residential development.
- Buildings A and B were moved west - further from the new hospital to ensure additional privacy for patients.
- The building footprint in the Northwest corner was reduced to increase separation between the new development and Grace Park Wood and to increase the public open space and open up the northwest link to the Central Park.
- The building at the east end of the Central Park was removed to improve the relationship with the Protected Structures, improve the vista at the end of the park and increase the park area.

The proposed development is the culmination of a considered design process, weighing the development opportunity of the strategic land resource and certain characteristics of the context (e.g. the mixed use urban character of Richmond Road, the buffering effect of the open space to the west of the site, etc.) against the sensitivities which also exist (e.g. the lower density residential neighbourhoods to the north and east). The proposal takes account of and responds to its varied context.

Overall, the final proposed design has considered various environmental factors in each layout option to ensure that the development has minimal impact on the environment. The specialist team which included the EIAR consultants referred to in Chapter 1 has worked to create a design that is both environmentally sustainable and socially acceptable, and that meets the needs and values of the local community. The final proposed design for the development has been carefully developed with consideration of various environmental factors.

Landscape and Visual Impact

The proposal was amended following receipt of the DCC LRD Opinion, which requested justification of the proposed building heights specifically in relation to sensitive receptors in the receiving environment. These receptors are the neighbouring residential estates to the north. To reduce/mitigate the visual effect of the development on these receptors the height of Block F has been reduced by one floor, from ten to nine storeys. Chapter 11 Landscape and Visual (LVIA) of this EIAR and Volume 3 Photomontages concludes that given:

(a) the weight of positive effects identified for the rest of the receiving environment,

(b) the demonstrably high urban design and architectural quality of the proposal and its potential placemaking effects

(c) the site’s strategic urban location, and

(d) the policy of compact growth, no further reduction in scale is recommended. Therefore no mitigation measures are recommended additional to those already incorporated in the design.

Archaeology, Architectural and and Cultural Heritage

The proposed development has been designed to adapt and repurpose the older hospital buildings in a way that is sensitive and respectful of their value as part of the urban heritage.

Permeability and Accessibility

Consideration has been given during the design process to the opportunity to create linkages and new public spaces that connect and serve both the residents and the wider communities of Richmond Road, Gracepark, Griffith Court, Philipsburg Avenue and beyond. This influenced the inclusion of new pedestrian and cycle links proposed to the north-west, north and north east of the site.***Biodiversity; Landscaping Design, and Retention of Mature Trees***

The initial proposed size and location of the new hospital has been revised to protect the mature trees west of the current proposed location for the hospital. Subsequent design changes were made to completely retain (and enhance with additional trees) the tree-lined avenue from Richmond Rd to Richmond House.

The landscaping strategy in this area seeks to retain as many of the mature trees as possible, providing a buffer between the new and the historic buildings, and retaining the historic landscape character to the west of the proposed new hospital facility.

The Landscape Design Statement by NMP which accompanies this application describes how the enhancement of the site's existing natural features has informed the character of vegetation proposed. It is considered that there will be a net gain in biodiversity by planting native tree species, coupled with plants selected from a list of pollinator friendly species and maintained to increase the availability of flowering plants in the shoulder months. The loss of habitat will be negated by the inclusion of native tree- and plant species within the vegetation palette and complimented with habitat boxes, etc. The proposed landscape incorporates measures to enhance biodiversity in an urban setting, with introduction of built-in bat and swift boxes incorporated within the buildings located high up, where possible. Free-standing wooden bird boxes will be located in the trees throughout the development. The planting proposed will greatly enhance the biodiversity resource on the proposed development by creating new, pollinator friendly habitats and inclusion of pollinator nesting boxes.

3.5 ALTERNATIVE PROCESSES

This section typically examines the project processes in relation to likely emissions to air and water, likely generation of waste and likely effect on traffic to determine the process that is least likely to impact on these parameters.

In terms of the Proposed Development processes, the pre-planning initial design concept and the final design concept necessitate similar power requirements, waste, traffic generation and environmental emissions. The Proposed Development is guided by the applicant's standard specifications, and the flexibility to select alternative processes is limited for this type of development as opposed to an activity that has more complex equipment and processes. This means that the environmental impact of the project processes is consistent regardless of the design concept chosen.

3.5.1 Energy and Sustainability

Please refer to the Climate Action Energy Statement Report by IN2 which accompanies this planning application. The report also considers the results of Part L Compliance analysis undertaken for the Proposed Development as required by the. Dublin City Development Plan 2022-2028. The analysis determined that the following energy and servicing strategy should enable compliance for the Apartments to Part L 2021/ NZEB and that a mix of A2/A3 BER's should be obtainable:

- Improvements to building thermal transmittance (U-Values), air permeability and thermal bridging with respect to Part L defaults.
- Centralised Heating and Hot Water Plant arrangement with Heat Interface Units (HIU's) local within every apartment.
- Renewable technologies comprising of Air Source Heat Pumps (ASHP's) plant delivering primary contribution to the annual heating and domestic hot water load.
- Local Heat Recovery Ventilation extracting stale air from apartment and supply fresh air to space within every apartment.

The Climate Action Energy Statement report has considered information on building design provided by the Project Architects Scott Tallon Walker. The new buildings are designed in accordance with EU Directive for Near Zero Energy Buildings (NZEB) and

Building Regulations Technical Guidance Document (TGD) Part L 2021 for energy efficiency. The project has committed to complying with the requirements set out in the EU Taxonomy alignment for 10% lower than NZEB. Thermal performance measures have informed the building design, including wall and slab thicknesses, roofing build-up, balcony fixing, glazing systems, heat recovery systems, use of renewable technologies to reduce primary energy requirements and carbon emissions. This approach is designed to minimise energy consumption and operating costs for residents which can help affordability.

The parking level is designed to allow for changing use, for example 100% Electric Vehicle charging, or with the flexibility to replace unused car parking spaces with additional bicycle parking, storage and other communal uses, in response to changing requirements.

The homes are energy-efficient and equipped for challenges anticipated from a changing climate.

Future flexibility is built-in for on-site renewable energy generation, including for additional PV panels, and battery store for future additional electric vehicle charging, etc.

3.6 ALTERNATIVE MITIGATION

The EIA process for the proposed development involved a team of specialists, each with expertise in a specific aspect of the environment. For each aspect of the environment, each specialist has considered the existing environment, likely impacts of the proposed development and reviewed feasible mitigation measures to identify the most suitable measures appropriate to the environmental setting of the proposed development. In making a decision on the most suitable mitigation measure the specialist has considered relevant guidance and legislation. In each case, a comparison of environmental effects was made, and the specialist has reviewed the possible mitigation measures available and considered the use of the mitigation in terms of the likely residual impact on the environment. The four established strategies for mitigation of effects have been considered: avoidance, prevention, reduction and offsetting (not required in this development). Mitigation measures have also been considered based on the effect on quality, duration of impact, probability and significance of effects.

The selected mitigation measures for the proposed development are outlined in each of the EIA Report Chapters 5-17. These measures have been specifically chosen to address the potential environmental impacts of the proposed development and to minimize any adverse effects on the environment. By considering a range of mitigation measures and strategies, the specialist team has sought to ensure that the proposed development is as environmentally sustainable and responsible as possible.

3.7 CONCLUSIONS ON ALTERNATIVES

The Proposed Development was carefully designed, taking into consideration the site context and existing neighbouring commercial and residential properties and the local environmental conditions including air quality, noise and vibration and visual impact.

The proposal will allow the development potential of the site to be maximised within the mixed use St. Vincent’s Hospital and the residential development while improving natural screening through landscaping treatments along the site perimeter particularly along the western boundary.

3.8 REFERENCES

- Department of Housing, Local Government and Heritage (2018) "Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment''

- Dublin City Council (2022) "Dublin City Council Development Plan 2022-2028"

- Environmental Protection Agency (2022) "Guidelines on the Information to be Contained in Environmental Impact Assessment Reports".

CHAPTER 4

POPULATION AND HUMAN HEALTH

CHAPTER 4 CONTENTS

4.0 POPULATION AND HUMAN HEALTH

4.1 INTRODUCTION

This chapter has been prepared to assess the likely significant impacts on Population and Human Health in respect of the Proposed Development.

The EPA (2022) *Guidance on the information to be contained in Environmental Impact Assessment Reports* outlines that human health is a very broad factor that is be highly project dependent. This guidance states:

> *The notion of human health should be considered in the context of the other issues mentioned in paragraph (f)'. (Paragraph (f)47 lists the environmental factors including soils, water, air etc). The evaluation of effects on these pathways is carried out by reference to accepted standards (usually international) of safety in dose, exposure or risk. These standards are in turn based upon medical and scientific investigation of the direct effects on health of the individual substance, effect or risk. This practice of reliance upon limits, doses and thresholds for environmental pathways, such as air, water or soil, provides robust and reliable health protectors [protection criteria] for analysis relating to the environment.*

Human health should be considered in the context of environmental pathways which may affect health such as air quality, noise, water and soil quality. All can contribute to negative effects on human health by facilitating the transport of contaminants or pollutants. An evaluation of the effects of these pathways on health, by considering the accepted standards of safety in dose, exposure or risk of air quality and noise levels for example, is considered appropriate, as these standards have been arrived at via scientific and medical research.

The EPA (2015) Advice Notes explains that the scope of population and human health is project dependant but should consider significant impacts likely to affect aspects such as: convenience (expanded range of transport options); displaced settlement patterns (residential); employment opportunities; land use patterns; access for tourism, amenity, health impacts and/or nuisance due to noise, dust or water pollution; and health and safety. The EPA Guidelines (2022), notes that the transposing legislation does not require assessment of land-use planning, demographic issues or detailed socioeconomic analysis (EPA, 2022). Furthermore, the EPA Advice Notes (2015) states that issues such as employment, commercial competition, zoning, property prices, agri-business and other social and economic issues are dealt with by more specific instruments (such as the Planning Acts).

Moreover, the content of the Institute of Environmental Management and Assessment (IEMA) high level primer document (2017), which was prepared having considered the provisions of the 2014 EIA Directive, has also been considered in the preparation of this chapter. The IEMA document posits that human health spans environmental, social and economic aspects and does not merely represent an absence of disease. A broad conception of human health is put forward, that should encompass factors such as local economy and community, rather than relying on a narrower focus on biophysical health factors and determinants. In this regard, the current chapter seeks to address population and human health in a wholistic manner, including consideration of economic factors, settlement patterns, landscape and visual impact, and land-use.

The 2018 EIA Guidelines published by the Department of Housing, Planning and Local Government (DHPLG)text added state that there is a close interrelationship between the SEA Directive and the 2014 EIA Directive. The Guidelines state that the term 'Human Health' is contained within both of these directives, and that a common interpretation of this term should therefore be applied.

Furthermore, in accordance with the EPA (EPA, 2022), the assessment of impacts on population and human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR. The likely significant impacts on with Human Health and Population in regard to issues such as soils, geology and hydrogeology, water, air quality, noise and vibration, traffic and landscape are addressed in detail within the following chapters of this EIAR:

- Soils, Geology and Hydrogeology;
- Hydrology;
- Air Quality and Climate;
- Noise and Vibration;
- Landscape and Visual Impact; and
- Traffic and Transportation.

The assessment of other health and safety issues that are carried out under other EU Directives are also relevant. These may include, where relevant, reports prepared under the Industrial Emissions, Waste Framework, Landfill, Strategic Environmental Assessment, Seveso III, Water Framework Directive, Floods or Nuclear Safety Directives. Relevant to the proposed development are the Site-Specific Flood Risk Assessment (FRA) prepared by OCSC and the Water Framework Directive Assessment prepared by AWN consulting. In keeping with the requirement of the amended Directive, an EIAR considers the results of such assessments without duplicating them.

4.2 METHODOLOGY

4.2.1 Relevant Legislation and Guidance

This chapter has been prepared in accordance with:

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. Environment Protection Agency (EPA, 2022)
- Health Impact Assessment Guidance. Institute of Public Health (IPH), (IPH, 2021).
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report European Commission (EU, 2017)
- Advice Notes for Preparing Environmental Impact Statements Draft Environment Protection Agency (EPA, 2015).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018)

This chapter follows these guidelines and will examine the health effects relevant to the proposed development as they relate to the relevant study area.

The description of the sensitivity, magnitude and significance, outlined within this assessment are based on the Health Impact Assessment Guidance (IPH, 2021) criteria, while the probability and duration of effects are based on the definitions set out within Section 3.7 of the 'Guidelines on information to be contained in Environmental Impact Assessment Reports' (EPA, 2022).

4.2.2 Data Sources of information

The following sources of information have been used in this assessment:

- 2011 Census carried out by the Central Statistics Office (CSO) 10 April 2011. Made available from https://www.cso.ie/en/
- 2016 Census carried out by the Central Statistics Office (CSO) 24 April 2016. Made available from https://www.cso.ie/en/
- Pobal HP Deprivation Index based on 2011 Census Data (CSO) Made available from https://www.pobal.ie/
- Pobal HP Deprivation Index based on 2016 Census Data (CSO) Made available from https://www.pobal.ie/
- Google maps available from https://www.google.com/maps
- OpenStreetMap and contributors available from https://www.openstreetmap.org
- GeoHive contributors and available from https://www.geohive.ie/

4.2.3 Study Area

There is no specific guidance available on an appropriate study area to focus the assessment of existing land use and/or permitted projects. The research area has been established using expert judgement and based on the accessibility of data and taking into consideration the potential for impact from the proposed development.

It is acknowledged that projects like the one proposed can have an impact on activity in a larger area that only the site itself. Generally, the closer to the works, the greater the potential for impacts. The most significant environmental impacts are likely to be confined within 50-150 m of the proposed development due to the primarily residential, mixed-use nature of the proposed development, and based on the construction methods to be used on site. Some effects from the Proposed Development, including air quality and traffic, might have a larger area of effect, and these will be addressed in further detail in the corresponding expert assessments that set out the chapters within the EIAR.

The project being considered, is not expected to have Regional, National or International, or Transboundary impacts on Human Health. Therefore, the Study area has been restricted to the neighbouring community (site-specific population), and wider community (local population). A general study area of 1 km from the site location is included for population statistics, while the wider area of 2.5 km from the site location has been used to inform the baseline description of the area.

In the desk-based assessment of Population Health Sensitivity the use of Electoral Divisions (ED) statistics from CSO have been utilised. Electoral Divisions are the smallest legally defined administrative areas in the state; developed with the intention of producing areas roughly equivalent in both population and "rateable value" (CSO).

The Proposed Development site is located in the Local Authority Area of Dublin City Council (DCC), and across the electoral divisions of Drumcondra South A (02047), Grace Park (02058) and Clontarf West E (02046). The area selected for the assessment of the impact on human health has been defined as the Electoral Divisions (ED) containing the Proposed Development site and those within 1 km of the Proposed Development site. The EDs which will be included alongside the three named above are Drumcondra South B (ED 02048), Drumcondra South C (ED 02049), Botanic B (ED 02028), Whitehall D (ED 02093), Ballybough A (ED 02009), Ballybough B (ED 02010), North Dock A (ED 02076) and Clontarf West D (ED 02045). These ED's are located in the Republic of Ireland and County Dublin.

4.2.4 Population Impact Assessment Categories

4.2.4.1 Assessment Sensitivity of Population

The assessment of significance of an impact is a professional appraisal based on the sensitivity of the receptor and the magnitude of effect. Within any area, the sensitivity of individuals in a population will vary. The Health Impact Assessment Guidance (IPH, 2021) sets out conceptual model of the different components of sensitivity (Figure 4.1). It uses criteria (segments) and indicative classifications (levels) to explore, and explain, a finding of sensitivity. The conclusion may be summarised as a high, medium, low or negligible sensitivity to change.

The existing sensitivity of the receiving environment (in terms of population and human health) has been appraised for the study area with a desk-based assessment of routine demographic and health indicators, rather than the use of surveys or collection of primary data. This includes analysis of existing data (based on the availably of information) from the Central Statistics Office (CSO) and Pobal to build up a profile of the baseline population information within the study area. Topographical maps and Google maps have also been used to inform the baseline description of the area to inform the proximity of the Site to areas of economic activity, employment, community infrastructure, emergency services, tourism and recreation amenities.

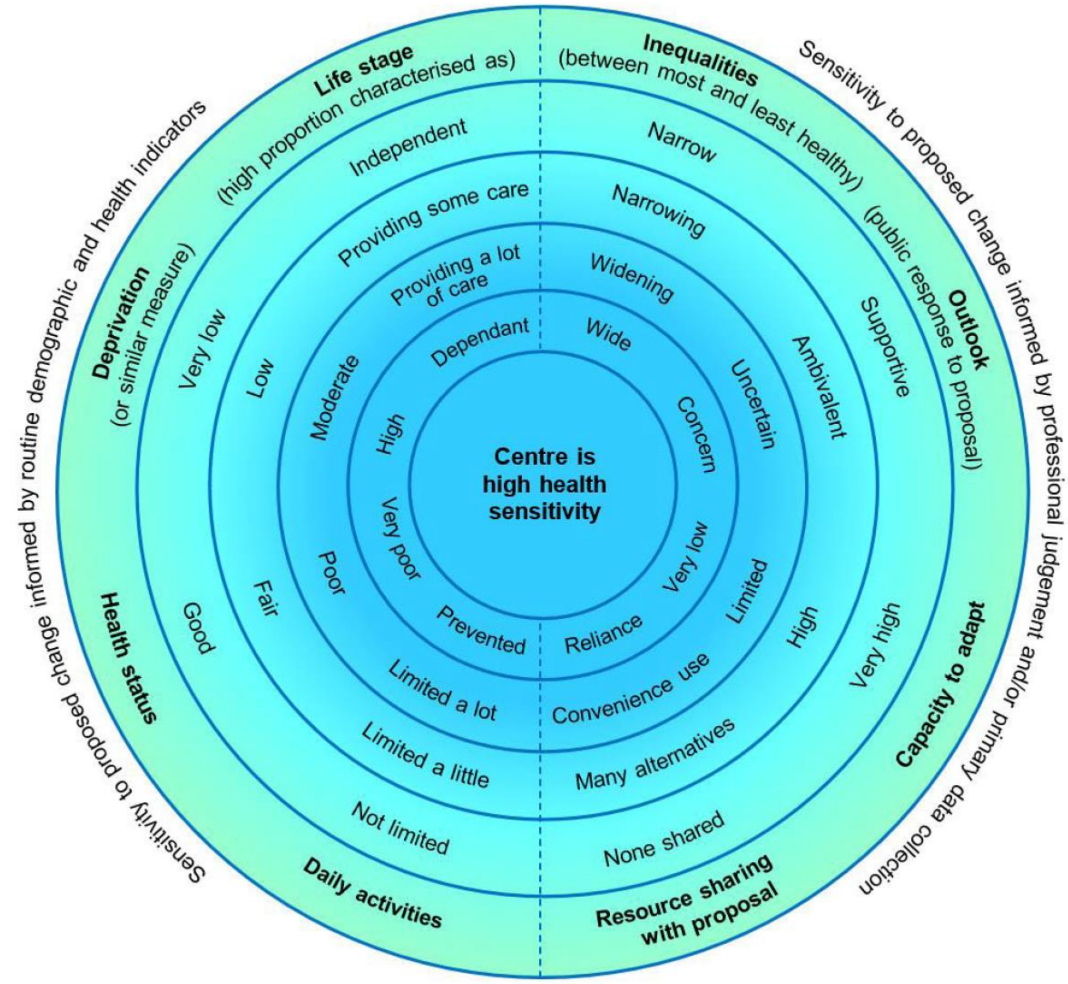


Figure 4.1 *Health sensitivity: conceptual model (Source: Health Impact Assessment Guidance (IPH, 2021))*

4.2.4.2 Magnitude of Impact

Magnitude considers the characteristics of the change which would affect the receptor as a result of the proposal. The Health Impact Assessment Guidance (IPH, 2021) sets out a conceptual model of the different components of sensitivity (Figure 4.2). Again, this model provides different components of *magnitude*. It uses criteria (segments) and indicative classifications (levels) to explore, and explain, a finding of *magnitude*. The conclusion may be summarised as a high, medium, low or negligible magnitude of change.

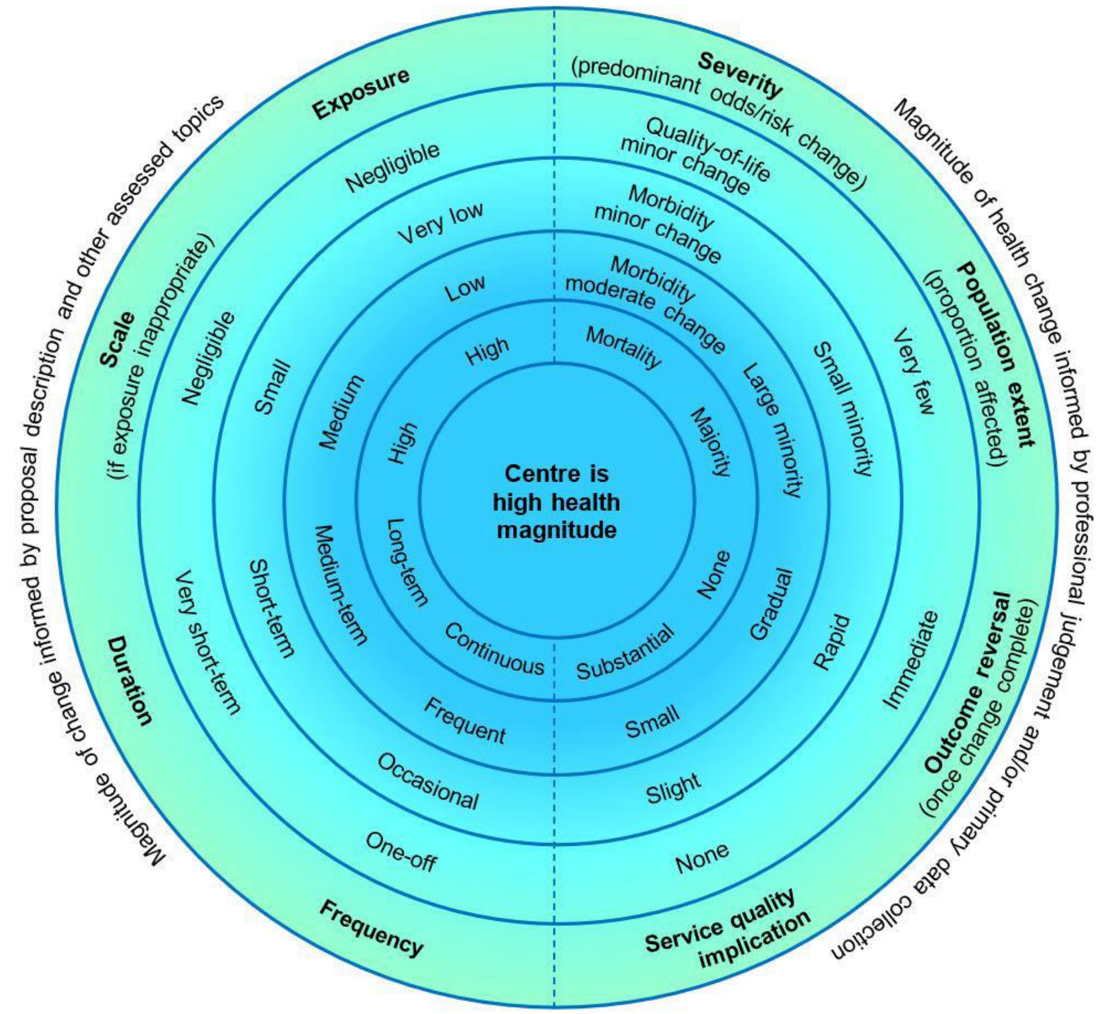


Figure 4.2 *Health magnitude: conceptual model (Source: Health Impact Assessment Guidance (IPH, 2021))*

4.2.4.3 Significance of Effects

Significance relies on informed, expert judgement about what is important, desirable or acceptable with regards to changes triggered by the proposal in question. The assessment of the significance of effects in this assessment is a professional appraisal and has been based on the relationship between the magnitude of the effects and the sensitivity of the receptor.

The Health Impact Assessment Guidance (IPH, 2021) sets out a conceptual model of the different components of significance. It uses criteria (segments) and indicative classifications (levels) to explore, and explain, a finding that a health effect is significant or not significant.

The Health Impact Assessment Guidance (IPH, 2021) model brings together different types of evidence, e.g. scientific literature, public health priorities, regulatory standards and health policy. The model thus not only take into account a range of evidence sources, but also a diversity of professional perspectives, e.g. academics, public health practitioners, regulators and policy makers.

The model below, includes the factors of magnitude of impact and the sensitivity of receptors as determined in Section 4.2.1 and Section 4.2.2 above. This assessment typically relies on regulatory thresholds, where there would be formal monitoring by regulators, to set out the acceptability or desirability of change to population health.

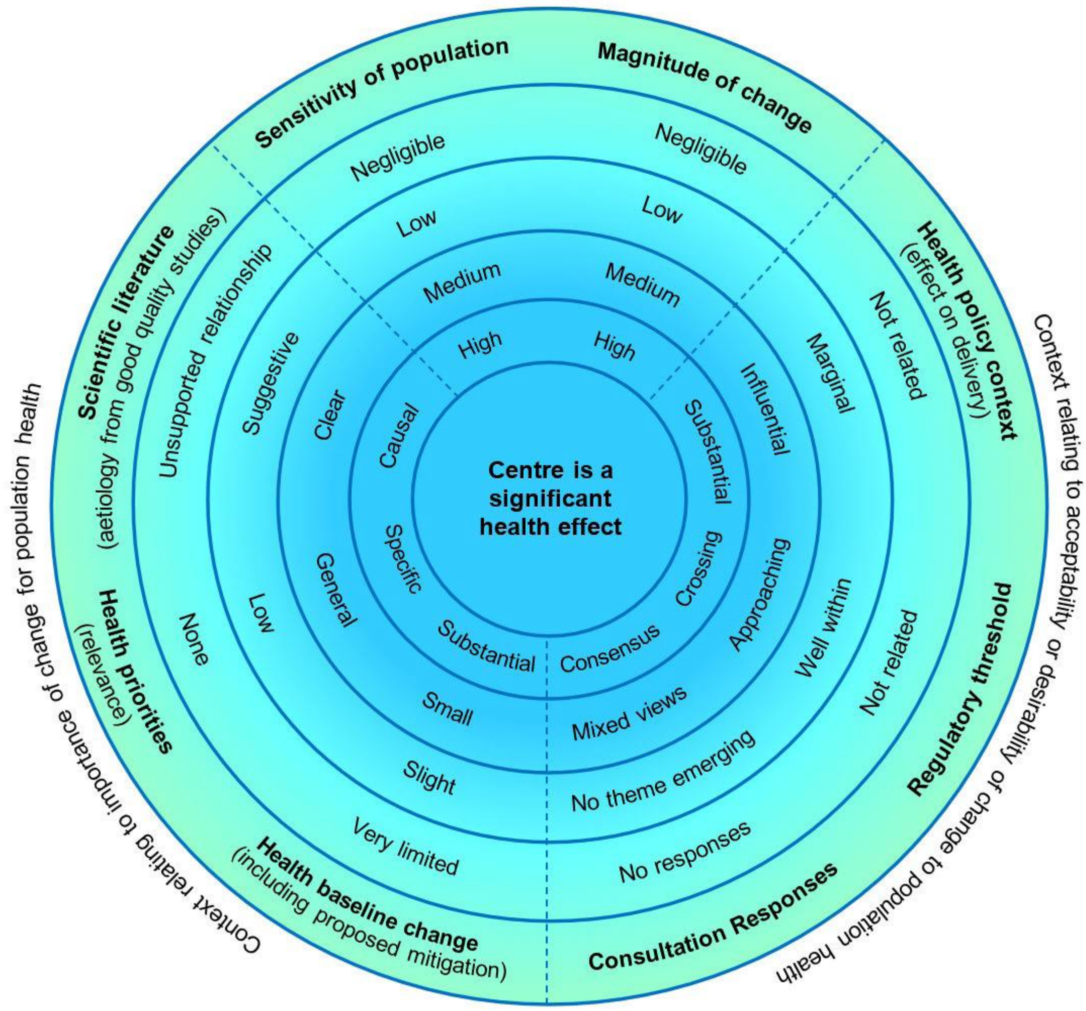


Figure 4.3 *Health significance: conceptual model*

4.2.5 Difficulties Encountered / Forecasting Methods

No particular difficulties were encountered in preparing the population assessment.

There are uncertainties in relation to assessing impacts on individuals or communities due to the lack of individual health data and the difficulty in predicting effects, which can only be based on general guidance and assumptions.

Forecasting methods and methodology, if any, are set out within the specialist chapters that this assessment relies upon.

4.3 RECEIVING ENVIRONMENT

4.3.1 Population Health Sensitivity within the Study Area

The purpose of the population health sensitivity assessment is to identify the likely sensitivity of the local population and its capacity to absorb change. It is considered that for the purpose of this assessment that available data on: Population; Deprivation;

Life Stage; and Health Status within the Study Area provides sufficient information to establish the population sensitivity and to provide the Planning Authority with a context for this assessment.

4.3.1.1 Population

The most recent census of population was carried out by the CSO on the 3 April 2022. However full results of this census are yet to be published. For the purposes of this study the results of the census of population carried out by the CSO on the 24 April 2016 will be used, and the previous census on the 10 April 2011. The census compiles data for the whole state as well as smaller individual areas including counties, cities, towns, electoral divisions, and small areas. Taking into consideration the location of the Proposed Development, the census information on population, age profile, employment, and social class, has been analysed in relation to the development site.

The latest census data (2016) shows that the population in Ballybough A ED, Ballybough B ED, Botanic B ED, Clontarf West D ED, Clontarf West E ED, Drumcondra South A ED, Drumcondra South B ED, Drumcondra South C ED, North Dock A ED and Whitehall D ED saw a higher population growth compared with that of the ROI. Grace Park ED also saw population growth, but lower than that of the ROI. Overall, the Study Area has seen a higher population growth than the ROI total growth, at an increase of 8.7% (Table 4.1)

Table 4.1 *Population change at National, County and Electoral Division level from 2011 – 2016 (Source: www.cso.ie)*

Area	Population for Census Year		% Change 2011-2016
	2011	2016	
State - Republic of Ireland	4,588,252	4,761,865	+3.8
Ballybough A	3,482	3,718	+6.8
Ballybough B	3,349	3,698	+10.4
Botanic B	3,264	3,481	+6.6
Clontarf West D	2,066	2,297	+11.2
Clontarf West E	2,324	2,468	+6.2
Drumcondra South A	4,571	5,064	+10.8
Drumcondra South B	1,526	1,697	+11.2
Drumcondra South C	3,191	3,517	+10.2
Grace Park	5,670	5,806	+2.4
North Dock A	1,303	1,365	+5.8
Whitehall D	2,885	3,456	+19.8
Study Area Total	33,631	36,567	+8.7

4.3.1.2 Deprivation

The Health Impact Assessment Guidance (IPH, 2021) outlines that impact assessments should consider if the population is already stressed by limited resources or high burdens as well as if groups are affected that have reduced access to financial, social and political resources. Deprivation differences between areas are indicative of social gradients, which are central to the consideration of health inequalities.

Deprivation statistics for Ireland are available from the Pobal HP Deprivation Index that shows the overall affluence and deprivation. This Index draws on data from the national Census and combines three dimensions of relative affluence and deprivation:

Demographic Profile, Social Class Composition and Labour Market Situation that are measured by ten key socio-economic indicators from the Census of Population.

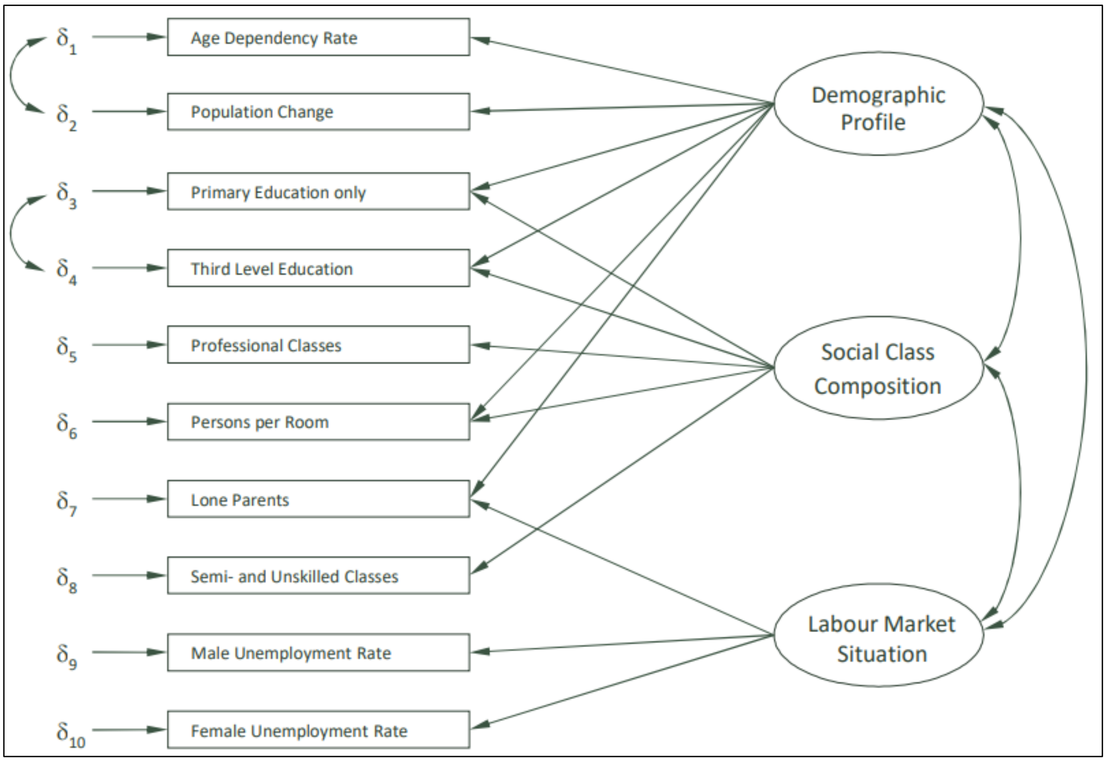


Figure 4.4 *Basic Model of the Pobal HP Deprivation Index*

The Pobal HP Deprivation Index Relative Index Score allows for the provision of descriptive labels with the scores, which are grouped by standard deviation as seen in Table 4.2 below.

In order to make a uniform assessment using the conceptual model as set out in Figure 4.1 above a relative Population Sensitivity the Deprivation Score of 'Very disadvantaged', or 'Extremely disadvantaged' would represent a high sensitivity. Conversely, a 'Extremely affluent' or 'Very affluent' would represent a very low sensitivity.

Table 4.2 *Pobal HP Index Relevant Index Score labels (Source: Pobal HP Deprivation Index)*

Deprivation Score	Pobal HP Description	Sensitivity of Population
> 30	Extremely affluent	Very Low
20 to 30	Very affluent	Very Low
10 to 20	Affluent	Low
0 to 10	Marginally above average	Low
0 to -10	Marginally below average	Moderate
-10 to -20	Disadvantaged	Moderate
-20 to -30	Very disadvantaged	High
< -30	Extremely disadvantaged	High

The data in Table 4.3 show the Pobal HP Deprivation Index Relevant Index Scores for the Study Area based on the 2016 Census. These figures show that for the year 2016 the study area is 'Marginally Below Average' to 'Affluent', with a mean deprivation of 'Marginally Above Average' for the study area as a whole, as compared with the ROI which is ‘Marginally Below Average’. This indicates a Low to Moderate Population Sensitivity (Deprivation) within the study area.

Table 4.3 *Deprivation Score within the Study Area (Pobal HP Deprivation Index, 2016 Cencus)*

Area	Deprivation Score	Pobal HP Description
State - Republic of Ireland	-5.2	Marginally Below Average
Ballybough A	-5.81	Marginally Below Average
Ballybough B	5.37	Marginally Above Average
Botanic B	11.95	Affluent
Clontarf West D	10.22	Affluent
Clontarf West E	7.79	Marginally Above Average
Drumcondra South A	13.82	Affluent
Drumcondra South B	9.82	Marginally Above Average
Drumcondra South C	12.49	Affluent
Grace Park	7.24	Marginally Above Average
North Dock A	5.71	Marginally Above Average
Whitehall D	5.74	Marginally Above Average
Study Area Mean	7.7	Marginally Above Average

4.3.1.3 Life Stage (Age Dependency)

The Health Impact Assessment Guidance (IPH, 2021) outlines that life-course analysis is often used in public health and reflects differing health sensitivities and needs at different ages. Typically, children and older people are particularly sensitive to change, including due to being dependants. Dependents are defined for statistical purposes as people outside the normal working age of 15-65. Dependency ratios are used to give a useful indication of the age structure of a population with young (0-14) and old (65+) shown as a percentage of the population of working age (15-64).

A low dependency ratio indicates that there is a larger proportion of working population age (15–64) years as compared to young (0-14) and old (65+). Conversely, a high dependency ratio indicates that there is a larger proportion of young (0-14) and old (65+) as compared to working population age. High dependency ratio can also indicate if some groups are more likely to be at home during the day (for example, due to childcare, or retired persons) and would therefore be more likely to be impacted by a development within the area.

Age dependency ratio are available through the Pobal Online Geo-Profiling tools (https://maps.pobal.ie/) which are based on the national Census.

The age dependency ratio for the study area is shown in Table 4.4 below. From these dependency ratios we can tell that the study area is less dependent when compared with ROI as a whole. Indicating a largely ‘independent’ population within the Study Area as compared ROI, which can be defined as per the conceptual model as ‘providing some care’ to ‘providing a lot of care’.

Table 4.4 *Age Dependency Ratio within the Study Area (Pobal Geo-Profiling, 2016 Census)*

Area	Age Dependency Ratio for Census Year	
	2011	2016
State - Republic of Ireland	49.30	52.70
Ballybough A	28.37	25.81
Ballybough B	17.53	18.21

Area	Age Dependency Ratio for Census Year	
	2011	2016
Botanic B	28.25	25.67
Clontarf West D	25.61	27.10
Clontarf West E	36.62	35.82
Drumcondra South A	23.91	23.27
Drumcondra South B	22.48	19.91
Drumcondra South C	31.49	31.23
Grace Park	30.62	33.53
North Dock A	25.02	23.95
Whitehall D	30.68	32.59
Study Area Mean	27.33	27.01

4.3.1.4 Health Status (General Health)

The CSO as part of the census records an overall self-reported measure of population health within Ireland. Areas with a poor health status are typically considered to be of a higher sensitivity and more susceptible to change in environmental conditions.

Table 4.5 below shows the self-reported measure of population health within the Study Area compared to ROI. This shows the area predominately self-reports their health as 'Very Good' in-line with national trends. A total of 57.91% of the population of the study area as a whole self-report their health as 'Very Good'.

Table 4.5 *Self-reported measure of population health (CSO, 2016 Census)*

Area	% population describing their general health					
	Not Stated	Very Bad	Bad	Fair	Good	Very Good
State - Republic of Ireland	3.33%	0.29%	1.32%	8.04%	27.65%	59.38%
Ballybough A	7.37%	0.59%	2.31%	10.36%	28.11%	51.26%
Ballybough B	11.65%	0.73%	2.51%	8.41%	26.23%	50.46%
Botanic B	3.27%	0.20%	1.15%	7.15%	25.11%	63.11%
Clontarf West D	5.88%	0.22%	1.57%	7.31%	25.69%	60.34%
Clontarf West E	1.50%	0.28%	1.38%	8.67%	26.18%	61.99%
Drumcondra South A	5.71%	0.14%	1.07%	6.20%	25.45%	61.43%
Drumcondra South B	3.24%	0.24%	2.30%	9.96%	26.05%	58.22%
Drumcondra South C	3.13%	0.14%	0.74%	6.65%	25.79%	63.55%
Grace Park	2.48%	0.47%	1.26%	8.25%	26.59%	60.95%
North Dock A	6.15%	0.22%	1.76%	9.52%	28.57%	53.77%
Whitehall D	9.38%	0.46%	2.23%	11.08%	28.10%	48.76%
Study Area Mean	5.40%	0.35%	1.60%	8.30%	26.44%	57.91%

4.3.1.5 Ability to Perform Daily Activities

People's ability to perform day-to-day activities is relevant to population sensitivity, particularly where there are changes in access to services or community amenities. Persons with disabilities can also be more susceptible to the changes in environmental conditions. The CSO as part of the census records an overall self-reported measure of persons with disabilities within Ireland.

Table 4.6 details the number of persons with a disability compared to the population as a whole. The data shows that six ED's (Ballybough A, Clontarf West E, Drumcondra South B, Grace Park, North Dock A and Whitehall D) have a higher percentage of Persons with a disability than the national average, indicating that there is a slight increase of restrictions on daily activity. The data shows that five ED's (Ballybough B, Botanic B, Clontarf West D, Drumcondra South A and Drumcondra South C) have a lower percentage of Persons with a disability than the national average; indicating that for persons within the area there are less restrictions on daily activity, relative to the national average.

Table 4.6 *Persons with a disability (CSO, 2016 Census)*

Area	Persons with a disability	Population	% Persons with a disability
State - Republic of Ireland	643,131	4,761,865	14%
Ballybough A	652	3718	18%
Ballybough B	485	3698	13%
Botanic B	406	3481	12%
Clontarf West D	307	2297	13%
Clontarf West E	377	2468	15%
Drumcondra South A	580	5064	11%
Drumcondra South B	264	1697	16%
Drumcondra South C	424	3517	12%
Grace Park	898	5806	15%
North Dock A	201	1365	15%
Whitehall D	718	3456	21%
Study Area Total	5,312	36,567	15%

4.3.1.6 Summary of Population Health Sensitivity

The sensitivity of the surrounding area has been considered based on the details of the published data available from CSO and Pobal. The study area has seen population growth between the 2011 and 2016 census. The Pobal HP Deprivation Index shows the area be 'Marginally Below Average' to 'Affluent' indicating a Low to Moderate Population Sensitivity (Deprivation) within the study area.

There is a low age dependency ratio, therefore a large proportion of the population is within working age, thus considered as largely independent and judged to be not sensitive to change. The information presented above for the study area indicates that a high proportion of the population [63% – 48%] describes their health status as 'Very Good' and low proportion as 'Bad' or 'Very Bad'.

The data shows that 5 EDs within the study area have a lower percentage of Persons with a disability than the national average; indicating that for persons within the area there is a relatively limited restrictions on daily activity. The data shows that 6 ED within the study area have a higher percentage of Persons with a disability than the national average; indicating that there is a slight increase of restrictions on daily activity.

The population within the study area is therefore not particularly sensitive to change, with a ranking of low to medium sensitivity.

4.3.2 Location and Character of the Local Environment

The purpose of describing the location and character of the local environment is to provide useful information on the current local community and usage within the study area, providing the Planning Authority with a context for this assessment. This includes community and social infrastructure that covers a range of services and facilities that meet local and strategic needs and contribute towards a good quality of life. In this context it includes local businesses, residential areas, education, health facilities, emergency services, and places of worship, and green infrastructure.

Furthermore, the baseline identifies tourism and landscape amenities within the study Area which provides an indication on current intrinsic values placed on the area for local, national and international users that may be impacted by the Proposed Development.

The local environment also includes natural resources that relate to populations and human health that may be impacted by the proposed development, this includes economic resources, recreational and bathing waters, and drinking water resources.

While a general study area of ED's within 1 km from the site location is included for population statistics, the wider area of 2.5 km from the site location has been used to inform the baseline description of the area.

4.3.2.1 Community and Social Infrastructure within the Study Area

Residential and Employment areas

The closest neighbouring sensitive properties to the proposed development are theresidential dwellings at Grace Park Wood residential development to the northwest; Griffith Court, the 'Fairview Community Unit' nursing home, Fairview Day Centre, Gheel Autism Services and a graveyard to the north; the An Post Fairview Delivery Service Unit on Lomond Avenue and residential properties on Inverness Road to the east; existing residential and commercial properties on Richmond Road and Convent Avenue to the south and Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC, and Ierne Sports and Social Club to the west of the site.

Education, Childcare, Schools

There are a number of primary and secondary schools in the vicinity of the proposed development, including:

The primary schools within the Study Area are as follows:

- S N Mhuire na mBrathar – c. 345m east
- Drumcondra National School – c. 465m north west
- St. Mary's National School – c. 482m south east
- St Vincent de Paul Infant School – c. 486m east
- St Vincent de Pauls Girls Senior School – c. 516m east
- S N Seosamh na mBrathar – c. 604m east
- Grace Park Educate Together – c. 694m north west
- St Columba's N S – c. 716m south
- St Patricks N School – c. 716m west
- S N San Vinseann Cailín – c. 849 m south
- O'Connell Primary School – c. 898m south
- St Vincents Infant Boys – c. 903m south
- St Columba's School – c. 975m west
- Gardiner Street Convent – c. 1.23km south west
- Howth Road N S – c. 1.27km east

As outlined in the *Social and Community (including Cultural) Audit / Assessment* prepared by John Spain Associates (JSA) (2023) based on a review of the primary schools' websites and admission notices, the schools have a total of 588 spaces available for 2022/2023. The proposed development would generate an estimated 35% of the available spaces for primary school going age in a particular year, however, in practice this would not occur, and therefore, the potential demand generated from the proposed development can easily be absorbed by the available capacity in the area.

The post primary schools within the Study Area are as follows:

- Maryfield College – c. 445m north
- Rosmini Community School – c. 546m north
- Árdscoil Rís – c. 642m east
- St. Joseph's CBS Secondary School – c. 756m east
- Marino College – c. 893m east
- Dominican College – c. 907m north west
- O'Connell Secondary School – c. 978m south west

As outlined in the *Social and Community (including Cultural) Audit / Assessment* prepared by John Spain Associates (JSA) (2023) based on a review of the schools' websites and admission notices, there are 342 available spaces to post primary schools in the area for 2022/2023. The proposed development would generate demand for an estimated 42.3% of the available spaces for secondary school going age in a particular year, however, in practice this would not occur, and therefore, the potential demand generated from the proposed development can be absorbed by the available capacity.

The special needs schools within the Study Area are as follows:

- St. Joseph's Adolescent School – c. 164m south
- St. Joseph's School for Children with Visual Impairment – c. 526m north west
- St. Laurance O'Toole Special School – c. 1.2km south

The third level institutions within the Study Area are as follows:

- Marino Institute of Education – c. 230m north
- Dublin City University (DCU) All Hallows Campus – c. 315m north west
- DCU St. Patrick's Campus - c. 795m north west
- Dublin Adult Learning Centre – c. 1.27km south west

Healthcare Services

The Healthcare Services within the study area are Marino Health Centre, located c. 1.13km north east, North Strand Health Centre, located c. 1.17km south, Summerhill Primary Care Centre, located c. 1.22km south, and East Wall Health Clinic, located c. 1.66km south east.

St. Vincent's Hospital is located on the site. Retention and change of use of the existing hospital building (part of which is a protected structure under RPS Ref.: 2032) is proposed, to provide residential amenity areas, a gym, a café, co-working units, a creche, and community uses.

St. Vincent's Hospital will be replaced as part of the proposed development. The location of the new hospital is as close as possible to the existing mental health facility and will allow existing familiar and private access routes to be continued to be used. The new building and landscape are being designed using principles of therapeutic architecture. Location of the new facility will allow patients to continue to use the outdoor space familiar to them.

There are a number of hospitals located within the study area including:

- CHI at Temple Street – c. 1.57km south west
- Mater Private – c. 1.61km south west
- Mater Hospital – c. 1.76km south west
- Bon Secours – c. 1.85km north west
- Rotunda – c. 1.91km south west

Emergency Services

North Strand Fire Station is located c. 792m south east of the site, and Fitzgibbon Street Garda Station is located c. 1.17km south west of the site.

Places of Worship

There are a number of places of worship in the vicinity of the development including:

- Bon Secours – c. 1.85km north west
- Rotunda – c. 1.91km south west
- The Church of the Visitation of the Blessed Virgin Mary, Fairview – c. 499m south east
- Fairview Hall Church – c. 662m south east
- St. John the Baptist Church Drumcondra – c. 665m north west
- North Strand Church – c. 874m south
- St. Maximus & St. Domatius Coptic Orthodox Church – 956m west
- St. Vincent de Paul Marino – c. 977m north east
- St. Agatha's Church – c. 1.02km south
- Praise Tabernacle Apostolic Faith Mission – c. 1.13km south
- Clontarf & Scots Presbyterian Church – c. 1.20km east
- St. Columba's Catholic Church – c. 1.27km west

Green Infrastructure, Landscape and Amenity, within the Study Area

In terms of landscape amenity, there are a number of protected structures on site. The hospital buildings include 3 no. protected structures with additional protected structures surrounding the site and a residential conservation area to the east.

The primary areas of landscape amenity in the immediate vicinity of the proposed development site include Dublin Port Stadium Stella Maris Football Club, located c. 203m west, Ierne Social and Sports Club, located c. 342m north west, Tolka Park Stadium, located c. 477m west and Fairview Park, located c. 802m south east. The modest-sized Tolka River meanders in a general west-to-east direction, approximately 300m south of the site.

In terms of landscape amenity, residential buildings and commercial units are the dominant elements of the surrounding landscape. The surrounding area can be considered of low to medium sensitivity to the proposed development, which is of similar character.

4.3.2.2 Tourism within the Study Area

Tourism is returning to strong growth and continues to play a hugely influential role in Irelands economic success.

The development site is located within the Dublin City Council (DCC) administrative area. The DCC Tourism Statement of Strategy and Work Programme 2017 – 2022 notes that:

> *Dublin City is home to many of the country's most significant cultural, sporting and leisure facilities, including some of its most visited museums and galleries, as well as many other visitors attractions, large and small. These assets are complemented by a historic built heritage, which contributes significantly to the richness and diversity of the City's urban fabric, reinforcing its character, identity and authenticity, and which serves as a further attraction in its own right. In recent years, this rich cultural life has been further enhanced by the expansion and arrival of new visitor attractions, together with the promotion of new events and initiatives…*

The development site is located in an existing hospital and is not located in the immediate vicinity of any areas of significance or local tourism. Tourism is not a major industry in the immediate environs of the site, however there are attractions of note within the wider Study Area. These include Croke Park, which hosts sports, cultural and music events, and tours of the stadium itself, located c. 750m south west. The National Botanic Gardens are located c. 1.64 km west of the site. The gardens feature naturalistic sections, formal gardens, an arboretum and a Victorian palm house. Glasnevin Cemetery is located c. 2.15 km west of the site and is a destination of social, cultural and historical significance which hosts tours and exhibitions. Dublin City Centre lies c. 2 km south of the site and is of significant interest to tourists with a wide variety of cultural, historical, artistic and recreational attractions.

4.3.2.3 Natural Resources within the Study Area

Geological Heritage, and Economic Resources

Natural resources and land use in the study area has also been considered as they may have implications for the development of the lands. A review of Geological Survey Ireland online maps has shown that there are no extractive industries or active quarries within the Study Area.

There are 5 no. Geological Heritage Sites within the Study Area. Glasnevin Cemetery, a large cemetery of 120 acres dating from 1832, is located c. 1.7 km west of the site and features a unique variety of rock types and methods of working them. The General Post Office, with doorways and marble panelled interior areas consisting of three classic Irish marble types, is located c. 1.9 km south west of the site. The Museum Building, Trinity College, is located c. 2.4 km south of the site. The building was completed in 1857 and is a very fine demonstration of rock types in building construction and ornamentation. The Temple Bar Street Well, an interesting aspect of hydrogeology in an accessible location, is located c. 2.5 km south west of the site. The River Poddle, located at its closest point c. 2.5 km south west of the site, is important historically in its subsurface channelisation, making it very unusual in Ireland. Additionally, a large, dark pool once existed at the confluence of the rivers Poddle and

Liffey; this pool was described in Irish as *Dubh Linn*. The city name, Dublin, is an anglicisation of this Irish phrase.

There are 3 no. Mineral Localities within the Study Area. All 3 no. are deposits of lead, 2 no. of which are located c. 2.1 km east of the site and 1 no. of which is located c. 2.4 km south east of the site.

Recreational Waters and Bathing Waterbodies

A review of Environmental Sensitivity Mapping online maps that includes the Register of Protected Areas (RPA) under the Water Framework Directive (WFD) has shown that there are no protected Recreational Waters or Bathing Waterbodies within the Study Area. The site is adjacent to the Tolka River, that ultimately flows to Dublin Port, there are no RPA located there.

Drinking Water Resources

A review of Environmental Sensitivity Mapping and Geological Survey of Ireland online maps that includes the Water Abstraction locations, and Groundwater Source Protection Areas has been undertaken. This shows no Groundwater Source Protection Areas within the Study Area. There are a number of Water Abstraction locations (50-1km) within the study area for Public supply (Co Co), and Industrial use.

4.3.3 Risk of Major Accident Hazards or Disasters

The potential for a project to cause risks to human health, cultural heritage or the environment due to its vulnerability to external accidents or disasters is considered where such risks are significant, e.g. the potential effects of floods on sites with sensitive facilities. Where such risks are significant then the specific assessment of those risks in the form of a Seveso Assessment (where relevant) or Flood Risk Assessment may be required.

Landslides, Seismic Activity and Volcanic Activity

There is a negligible risk of landslides occurring at the site and in the immediate vicinity due to the topography and soil profile of the site and surrounding areas. There is no history of seismic activity in the vicinity of the site. There are no active volcanoes in Ireland so there is no risk of volcanic activity.

The proposed development site is not vulnerable to landslides, seismic activity or volcanic activity. Therefore, there is no significant potential for the proposed development to cause risks to human health due to its vulnerability to landslides, seismic activity or volcanic activity.

Proximity to Seveso or Industrial Emissions Sites

The Seveso Directive (Directive 82/501/EEC, Directive 96/82/EC, Directive 2012/18/EU) was developed by the EU after a series of catastrophic accidents involving major industrial sites and dangerous substances. Such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the “COMAH Regulations”), implement the latest Seveso III Directive (2012/18/EU).

The purpose of the COMAH Regulations is to transpose the Seveso Directive into Irish law and lay down rules for the prevention of major accidents involving dangerous substances, and to seek to limit as far as possible the consequences for human health and the environment of such accidents, with the overall objective of providing a high level of protection in a consistent and effective manner.

The Health and Safety Authority (HSA) list of Notified Seveso Establishments, and the Environmental Sensitivity Mapping webtool (https://enviromap.ie/), has been reviewed to identify if the Proposed Development falls within the consultation distance of any nearby Seveso Establishments.

The closest Notified Seveso Establishments to the Proposed Development are a concentration of establishments situated at Dublin Port, located c. 2.1 km from the Proposed Development. This consists of the 6 no. Upper Tier Establishments:

- Calor Teoranta (TQ);
- Fareplay Energy Ltd (Dublin Port);
- Indaver Ireland Ltd (TQ);
- Tedcastles Oil Products (Y1);
- Tedcastles Oil Products (Y2); and
- Valero Energy (Ireland) Ltd.

Additionally the following 4 no. Lower Tier Establishments are located at Dublin Port:

- Circle K (Terminal 1);
- Circle K (Yard 3);
- ESB (North Wall); and
- Iarnrod Eireann (North Wall).

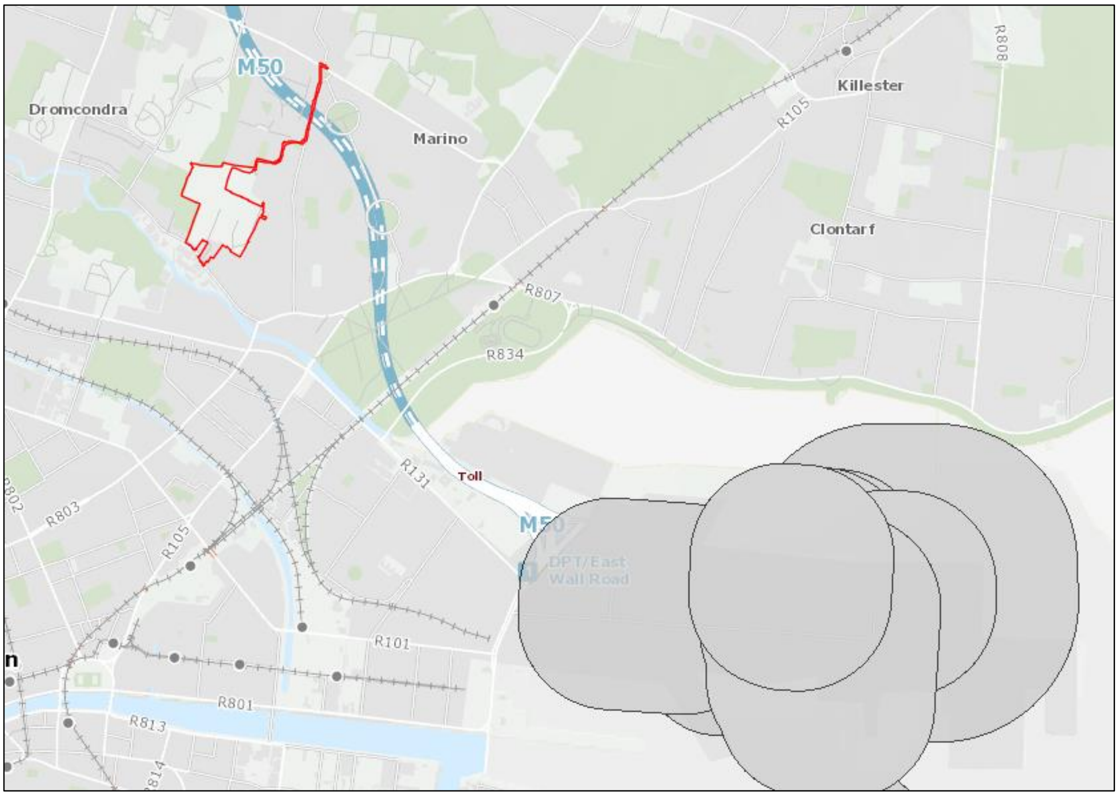


Figure 4.5 *Consultation Distances of Seveso Establishments within the vicinity of the Proposed Development site (indicative in red)*

The Proposed Development site is not located within the consultation distance of any notified establishment. Therefore, there are no implications for major accidents or hazards at the Proposed Development site.

The EPA (2023) has been reviewed in the vicinity of the site there are no. 12 existing EPA Licenced sites located within the Study Area, a combination of IE, IPPC and Waste Licences, that could potentially give rise to cumulative effects.

Table 4.7 *EPA Licenced Facilities nearby to the Proposed Development Site*

Registration number	Name	Category	License type	Distance (km)
P0220	Everlac Paints Ltd	Industry	IEL	0.3 km
P0298	Cahill Printers Ltd	Industry	IEL	1.2 km
W0083	Lower Oriel Street	Waste	Waste	1.3 km
P0537	Rentsch Dublin Limited	Industry	IPPC	1.5 km
P0212	Lithographic Web Press Limited	Industry	IPPC	1.6 km
P0054	Mater Misericordiae University Hospital	Industry	IEL	1.6 km
W0035	Sita Environmental Ltd	Waste	Waste	1.8 km
W0042	Dean Waste Company Ltd (Upper Sheriff Street)	Waste	Waste	1.9 km
W0097	Swalcliffe Limited	Waste	Waste	2.0 km
P0345	Brooks Thomas Limited	Industry	IPPC	2.0 km
P0111	Independent Newspapers Ltd	Industry	IEL	2.2 km
P0468	Everlac Paints Limited	Industry	IPPC	2.5 km

Risk of Flooding

The potential risk of flooding on the site was also assessed through the Site Specific Flood Risk Assessment (SSFRA) undertaken by O'Connor Sutton Cronin (OCSC).

The existing Hydrological Environment is as follows

- The Tolka River is located approximately 100m from the south boundary.
- There are no OPW arterial drains located within or adjacent to the site.
- The existing units and hardstanding areas currently discharge surface water to the local combined infrastructure, with no apparent treatment nor attenuation facilities in place.

With reference to the above, a review of flood maps produced as part of the CFRAMS and SSFRA indicate that the site of the proposed development falls within the Flood Zone C, as the proposed units are located outside the 1 in 100 and 1 in 1000-year fluvial flood extents. The critical flooding mechanism for this site will be fluvial flooding. The proposed development will include a new surface water network which will manage the surface water onsite.

The SSFRA by OCSC is carried out in full compliance with the requirements of "The Planning System & Flood Risk Management Guidelines" published by the Department of the Environment, Heritage and Local Government in November 2009.

The SSFRA sets out that pluvial and groundwater flooding will be managed through the implementation of the mitigation measures which are set out in the SSFRA. Therefore, in accordance with the Planning System and Flood Risk Management Guidelines for Planning Authorities, there is no significant risk for flooding in the proposed development and it appropriate for use. It has been demonstrated that the site is not at risk of flooding from external sources, or as result of the proposed development.

4.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, community facilities, public open space and provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L). The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032) to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes other residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of structures and Protected Structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Old Laundry building and Rose Cottage.

A full description of the development can be found in Chapter 2.

4.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

The main potential impacts on population and human health from the proposed development are potential for spills/leaks, air emissions, noise, visual, and traffic impacts. The baseline environment, pollution pathways, relevant mitigation measures and residual impacts are assessed in greater detail within the corresponding specialist chapters; Soils, Geology and Hydrogeology; Hydrology; Air Quality and Climate; Noise and Vibration; Landscape and Visual; and Traffic and Transportation.

A summary of the main potential impacts as they are relevant to human health criteria during construction and operation of the proposed development is presented herein.

4.5.1 Construction Phase

4.5.1.1 Potential Impacts on Businesses and Residences

The main potential impacts on local businesses and residences associated with the Proposed Development will be in relation to nuisances; air quality, noise, visual impact and traffic. The potential impacts and mitigation measures to address them are dealt with within the corresponding chapters of the EIA Report as follows:

- Air Quality
- Noise and Vibration
- Landscape and Visual Impact
- Traffic and Transportation

Construction will have an indirect positive effect on support industries such as builders suppliers, construction material manufacture, maintenance contracts, equipment supply, landscaping and other local services. There will also be a need to bring in specialist workers on a regular basis that may increase the working population at times. Specialists are only likely to stay for shorter periods depending on the nature of the work.

The construction phase, therefore, is considered to have the potential to have a ***slight, short term*** *and* ***positive*** impact on the economy and employment of the wider area.

The construction phase may result in a marginally increased population in the wider area due to increased construction employment in the area, however, this would be ***temporary*** in nature and the impact on population and settlement patterns would be ***imperceptible,*** **and** ***neutral***.

4.5.1.2 Potential Impacts on Landscape Amenity and Tourism

There will be no impact on the local parks or the larger amenity areas. It is not anticipated the proposed development will have any impact on local tourism or shopping amenities. All wastewater generated at the Proposed Development will be connected to the existing public foul network, as confirmed by Irish Water, and so will not impact local amenities or the local population.

Visual impacts and amenity impacts perceived by individual persons are highly subjective and difficult to characterise however, generally, the effects would be negative since construction is an inherently, unavoidably unsightly activity. It is considered that the overall impact on the community will be ***negative, moderate*** and ***short term*** during the construction phase.

4.5.1.3 Potential Impact from Land and Water Emissions on Human Health

During construction of the proposed development, there is a risk of accidental pollution incidences from the following sources:

- Spillage or leakage of 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
- The use of concrete and cement during pad foundation construction.

Chapter 5 (Land, Soils, Geology and Hydrogeology) and Chapter 6 (Hydrology) has considered the potential impacts associated with land and water emissions on human health.

Based on the nature and thickness of overburden and the potential hazards present during construction there is no potential for impact on groundwater quality within the bedrock aquifer (as bedrock will not be affected by the excavation works) and therefore no potential for negative impacts for human health and populations. There is no source pathway linkage to drinking water supplies or recreational use of the downgradient Tolka Estuary or Tolka River.

The area is serviced by Local Authority mains therefore it is unlikely that any wells are used for potable supply. The site is not located near any public groundwater supplies or group schemes.

The ground investigation undertaken by GII (2022) included laboratory testing of soil samples for pH and sulphate and confirmed that no elevated levels / concentrations of contamination were detected. Excavation on site may encounter localised areas of contamination which will need to be excavated and disposed of appropriately to a licenced facility.

The potential impacts during the construction phase on human health and populations are due to changes in hydrogeology and soil environment are ***neutral***, ***imperceptible*** and ***short term***.

A reduction in water quality via unmitigated pollutants entering the Tolka River (as set out in Chapter 6 - Hydrology) has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, it is noted that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream on the Tolka River.

Therefore, on this basis in the absence of mitigation measures the potential impacts during the construction phase on human health and populations due to changes to the hydrological environment are ***negative***, ***not significant*** and ***short term***.

4.5.1.4 Potential Impact from Air Quality on Human Health

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the potential for nuisance dust. While construction dust tends to be deposited within 350 m of a construction site, the majority of the deposition occurs within the first 50 m. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. A review of Dublin Airport meteorological data (see Section 8.3.1) indicates that the prevailing wind direction is westerly to south-westerly and wind speeds are generally moderate in nature. In addition, dust generation is considered negligible on days where rainfall is greater than 0.2 mm. A review of historical 30 year average data for Dublin Airport indicates that on average 191 days per year have rainfall over 0.2 mm (Met Eireann, 2023) and therefore it can be determined that over 50% of the time dust generation will be reduced.

In order to determine the level of dust mitigation required during the proposed works, the potential dust emission magnitude for each dust generating activity needs to be taken into account, in conjunction with the sensitivity of the area. The major dust generating activities are divided into four types within the IAQM guidance to reflect their different potential impacts. These are:

- Demolition;
- Earthworks;
- Construction; and
- Trackout (movement of heavy vehicles).

Dust emissions from the construction phase of the proposed development have the potential to impact human health through the release of PM10 and PM2.5 emissions. The overall risk of dust related human health impacts as a result of the construction of the proposed development will be established using the IAQM (2014) criteria.

There is at most a high risk of dust soiling impacts and a medium risk of human health impacts associated with the proposed works therefore dust mitigation measures associated with high risk sites will be implemented to ensure there are no significant impacts at nearby sensitive receptors. In the absence of mitigation, dust impacts are predicted to be ***short-term, direct, negative*** and ***moderate.***

There is also the potential for traffic emissions to impact air quality in the short-term over the construction phase. Particularly due to the increase in HGVs accessing the site. As the construction stage traffic did not meet the screening criteria a detailed air quality assessment of construction stage traffic emissions was screened out. It can be concluded that construction phase traffic emissions will have a ***short-term, localised, neutral*** and ***non-significant*** impact on air quality.

4.5.1.5 Potential Impact from Noise and Vibration on Human Health

Exposure to excessive noise is becoming recognised as a large environmental health concern. According to the 2015 European Commission report 'Noise Impacts on Health', (European Commission, 2015), the most common effects of noise on the vulnerable include;

- Annoyance
- Sleep Disturbance
- Heart and circulation problems
- Quality of Life
- Cognitive Process
- Hearing

It is acknowledged that humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. In the case of road traffic, vibration is perceptible at around 0.5mm/s and may become disturbing or annoying at higher magnitudes. Noise and vibration impacts associated with the development have been fully considered within Chapter 10 of the EIA Report.

As detailed in Chapter 10 Noise and Vibration, in terms of the potential noise and vibration impacts, the key construction stages and activities are expected to involve:

- Demolition of existing structures;
- Site Strip/Excavation
- Substructure
- Superstructure
- Façade and internal fit out.

Noise levels associated with these key construction stage have been presented for Phase 1 and Phase 2 of construction in Chapter 10, Section 10.5.1. Noise emissions vary based on the construction / demolition activity taking place and the proximity of the assessed Noise Sensitive Location to the activity. The predicted impacts of noise on human health for Phase 1 are ***negative, slight*** to ***very significant,*** and ***temporary*** to ***short term.*** The predicted impacts of noise on human health for Phase 2 are ***negative, slight*** to ***very significant,*** and ***temporary*** to ***short term.***

During the demolition/construction phase, traffic associated with the proposed development would consist of a mix of Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs) travelling to and from the site. It is anticipated that during the construction phase additional traffic on the local road network will be increased by 400 extra vehicle movements during each day. With reference to Chapter 10 the resulting change in noise level due to construction traffic is likely to be ***negative, not significant,*** and ***short-term.***

The main potential source of vibration during the construction programme is associated with piling and any initial ground breaking or demolition activities. For the purposes of this assessment, the expected vibration levels during piling, assuming driven piles, have been determined through reference to published empirical data (See chapter 10, Section 10.5.1). Vibration magnitudes associated with this activity are well below those associated with any form of cosmetic damage to buildings. There is potential for a ***negative, moderate, brief*** impact for building occupants within 20m of this activity using a 6 Tonne Breaker or equivalent. The impacts however, are significantly reduced in terms of human response once the source of vibration is known and good communications are in place.

4.5.1.6 Potential Impact from Traffic and Transportation on Human Health

The World Health Organisation Report 'Health Effects and Risks of Transport Systems: The Hearts Project' (World Health Organisation, 2006) states that road traffic is a major cause of adverse health effects - ranking with smoking and diet as one of the most important determinants of health in Europe. The report states;

> *"Traffic-related air pollution, noise, crashes and social effects combine to generate a wide range of negative health consequences, including increased mortality, cardiovascular, respiratory and stress-related diseases, cancer and physical injury. These affect not only transport users but also the population at large, with particular impact on vulnerable groups such as children and elderly people, cyclists and pedestrians"*

In the Department of Communications, Climate Action & Environment document *Cleaning Our Air – Public Consultation to Inform the Development of a National Clean Air Strategy* vehicle emissions are included as a key source of health impacts in Ireland (DOCCA&E, 2017).

OCSC have prepared a Traffic Impact Assessment (TIA) of the estimated trips generated for the construction phase of the proposed development. Construction traffic is expected to consist of the following categories: Private vehicles owned and driven by site construction staff and by full-time site supervisory staff and occasional professional supervisory staff i.e. design team members and supervisory staff from utility companies; and Materials delivery and removal vehicles.

The peak hour vehicle movements for construction vehicles will be significantly less than that of the operational vehicle numbers, despite a conservative assessment with respect to construction traffic. Daily construction vehicle movements are notably less than the operational stage movements. Thus, taking into consideration, the temporary nature of construction activity and the detailed analysis of the operational stage in the following section, a bespoke detailed analysis of the construction stage has not been deemed necessary.

The potential impact during construction on Population and Human Health in respect of the environmental factor of Traffic expected to be ***negative, moderate*** and ***short-term.***

4.5.1.7 Potential Impacts from Major Accident Hazards and/or Natural Disasters on Population and Human Health

The proposed development has the potential for an impact on the health and safety of workers employed during the construction phase. The activities of the applicant's contractors during the construction phase will be carried out in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. No. 291 of 2013) to minimise the likelihood of any impacts on workers' health and safety.

As outlined in Section 4.3.3 there is a negligible risk of external natural disasters; including landslides, seismic activity, volcanic activity and sea level rise. There is a negligible risk of major accidents to occur at the facility due to the lack of proximity to Seveso/Control of Major Accident Hazards (COMAH) Regulations sites.

As noted in Section 4.3.3, the site is in Flood Zone C, as such the site is not at risk of 1 in 100 and 1 in 1000-year fluvial flood extents.

The potential effect is therefore ***imperceptible***, and unlikely, in respect of Major Accident Hazards or Natural Disasters on Population and Human Health during the Construction Phase of the Proposed Development.

4.5.2 Operational Phase

4.5.2.1 Potential Impacts on Businesses and Residences

The main potential impacts on local businesses and residences associated with the Proposed Development will be in relation to nuisances; air quality, noise, visual impact and traffic. The potential impacts and mitigation measures to address them are dealt with within the corresponding chapters of this EIA Report as follows:

- Chapter 8 – Air Quality
- Chapter 10 – Noise and Vibration
- Chapter 11 – Landscape and Visual Impact
- Chapter 14 – Traffic and Transportation

The proposed development includes 811 no. residential units. The *Social and Community (including Cultural) Audit / Assessment* (JSA, 2023) provides an estimate for the potential maximum occupancy of the development of 2,513 no. persons. The addition of new residents to the area will improve the vibrancy and vitality of the area and will help to support existing community and social infrastructure, in addition to further supporting nearby neighbourhood centre and commercial businesses. As set out within the *Social and Community (including Cultural) Audit / Assessment* submitted as a standalone report with the application, there is a considerable range of existing community and social infrastructure within a 1 km radius and / or c. 15 minute walking distance of the subject site, which the proposed development will be able to avail of. As such, the impact on population will be ***positive, moderate*** and ***long-term.***

The primary aspect of the proposed development is the delivery of a new hospital providing mental health services on the subject lands. Thus, the proposals will provide for a new and much-needed state-of-the-art hospital providing mental health services for acute patients on the existing Fairview campus, including potential room for future expansion within the 2.676 ha secure hospital campus site. In addition to the healthcare services to be provided by the proposed development, the *Social and Community (including Cultural) Audit / Assessment* (JSA, 2023) confirms that there is a wide-ranging number and variety of health care facilities in the area. This level of provision within proximity to the subject site constitutes excellent service provision for the community and is considered sufficient to cater for the additional needs arising from the proposed development. The location of the new hospital is as close as possible to the existing mental health facility and will allow existing familiar and private access routes to be continued to be used.

The *Social and Community (including Cultural) Audit / Assessment* (JSA, 2023) estimates the additional increase in demand for primary school (c. 5.7%) and secondary school (c. 5.48%) places. The audit confirms that the existing and planned primary and post-primary education infrastructure can accommodate the predicted increase in demand and is adequate.

The proposed development includes a childcare facility of 730 sq.m GFA which is estimated as having capacity for 77 no. children (and potentially more depending on the end-users model). As set out within the *Social and Community (including Cultural) Audit / Assessment* (JSA, 2023), having regard to the nature of the scheme, the predominantly 1 and 2 beds proposed, the demographic profile of expected end users, the proximity of the site to a number of existing and the proposed childcare facility within the subject proposal, it is considered the proposed childcare facility along with existing and proposed childcare facilities available are sufficient to cater for the estimated increased demand for childcare services arising from the proposed development.

A gym with a GFA of 1,459 sq.m is proposed in Block K, which will be available to both residents and the wider community. Provision is made for 5,645 sq.m of external communal open space comprising of courtyard spaces, with lawns, outdoor seating, garden areas, communal dining, play facilities, picnic areas and outdoor gym equipment. Thus, the scheme includes good provision of sports and recreational facilities which will enhance the provision in the area.

The proposed development will also provide significant facilities for community use. The new hospital is the primary such facility, however the development will also a provide a new community hall and community library. Accordingly, the needs of the future residents within the proposed development regarding community and cultural uses are considered to be adequately met and the provision will also support existing facilities in the area.

Once operational, the proposed development will give rise to much needed additional residential accommodation. Residents will spend a portion of their income locally which would not happen without the proposed development. The proposed development provides for a hospital, community hall, community library, childcare facility, co-working space, café, gym and retail unit. As such, in providing these facilities the proposed development will provide long term job opportunities for people living in the area to operate the facilities.

The planning application is accompanied by a Social and Community Infrastructure Audit report prepared by John Spain Associates, which confirms that the area within which the proposed development is situated has the necessary community and social infrastructure to support the proposal.

Having regard to the fact that the area within which the development is situated benefits from a good level of social and community infrastructure, and noting the elements of the proposed development which will improve and strengthen this infrastructure, it is concluded that the proposed development will have a ***significant, positive, long term*** impact on the local community in the operational phase.

4.5.2.2 Potential Impacts on Amenity and Tourism

The proposed development, once operational, will have no impact on local tourism or shopping amenities. All wastewater generated at the Proposed Development will be connected to the existing public foul network, as confirmed by Irish Water, and so will not impact local amenities or the local population. There will be no impact on the local parks or the larger amenity areas.

The operational phase of the proposed development will result in the introduction of a greater intensity and density of residential development, delivering wider public realm improvements, in accordance with national and local planning policy objectives which seeks to deliver compact growth at suitable locations. Adequate provision of high-quality housing to serve the existing and future population of the county and the wider Dublin area is an important pre-requisite and contributor to the establishment and maintenance of good human / public health. The high quality design of the proposed development, including individual units which meet and exceed the relevant standards for apartments as set out within the apartment guidelines will contribute to a positive impact on the wellbeing of future residents.

The proposed development is deliberately a departure from the existing character of (most of) its immediate environs. It is driven by the policy of compact growth, the purpose of which is to see the introduction of new buildings of larger scale to previously lower density urban contexts. The Building Height Guidelines, NPF and DCDP recognise that such change needn't necessarily be (or be considered to be) negative. Developments of scale, that cause change in the landscape character and the composition of views, can be designed with consideration of its context, so that its effects, while significant, are not unduly harmful to the receiving environment.

The introduction of a new mental health facility to replace the ageing existing St Vincent's Hospital, and a high density residential neighbourhood providing 811 no. new homes in addition to a 'community hub' and extensive publicly accessible open space, would make more sustainable use (than the site in its current usage/condition) of the strategically valuable urban land resource. This would have benefits for both the existing population of the city and the future residents of the development. The high urban design, architectural and landscape quality of the development would also elevate the quality of the landscape (as a resource for human enjoyment) overall.

As discussed in Chapter 11 – Landscape and Visual, the potential effects of the Proposed Development are predominantly ***slight*** to ***moderate, neutral*** to ***positive*** and ***long term*** with the exception of the following viewpoints:

- Richmond Road (opposite Crannog entrance) – ***significant, positive*** and ***long term***
- Waterfall Avenue – ***significant, positive*** and ***long term***
- Ierne Social and Sports Club parking area – ***significant, neutral*** and ***long term***
- Grace Park Rd at entrance to St Joseph's/Grace Park Wood estate – ***significant, neutral*** and ***long term***
- Grace Park Close (close up view) – ***significant, negative*** and ***long term***

Only at two locations, i.e. Viewpoint 23 (Grace Park Close – close up view) and Viewpoint 25 (Griffith Court – western street) have negative visual effects been predicted. In these areas/views the occupation/infilling of the site by built form, the screening of landscape features currently visible due to the north field's vacant condition (e.g. St Vincent's Hospital, Croke Park and the distant Dublin Mountains), and the general increase in built/visual enclosure would constitute a loss of visual amenity.

Considering the weight of positive landscape effects identified for a large part of the receiving environment, the demonstrably high urban design, architectural and landscape design quality of the proposal, the consideration of the landscape context and sensitivities evident in the embedded mitigation, the site's strategic urban location, and the national policy of compact growth, the landscape effects can be classified as positive overall.

4.5.2.3 Potential Impact from Land and Water Emissions on Human Health

There is a potential of a leak or spill of petroleum hydrocarbons during storage, transfer, or delivery or vehicles during operation of the development which has the potential to impact on soil, and groundwater water quality if leaks or spills occur and are not adequately mitigated. Unmitigated leaks or spills may lead to contamination of soil or groundwater, soils that are contaminated by petroleum hydrocarbons can affect soil health which in turn can lead to human exposure through pathways such as skin contact, inhalation and ingestion.

A reduction in groundwater quality via unmitigated pollutants entering soil or Dublin Groundwater Body (GWB) has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. Regional groundwater flow is likely to the south/south-west towards the Tolka River and Estuary at South Dublin Bay.

As identified in Chapter 5, one of the wells listed are categorised as domestic use. The area is serviced by Local Authority mains therefore it is unlikely that any wells are used for potable supply. The site is not located near any public groundwater supplies or group schemes.

There are no groundwater source protection zones in the immediate vicinity of the site. The one in closest proximity of the site is located c. 16.1 km north-west (DUNBOYNE_PWS) and the proposed site is outside of the zone of contribution of this supply.

Furthermore, humans can also be exposed to petroleum hydrocarbons or other contaminants by inhaling the fumes / dust from contaminated soil. Depending on the type of contaminant and the level of exposure, soil contamination can have serious health implications.

Therefore, on this basis in the absence of mitigation measures the potential impacts during the operational phase on human health and populations due to the potential for contamination of soil and groundwater are ***negative***, ***not significant*** and ***long term***.

Surface water runoff from roads, car parking areas, and the proposed petrol station can potentially contain elevated levels of contaminants such as hydrocarbons. These pollutants such as hydrocarbons that are a known carcinogen (cause cancer) in many animals and suspected to be carcinogenic to humans and changes in water pH in runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc).

A reduction in water quality via unmitigated pollutants entering the Tolka River has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, it is noted that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the Tolka River.

In the absence of mitigation measures the potential impacts during the operational phase on human health and populations due to changes to the hydrological environment are ***negative***, ***not significant*** and ***long term***.

4.5.2.4 Potential Impact from Air Emissions on Human Health

The potential impact of the proposed development has been assessed by modelling emissions from the traffic generated as a result of the development. The traffic data includes the Do Nothing and Do Something scenarios. The impact of NO_2 and PM_{10} emissions for the opening and design years was predicted at the nearest sensitive receptors to the development. This assessment allows the significance of the development, with respect to both relative and absolute impacts, to be determined.

The annual average concentration of NO_2 is in compliance with the limit value at the worst-case receptors in 2026 and 2041. Concentrations of NO_2 are at most 54% of the annual limit value in 2026 and 48% of the annual limit value in 2041. In addition, the TII guidance (see Chapter 8) states that the hourly limit value for NO_2 of 200 $\mu g/m^3$ is unlikely to be exceeded at roadside locations unless the annual mean is above 60 $\mu g/m^3$. As predicted NO_2 concentrations are significantly below 60 $\mu g/m^3$ (Chapter 8 - Table 8.13) it can be concluded that the short-term NO_2 limit value will be complied with at all receptor locations.

The annual average PM_{10} concentration is in compliance with the limit value at the worst-case receptors in 2026 and 2041. Concentrations of PM_{10} are at most 43% of the annual limit value in 2026 and 44% of the annual limit value in 2041. In addition, the proposed development will not result in any exceedances of the daily PM_{10} limit value of 50 $\mu g/m^3$. As with NO_2, where the predicted annual mean concentrations are less than 75% of the air quality standard (see Chapter 8 - Table 8.1) and there is a less than 5% change in concentrations compared with the Do-Nothing scenario then the impact is considered neutral as per the TII significance criteria (see Chapter 8 - Table 8.2). Therefore, the impact of the proposed development on PM_{10} concentrations is neutral.

Overall, the impact of the proposed development on ambient air quality in the operational stage is considered ***long-term, localised, neutral, imperceptible*** and ***non-significant.***

4.5.2.5 Potential Impact from Noise and Vibration Emissions on Human Health

Exposure to excessive noise is becoming recognised as a large environmental health concern. According to the 2015 European Commission report 'Noise Impacts on Health', (European Commission, 2015), the most common effects of noise on the vulnerable include;

- Annoyance
- Sleep Disturbance
- Heart and circulation problems
- Quality of Life
- Cognitive Process
- Hearing

It is acknowledged that humans are particularly sensitive to vibration stimuli and that any perception of vibration may lead to concern. In the case of road traffic, vibration is perceptible at around 0.5mm/s and may become disturbing or annoying at higher magnitudes. Noise and vibration impacts associated with the development have been fully considered within Chapter 10 of the EIA Report.

There will be a variety of mechanical and electrical (M&E) items required to serve the proposed development as well as the newly constructed hospital once it becomes operational. These are likely to include water pumps, air handling systems, condensers, etc. Depending on the operational hours and occupancy of the various spaces within the buildings, some of these will operate on a 24/7 basis depending on the specific use.

The resultant change in noise level in relation to operational traffic of the development is likely to result in a subjectively inaudible impact. The resulting impact of operational traffic is likely to be ***negative, imperceptible*** and ***long term.***

4.5.2.6 Potential Impact from Traffic and Transportation on Human Health

The World Health Organisation Report 'Health Effects and Risks of Transport Systems: The Hearts Project' (World Health Organisation, 2006) states that road traffic is a major cause of adverse health effects - ranking with smoking and diet as one of the most important determinants of health in Europe. The report states;

> *"Traffic-related air pollution, noise, crashes and social effects combine to generate a wide range of negative health consequences, including increased mortality, cardiovascular, respiratory and stress-related diseases, cancer and physical injury. These affect not only transport users but also the population at large, with particular impact on vulnerable groups such as children and elderly people, cyclists and pedestrians"*

In the Department of Communications, Climate Action & Environment document *Cleaning Our Air – Public Consultation to Inform the Development of a National Clean Air Strategy* vehicle emissions are included as a key source of health impacts in Ireland (DOCCA&E, 2017).

An assessment of the additional traffic movements associated with the proposed development during the operational phase was undertaken by OCSC. The traffic generation potential of the subject site was then assessed using the Trics planning database. It was deemed appropriate to only consider the trips generated by the new residential portion of the development. The hospital is currently operating on site. It is not anticipated that the size of the hospital will increase and that only a new building will be constructed to accommodate the existing operations as part of the masterplan of this site. The current and proposed hospital buildings also utilise the same access, and as such, the hospital trips are already present and accurate on the base traffic flows.

There are potential impacts associated with poor site permeability negatively impacting pedestrian and cycle movements, and the increased risk of accident due to increased vehicle movements.

The potential impact on Population and Human Health in respect of the environmental factor of Traffic is expected to be ***negative, slight*** to ***moderate*** and ***long-term.***

4.5.2.7 Potential Impacts from Major Accident Hazards and/or Natural Disasters on Population and Human Health

The proposed development has been designed with consideration given to the health and safety risks of people living and working in the vicinity. The facility has been designed by skilled personnel in accordance with internationally recognised standards, design codes, legislation, good practice and experience.

As outlined in Section 4.3.3 there is a negligible risk of external natural disasters; including landslides, seismic activity, volcanic activity and sea level rise. There is a negligible risk of major accidents to occur at the facility due to the lack of proximity to Seveso/Control of Major Accident Hazards (COMAH) Regulations sites.

As noted in Section 4.3.3, the site is in Flood Zone C as such the site is not at risk of 1 in 100 and 1 in 1000-year fluvial flood extents.

The potential effect is therefore ***imperceptible***, and unlikely, respect of Major Accident Hazards or Natural Disasters on Population and Human Health Operational Phase of the Proposed Development.

4.5.2.8 Potential Impacts from Microclimate on Human Health

A Microclimatic Wind Analysis was undertaken by IN2 Engineering Design Partnership for the proposed development. The analysis illustrated how conditions for pedestrians at ground level were predicted to be suitable for "Outdoor Dining/Pedestrian Sitting" across the majority of the proposed development. Certain regions around Building DE were predicted to be slightly less comfortable as they were suited more for "Pedestrian Walking".

The balconies on all buildings in the proposed site were assessed. With the exception of certain balconies on Building DE, the remaining balconies were predicted to be suitable for "Outdoor Dining". 10 balconies on the SW façade of Building DE, outlined in Section 4.2, have been determined to be suitable for "Pedestrian Standing/ Walking", and therefore uncomfortable for their intended use.

The proposed development is determined to not negatively impact on its receiving environment in terms of wind microclimate. The potential effect is therefore ***neutral, imperceptible*** and ***short-term*** from Microclimate on Human Health.

4.6 REMEDIAL AND MITIGATION MEASURES

The mitigation measures to address the potential impacts on population and human health from the proposed development have been assessed within the corresponding specialist chapters; Chapter 5 (Land, Soils, Geology and Hydrogeology); Chapter 6 (Hydrology); Chapter 8 (Air Quality), Chapter 10 (Noise and Vibration); Chapter 11 (Landscape and Visual); Chapter 14 (Traffic and Transportation).

4.6.1 Construction Phase

4.6.1.1 Businesses and Residences

There are no potential likely significant impacts on Businesses and Residences therefore additional measures are not required. Any impact will be further mitigated by the use of binding hours of construction as well as the measures set out in Chapter 5 (Land, Soils, Geology and Hydrogeology); Chapter 6 (Hydrology); Chapter 8 (Air

Quality), Chapter 10 (Noise and Vibration); Chapter 11 (Landscape and Visual); Chapter 14 (Traffic and Transportation).

4.6.1.2 Landscape, Amenity and Tourism

The main mitigation by avoidance in this instance is the siting of the Proposed Development in a land use zoning that can facilitate such a development type where the landscaping is consistent with that of the surrounding residential and commercial developments of a similar nature. The Proposed Development will be entirely located within the boundary of the existing St. Vincent's Hospital lands.

The Outline Construction & Environmental Management Plan submitted with the planning application states that perimeter hoarding will be erected around the site and identifies additional site management measures which would mitigate the visual effects of construction to some extent.

Given the importance of the existing trees to be retained on site, particular attention should be paid during construction to the tree protection and monitoring measures recommended in the Tree Protection Strategy, Appendix III of the Arboricultural Impact Assessment report prepared by CMK Horticulture and Arboriculture Ltd.

4.6.1.3 Land and Water Emissions

All mitigation measures outlined Chapter 5 Section 5.6 and Chapter 6 Section 6.6 will be implemented within the *Construction Environmental Management Plan (CEMP),* as well as any additional measures required pursuant to planning conditions which may be imposed. The construction phase mitigation measures set out in the CEMP will be implemented by the construction Contractor to ensure that pollution and nuisances arising from site clearance and construction activities is prevented where possible and managed in accordance with best practice environmental protection.

Furthermore, all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants 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 and appropriately disposed of by a suitably permitted/licensed waste disposal contractor. All sampling and soil handling will be undertaken by suitably qualified and trained persons using suitable personal protective equipment to avoid risks to human health.

4.6.1.4 Air Emissions

The mitigation measures set out in Chapter 8, Section 8.6.1, are appropriate for sites with a high risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC, 2018), the UK (IAQM (2014), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). Specific attention has been given to the measures required by Dublin City Council in their document *Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition* (DCC, 2018). The measures are divided into the following different categories for different activities:

- Communications;
- Site Management;

- Preparing and Maintaining the Site;
- Operating Vehicles / Machinery and Sustainable Travel;
- Operations;
- Waste Management;
- Measures Specific to Demolition;
- Measures Specific to Earthworks;
- Measures Specific to Construction;
- Measures Specific to Trackout; and
- Monitoring.

For full details on each measure see Chapter 8 – Air quality, Section 8.6.1.

4.6.1.5 Noise and Vibration Emissions

The appointed contractor will be required to take specific noise abatement measures to the extent required and comply with the recommendations of BS 5228–1 (BSI 2014a) and S.I. No. 241/2006 - European Communities (Noise Emissions by Equipment for Use Outdoors) (Amendment) Regulations 2006. In addition, the Dublin City Council's (DCC) *"Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition*" outlines a risk assessment methodology to be followed for construction activities which will be undertaken as part of the site control measures.

BS 5228 -1 includes guidance on several aspects of construction site practices, which include, but are not limited to:

- Selection of quiet plant;
- Control of noise sources;
- Screening;
- Hours of work;
- Liaison with the public; and
- Monitoring

See Chapter 10, Section 10.6.1.1 for full details.

The contractor will put in place the most appropriate noise control measures depending on the level of noise reduction required during specific phases of work. Reference to Chapter 10, indicates where intrusive works associated with construction occur. These areas will need specific noise control measures to reduce impacts.

In the case of vibration levels giving rise to human discomfort, in order to minimise such impacts, the following measures shall be implemented during the Construction Phase:

- A clear communication programme will be established by contractor to inform adjacent building occupants in advance of any potential intrusive works which may give rise to vibration levels likely to result in significant effects. The nature and duration of the works will be clearly set out in all communication circulars as necessary; and
- Appropriate vibration isolation shall be applied to plant (such as resilient mounts to pumps and generators), where required and where feasible.

4.6.1.6 Traffic and Transportation

Vehicle movement may result in dust emissions and exhaust emissions. However, a number of control measures are proposed to eliminate or minimise such emissions:

- Damping down the site haul roads during prolonged dry periods;
- Regular cleaning of hard surfaces at the site entrance;
- Ensuring that materials are transported appropriately (sheeting used over dusty materials);
- Confinement of plant and machinery to designated haul routes on site;
- Speed restrictions on site will be enforced;
- Hoarding to site boundaries where practical which will aid in the reduction of windblown dust off-site.
- Vehicles will not be left running when not in use.
- As stated previously, a properly sized and designed wheel wash will be provided and maintained on-site as necessary for the earthworks and superstructure elements of the project.

Additionally dust suppression methods, vehicle coverings and wheel washing facilities have been proposed and are detailed in Chapter 14 Section 14.6.1.

4.6.1.7 Major Accident Hazards and/or Natural Disasters

The potential effect is imperceptible, and unlikely, in respect of Major Accident Hazards or Natural Disasters on Population and Human Health during the Construction Phase of the Proposed Development. Therefore, no specific mitigation measures are required.

4.6.2 Operational Phase

4.6.2.1 Businesses and Residences

As the potential impacts on Businesses and Residences are positive, mitigation measures are not required.

4.6.2.2 Landscape, Amenity and Tourism

The main mitigation by avoidance in this instance is the siting of the Proposed Development in a land use zoning that can facilitate such a development type where the landscaping is consistent with that of the surrounding residential and commercial developments of a similar nature. The Proposed Development will be located within the boundary of the existing St. Vincent's site.

The proposal was amended following receipt of the DCC LRD Opinion, which requested justification of the proposed building heights specifically in relation to sensitive receptors in the receiving environment. These receptors are the neighbouring residential estates to the north. To reduce/mitigate the visual effect of the development on these receptors (e.g. Viewpoints 21-25 – see Chapter 11), the height of Block F has been reduced by one floor, from ten to nine storeys.

Only at two locations, Viewpoint 23 (Grace Park Close) and Viewpoint 25 (Griffith Court) would a negative visual effect be experienced. These effects are already mitigated by measures embedded in the design and could only be excluded completely by a substantial reduction in scale of several of the proposed buildings.

4.6.2.3 Land and Water Emissions

The proposed development stormwater drainage network design includes sustainable drainage systems (SuDS) these measures by design ensure the stormwater leaving the site is of a suitable quality prior to discharge into the Tolka River. SuDS are drainage systems that are environmentally beneficial, causing minimal or no long-term detrimental damage. As set out in the OCSC Engineering Services Report the proposed/existing surface water drainage system for this development has been designed as a sustainable urban drainage system and uses on-line overground detention basins together with a flow control device, grass swales, permeable paving, rainwater harvesting and oil separators / petrol interceptors to:

- Treat runoff and remove pollutants to improve quality;
- Restrict outflow and to control quantity; and
- Increase amenity value.

The handling and storage of any potentially hazardous liquids on site, e.g. fuels and chemicals, will be controlled and best practice guidelines. Storage tanks/container facilities will have appropriate bunding within the designated area. The filling station will be constructed and designed in accordance with *Guidance for Design, Construction, Modification, Maintenance and Decommissioning of Filling Stations | APEA: APEA.* All fuel will be stored in double skinned tanks and double skinned underground pipelines at the petrol station will confirm to EPA Guidance Note on Storage and Transfer of Materials for Scheduled Activities. 11 June 2004.

4.6.2.4 Air Emissions

No mitigation is proposed for the operational phase of the proposed development as impacts to air quality will be neutral and non-significant.

4.6.2.5 Noise and Vibration Emissions

At the detailed design stage, best practice measures relating to building services plant will be taken to ensure there is no significant noise impact on NSLs adjacent to the development, see Chapter 10, Section 10.6.1.2 for full details.

To ensure noise levels from items of plant are contained to within the limits set out in Chapter 10 mitigation must be employed for the heat pump array and heat pumps currently located beside Block B and Block C. For the purposes of the assessment presented in Chapter 10, an enclosure has been included around the heat pump enclosures that controls noise emissions to be no greater than 55dB(A) at 10m from any point of the enclosure. Items of plant must not exceed the day time values of 45 dB $_{LAeq,15min}$ and night time values of 40 dB $_{LAeq,15min}$ at locations offsite from the development.

Changes to traffic flows will not result in an imperceptible increase in noise level in the surrounding environment. Therefore, no mitigation measures are necessary in this case.

4.6.2.6 Traffic and Transportation

Mitigation has been incorporated into the design of the development regarding the car, bicycle, car sharing, electric bike, cargo bike, electric vehicle and motorcycle parking provisions. See Chapter 14 – Material Assets: Traffic and Transportation, Section 14.6.2 for further details.

The communication strategy for the development will promote early and effective communication with prospective tenants of the residential and commercial units. This communication strategy will make the overall sustainability strategy and the associated parking strategy clear to the prospective tenants as part of the marketing for the units. The Management Company will be responsible for the ongoing management and allocation of car parking for residential and community uses.

A site and development-specific Mobility Management Plan has been prepared and submitted under separate cover as part of this application. The plan set out a series of objectives which relate to facilitating and encouraging travel by sustainable means. The plan includes details of a combination of hard and soft measures included in the development design and proposed to be put in place for its operation to achieve the stated objectives.

The plan will be a living document, continually updated in light of the experience gained through its operation in conjunction with residents, employees, and the Local Authority to ensure the maximum benefit is achieved.

4.6.2.7 Major Accident Hazards and/or Natural Disasters

The potential effect is imperceptible, and unlikely, in respect of Major Accident Hazards or Natural Disasters on Population and Human Health during the Operational Phase of the Proposed Development. Therefore, no specific mitigation measures are required.

4.6.2.8 Microclimate

The proposed landscaping design, particularly strategically placed trees, aids in mitigating against any potentially higher wind speeds at ground level. The proposed 1.8m tall balustrades surrounding enclosing each roof terrace will provide excellent shelter from winds. To mitigate against pedestrian discomfort on the balconies with unsuitable wind conditions, it is recommended to use 1.1m high solid balustrades (e.g. glass) surrounding these 10 balconies.

4.7 MONITORING

4.7.1 Construction Phase

During construction phase the following monitoring measures will be implemented:

- Regular inspection of surface water run-off and sediments controls (e.g., silt traps);
- Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off; and
- Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).
- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed mitigation measures are implemented and that dust impacts and nuisance are minimised.
- Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the demolition and ground works phases of the proposed development is required to ensure mitigation measures are working

satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m2/day during the monitoring period of 30 days (+/- 2 days).

- During the demolition/construction phase the contractor will carry out noise monitoring at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise monitoring will be conducted in accordance with ISO 1996–1 (ISO 2016) and ISO 1996–2 (ISO 2017).

4.7.2 Operational Phase

There is no monitoring recommended for the operational phase of the development.

4.8 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

4.8.1 Construction Phase

4.8.1.1 Businesses and Residences

It is predicted that there will be a slight positive impact on local business activity during the construction phase with the increased presence of construction workers using local facilities. This job creation will result in a ***positive***, ***local*** to ***regional***, ***slight***, ***short-term*** socioeconomic impact.

The presence of these site personnel in the area during the construction phase will create a slight additional demand in the area for services, particularly for food from local shops, restaurants and cafés. There will also be economic benefits for providers of construction materials and other supporting services, e.g., quarries. This is predicted to result in a positive, local to regional, indirect, not-significant, short-term socioeconomic impact.

Overall the construction phase is considered to have the potential to have an ***imperceptible, temporary*** *and* ***neutral*** impact on local businesses and residences. The residual impacts on local businesses and residences in relation to air quality, noise, visual impact, and traffic has been summarised in the below sections.

4.8.1.2 Landscape Amenity and Tourism

During construction the site and immediate environs would be disturbed by construction activities and the incremental growth of the buildings on site. This would have a negative effect on views/visual amenity, and on landscape character locally (a large part of the landscape being in a disturbed condition).

During construction the site and immediate environs would be heavily disturbed by construction activities and the incremental growth of the buildings on site. This would have a negative effect on views/visual amenity, and on landscape character locally (a large part of the landscape being in a disturbed condition).

The significance and quality of the construction phase effects on each viewpoint are summarised in Table 11.9 below. The most significantly affected views would be those from nearby to the north (Grace Park Wood and Griffith Court estates) and west (the

Ierne Sports and Social Club). The effects would reduce with increasing distance from the site.

It is considered that the overall impact on landscape amenity and tourism will be ***negative, moderate*** and ***short term*** during the construction phase.

4.8.1.3 Land and Water Emissions

The implementation of the mitigation measures detailed in Section 4.6.1.3, will ensure that the potential impacts on human health and populations during the construction phase are adequately mitigated. The residual effect on human health and populations during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

4.8.1.4 Air Emissions

Best practice mitigation measures are proposed for the construction phase of the proposed development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the residual effect of construction of the proposed development will be ***short term, direct, negative*** and ***imperceptible*** with respect to human health.

4.8.1.5 Noise and Vibration Emissions

With the inclusion of the various available noise and vibration control measures, noise levels can be controlled to within the Construction Noise Thresholds (see Chapter 10, Section 10.2.3.2) at the closest Noise Sensitive Locations for the majority of the Construction Phases, thus resulting in a ***negative, moderate, short-term*** impact.

There is potential for residual demolition / construction noise impacts to be ***negative, moderate*** to ***significant*** and ***temporary*** during intrusive activities close to the southern, norther and eastern site boundaries for intermittent periods of time during phases 1 and 2 of construction.

There are no residual significant vibration impacts associated with the demolition / construction phase.

4.8.1.6 Traffic and Transportation

The assessment of the additional traffic movements associated with the proposed development during the construction phase is presented in Chapter 14 – Material Assets: Traffic and Transportation and the TIA prepared by OCSC. Based on the assessment there will be negative impacts experienced during the construction phase with construction traffic on the local road network. The impact of construction works will be ***negative, moderate*** and ***short term.***

4.8.1.7 Major Accident Hazards and/or Natural Disasters

There are no significant potential impacts on Human Health from Major Accident Hazards and/or Natural Disasters; therefore, there are no residual impacts.

4.8.2 Operational Phase

4.8.2.1 Businesses and Residences

The Proposed Development will provide modern, well-designed and sustainable housing units in the Fairview and Drumcondra areas during the operational phase. The proposed development will provide high quality mental health facilities to the wider community, as well as open spaces, outdoor recreational areas and a gym, all of which will be of benefit to the health of the local population.

Positive impacts on population and human health will include health benefits associated with the provision of a significant number of modern, well-designed and sustainable housing units, a high-quality environment, public open space and improvements to the public realm which creates a highly permeable layout that encourages walking and cycling, amenity and recreational facilities, including use of public transport options and local retail and commercial offerings. The development also includes the provision of a modern healthcare facility / hospital on site, which will give rise to positive impacts.

The proposed development will enhance the local area by providing facilities such as a childcare facility, community hall, community library, co-working space, café and retail unit. These facilities, and the hospital and gym discussed above, as well as strengthening the social and community infrastructure of the area, will provide employment opportunities to the wider area.

The proposed development does not represent a loss of land that would otherwise be used for an alternative purpose. The development of this new residential development and mental health hospital will optimise the use of land that was previously unused or underutilised. The proposed development has a dual function to meet the mental health needs of the community and provide additional housing for a growing population.

As such, the Proposed Development will result in a ***positive, significant*** and ***long term*** impact.

The residual impacts on local businesses and residences in relation to air quality, noise, visual impact, and traffic has been summarised in the below sections.

4.8.2.2 Landscape Amenity and Tourism

No mitigation measures (additional to the embedded mitigation in the design) have been recommended. Therefore, the residual effects on individual viewpoints and the landscape character areas they represent are as described in Section 4.5.2.2.

As discussed in Chapter 11 – Landscape and Visual, the potential effects of the Proposed Development are predominantly ***slight*** to ***moderate, neutral*** to ***positive*** and ***long term*** with the exception of the following viewpoints:

- Richmond Road (opposite Crannog entrance) – ***significant, positive*** and ***long term***
- Waterfall Avenue – ***significant, positive*** and ***long term***
- Ierne Social and Sports Club parking area – ***significant, neutral*** and ***long term***
- Grace Park Rd at entrance to St Joseph's/Grace Park Wood estate – ***significant, neutral*** and ***long term***
- Grace Park Close (close up view) – ***significant, negative*** and ***long term***

4.8.2.3 Land and Water Emissions

The implementation of the mitigation measures detailed in Section 4.6.2.3, will ensure that the potential impacts on human health and populations once the proposed development is constructed and operational are adequately mitigated. The residual effect on human health and populations during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

4.8.2.4 Air Emissions

Emissions of air pollutants are predicted to be significantly below the ambient air quality standards which are based on the protection of human health. Therefore, impacts to human health are ***long-term, direct, neutral***, ***imperceptible*** and ***non-significant***.

4.8.2.5 Noise and Vibration Emissions

The key design criteria for the proposed development for operational plant noise relates to the achievement of acceptable noise levels external at NSLs adjacent to the site.

Once operational, residual noise levels associated with building services plant from the proposed development will be designed to not increase the prevailing background noise environment by more than 5 dB. The residual effect is ***neutral, not significant*** and ***long-term.***

Traffic along the surrounding road network will not lead to a change in noise level that would pose any significant effect. The resultant impact is ***negative, not significant,*** and ***long-term.***

4.8.2.6 Traffic and Transportation

The assessment of the additional traffic movements associated with the proposed development during the operational phase is presented in Chapter 14 – Material Assets: Traffic and Transport and the TIA prepared by OCSC. The increased traffic as a result of the proposed development has been shown to be minimal and will have a negligible impact in terms of traffic. The associated impact on human beings will be limited. Overall the impact of the development will be ***neutral, slight*** and ***permanent*** effect.

4.8.2.7 Major Accident Hazards and/or Natural Disasters

There are no significant potential impacts on Human Health from Major Accident Hazards and/or Natural Disasters; therefore, there are no residual impacts.

4.8.2.8 Microclimate

The proposed development is determined to not negatively impact on its receiving environment in terms of wind microclimate.

4.9 CUMULATIVE IMPACT ASSESSMENT

The cumulative impact of the proposed development with any/all relevant other planned or permitted developments are discussed below. For details on the developments considered refer to Chapter 2, Section 2.8 of this EIA Report.

Existing developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

4.9.1 Construction Phase

The implementation of mitigation measures within each chapter and detailed in Section 4.6.1; as well as the compliance of adjacent development with their respective planning permissions, will ensure there will be minimal cumulative potential for change in soil quality or the natural groundwater regime during the construction phase of the proposed development.

In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase and contribute to additional impacts in terms of traffic, dust, and noise.

Contractors for the Proposed Development will be contractually required to operate in compliance with the project-specific CEMP and Construction Traffic Management Plan which will include the mitigation measures in this EIA Report. The construction phase for the overall development of the applicant owned lands would be restricted by the same binding limits for noise, dust, and emissions to water.

In the event that demolition/construction activities at nearby sites are taking place concurrently with the demolition/construction of the proposed development, there is potential for cumulative noise impacts to occur. Due to the nature of demolition/construction works associated with the proposed development, noise levels from this site will dominate the noise environment when occurring in proximity to the noise sensitive locations along its immediate boundary. The noise contribution from other construction sites would need be equal to those associated with the proposed development in order to result in any cumulative effect.

According to the IAQM guidance (2014) should the construction phase of the proposed development coincide with the construction phase of any other development within 350m then there is the potential for cumulative construction dust impacts to nearby sensitive receptors. There is the potential for cumulative construction dust impacts should the construction phases overlap with that of the proposed development. However, the dust mitigation measures outlined in Section 4.6.1.4 will be applied throughout the construction phase of the proposed development which will avoid significant cumulative impacts on air quality. With appropriate mitigation measures in place, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development are deemed ***short-term, direct, localised, negative*** and ***slight.***

4.9.2 Operational Phase

The potential cumulative impacts of the Proposed Development during the operational phase in terms of Air Emissions and Noise generation in the context of the Permitted Development have been considered in Chapter 8 (Air Quality and Climate), Chapter 9 (Noise and Vibration). The assessments indicate that the Proposed Development is not likely to result in significant adverse impacts on Human Health either alone or in combination with any likely future projects.

The noise limits set for off-site noise sensitive locations are designed to avoid any significant increase in the prevailing background noise environment. Operational noise limits included in this report refer to cumulative noise from all fixed installations on site. The design of plant and other fixed installations will be progressed during the design stage to ensure the noise limits at off-site noise sensitive locations are not exceeded.

There is the potential for cumulative impacts to air quality during the operational phase due to traffic associated with other existing and permitted developments within the area. The traffic data provided for the operational stage air quality assessment included cumulative traffic. A conservative growth factor was applied to the traffic data to allow for cumulative development within the area in the wider context. In addition, specific cumulative developments were also investigated as part of the traffic assessment but it was found that there were no specific permitted developments that would lead to cumulative traffic impacts due to their increased distance from the site (see Traffic Impact Assessment and Chapter 14 for further details). Therefore, the cumulative operational phase impact is assessed and was found to have a neutral impact on air quality. The cumulative operational stage impact is ***long-term, direct, localised, neutral, imperceptible*** and ***non-significant.***

4.10 REFERENCES

- Environment Protection Agency, Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022)
- Environment Protection Agency, Advice Notes for Preparing Environmental Impact Statements Draft (EPA, 2015)
- European Commission (EC), Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (EC, 2017).
- Central Statistics Office. Statbank Databases (Accessed January 2022, https://www.cso.ie/en/databases/)
- Central Statistics Office. Census of Population, 2011 and 2016. (Accessed January 2022, https://www.cso.ie/en/census/)
- Central Statistics Office. Labour Force Survey, 2020 (Accessed January 2022, www.cso.ie/en/statistics/labourmarket/labourforcesurveylfs)
- Seveso Directive (Directive 82/501/EEC, Directive 96/82/EC, Directive 2012/18/EU)
- Cave,B. Fothergill,J., Pyper, R. Gibson, G. and Saunders, P. (2017) Health in Environmental Impact Assessment: A Primer for a Proportionate Approach. Ben Cave Associates Ltd, IEMA and the Faculty of Public Health. Lincoln, England. Available at www.iema.net

CHAPTER 5

LAND, SOILS, GEOLOGY AND HYDROGEOLOGY

awnconsulting
A Trinity Consultants Company

CHAPTER 5 CONTENTS

5.0 LAND, SOILS, GEOLOGY AND HYDROGEOLOGY

5.1 INTRODUCTION

This chapter assesses and evaluates the likely significant effects of the proposed development on the land, soil, geological and hydrogeological aspects of the site and surrounding area. In assessing likely potential and predicted effects, account is taken of both the importance of the attributes and the predicted scale and duration of the likely effects. The detailed description of the proposed development is provided in Chapter 2 of this EIAR.

5.2 METHODOLOGY

5.2.1 Criteria for Rating of Effects

This chapter evaluates the effects, if any, which the proposed development will have on Land, Soils, Geology and Hydrogeology as defined in the Environmental Protection Agency (EPA) '*Guidelines on the Information to be contained in Environmental Impact Assessment Reports'* (EPA, 2022) as well as in line with Article 94 and Schedule 6 of the Planning and Development Regulations 2001 (as amended) and Article 5 and Annex IV of the EIA Directive (2011/92/EU, as amended).

Due consideration is also given to the guidelines provided by the Institute of Geologists of Ireland (IGI) in the document entitled '*Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements'* (IGI 2013).

The document entitled '*Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes*' by the Transport Infrastructure Ireland (TII) formerly National Roads Authority (NRA) (TII, 2009) is referenced where the methodology for assessment of impact is appropriate. Furthermore, in line with this TII Guidelines, an assessment of the attribute importance has been undertaken in order to provide a basis for the assessment of impact provided. The attribute importance considers the potential as well as the existing use of the surface water features as a water resource (i.e., water supply, fisheries and other uses) as well as ecological habitat requirements. The TII criteria for rating the soil and geology, and hydrogeological related attributes are presented in Appendix 5.1.

The quality, significance, and duration of the potential impacts, residual effects, and cumulative effects are described using standard EIA descriptive terminology set out in Table 1.2, Chapter 1 of this EIAR.

The principal attributes (and effects) to be assessed include the following:

- Water Framework Directive (WFD) Status and potential for increased risk of deterioration of this status due to the activities of the site;
- Geological heritage sites within the vicinity of/ within the perimeter of the proposed development site;
- Landfills, industrial sites in the vicinity of the site and the potential risk of encountering contaminated ground;
- The quality, drainage characteristics and range of agricultural use(s) of subsoil around the site;

- Quarries or mines in the vicinity and the potential implications (if any) for existing activities and extractable reserves;
- The extent of topsoil and subsoil cover and the potential use of this material on site as well as any requirement to remove it off-site as waste for disposal (D) or recovery (R) options;
- High-yielding water supply wells/ springs in the vicinity of/ within the site boundary to within a 2km radius and the potential for increased risk presented by the proposed development;
- Classification (regionally important, locally important etc.) and extent of aquifers underlying the site boundary area;
- Increased risks presented to the groundwater bodies by the proposed development associated with aspects such as, for example, the removal of subsoil cover, removal of aquifer (in whole or part thereof), spatial drawdown in water levels, alteration in established flow regimes, and changes in local/ regional groundwater quality;
- Natural hydrogeological/ karst features in the area and potential for increased risk presented by the activities at the site; and
- Groundwater-fed ecosystems and the increased risk presented by operations both spatially and temporally.

5.2.2 Sources of Information

Desk-based geological information on the substrata (both Quaternary deposits and bedrock geology) underlying the extent of the site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Geological Survey of Ireland (GSI) - on-line mapping, Geo-hazard Database, Geological Heritage Sites & Sites of Special Scientific Interest, Bedrock Memoirs and 1: 100,000 mapping;
- Teagasc soil and subsoil database;
- Ordnance Survey Ireland - aerial photographs and historical mapping;
- Environmental Protection Agency (EPA) – website mapping and database information;
- National Parks and Wildlife Services (NPWS) – Protected Site Register; and
- Dublin County Council - illegal landfill information.

Site specific data was derived from the following sources:

- Engineering Services Report – St. Vincent's Hospital Redevelopment, Richmond Road and Convent Avenue, Fairview, Dublin 3. OCSC Engineering Consultants (2023);
- Outline Construction Environmental Management Plan (OCSC, 2023);
- Ground Investigation Report – St. Vincent's Hospital Redevelopment, Richmond Road and Convent Avenue, Fairview, Dublin 3 (Ground Investigations Ireland "GII", 2022);
- The proposed development design site plans and drawings; and
- Consultation with the project design engineers.

5.2.3 Difficulties in Compiling the Assessment

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

5.3 RECEIVING ENVIRONMENT

The proposed development covers an area of 9.46 hectares and comprises the existing St. Vincent's Hospital and associated ancillary building structures, which are located at Richmond Road and Convent Avenue, Fairview, Dublin 3.

The site topography is characterised in the Engineering Services Report (OCSC, 2023) by a general slope in elevation from north to south. The site falls from 11 m OD (meters ordnance datum) to c. 4.5 m OD, from levels along the northern boundary to southern portion of the site, respectively. The relief of the site comprises gentle undulations, with a significantly sharp drop in elevation located in the central portion of the site (11 m OD to 4.5 m-5 m OD).

The site is bound by the Grace Park Wood residential development to the northwest (with the ChildVision National Campus immediately beyond), an An Post depot on Lomond Avenue and residential properties on Inverness Road to the east, Griffith Court and the 'Fairview Community Unit' nursing home to the north, existing residential and commercial properties and associates structures on Richmond Road and Convent Avenue to the south, Richmond Avenue to the south east, and Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC and Ierne Sports and Social Club to the west of the site. Figure 5.1 below sets out site location and surrounding context land use.

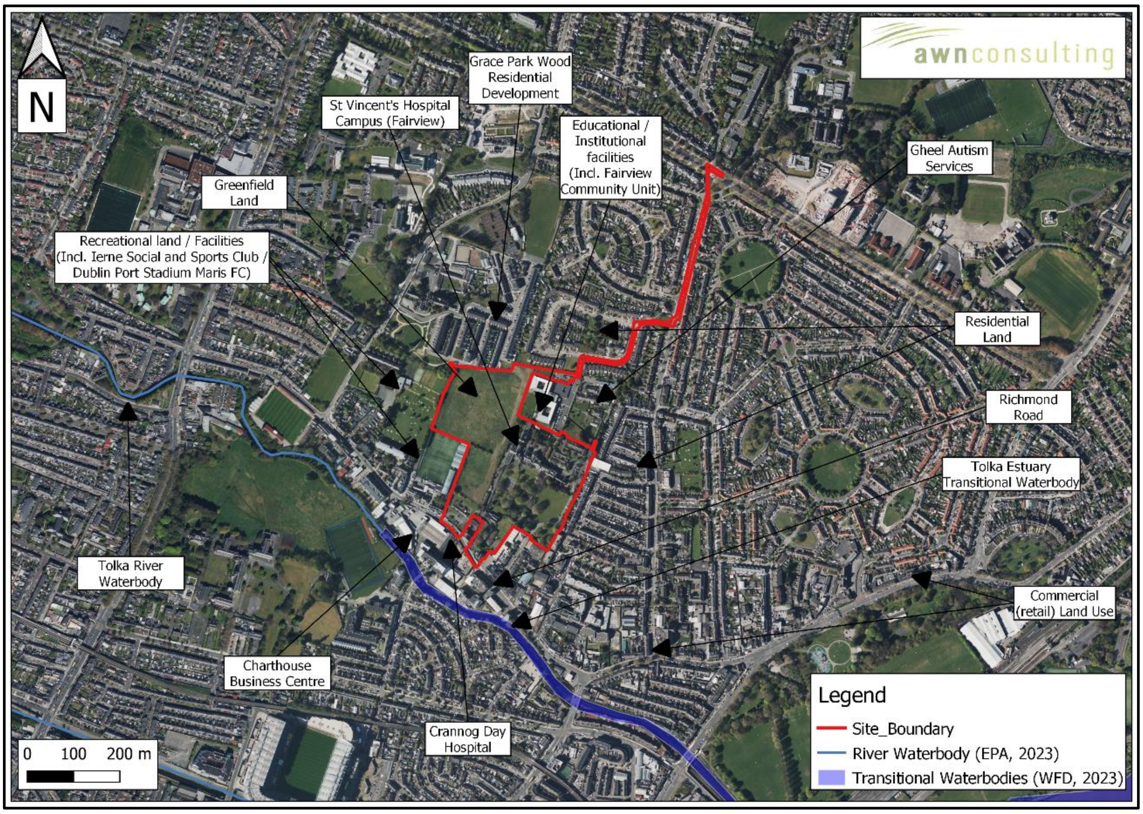


Figure 5.1 *Site Location and Surrounding Context Land Use (Source: Google Earth Pro, 2023)*

5.3.1 Existing Land Use, and Site History

The site currently presents a mixture of greenfield and existing hardstanding areas and multiple buildings and ancillary structures associated with St Vincent's Hospital. The site is occupied by an actively operating small scale psychiatric hospital and its adjacent lands. The western part of the site is largely undeveloped except for the single storey mental health facility (Crannog Day Hospital) located to the southern portion fronting onto Richmond Road.

The site contains within its boundary, protected structures under RPS Ref.: 2032 (St. Vincent's Hospital), 8788 (Richmond House) and 8789 (Brooklawn).

Historical Ordnance Survey maps were examined during the preparation of this EIA Chapter. O.S. maps were available from 1830 (the historic 6" maps) and 1900 from the historic 25" maps. The historic 6 inch Cassini / black and white maps dated to 1829-1841 indicate that the majority of the subject site was greenfield land with the exception of a Convent and associated Chapel, Richmond House, and a gravel pit, all of which were located in the east / north-east, south and southwest portions of the site, respectively. Historical 25 inch map dating to 1897-1913 depicts a burial ground occupying lands directly north of the Convent and subsequent site boundary. Additionally, the building St. Vincent's Lunatic Asylum directly adjacent to the west boundary of the Convent took place during this time period, while the gravel pit no longer occupies the southwest portion of the site.

Aerial imagery from 1995 indicate that land use on the subject site has remained unchanged since the late 19th and early 20th century, being characterised by plots of grassland occupying the approximate west half of the site, while the east portion of the site is occupied by St. Vincent's Hospital (and associated ancillary building structures) and Richmond House separated by areas of grassland. Aerial images from 1999-2003 show that the construction of Crannog Day Hospital in the south west of the site, directly adjacent to Richmond Road. From 2004 to the present day, aerial imagery indicates that land use / function on the site has remained relatively unchanged.

Review of the hydrogeology and geology in the surrounding region indicates that there are no sensitive receptors such as groundwater-fed wetlands, Council Water Supplies/ Group Water Schemes or geological heritage sites which could be impacted by this development.

5.3.2 Surrounding Land Use

The surrounding context of the site includes a mixture of residential, recreational, commercial, educational / institutional and amenity uses. Land use zonings in the immediate vicinity include Z1 (Residential), Z2 (Residential Conservation), Z4 (Mixed-Services), Z9 (Open Space), Z10 (Mixed Use), Z12 (Residential Amenity) and Z15 (Institutional & Community).

The subject site is located approximately 550m from the District Centre of Fairview and c. 1km from the District Centre of Drumcondra. Both areas are well served by amenities and services which are accessible to the subject site.

There are no licenced facilities within the site boundary or adjacent to the proposed development site. There are no Waste Facilities in the vicinity of the site, while the EPA database indicate multiple IEL, IPPC industrial facilities and located in the wider study area are as follows:

- Everlac Paints Ltd (P0220-01), located at Windsor Works, Windsor Avenue, Fairview, Dublin 3, c. 0.37 km to the east;
- Lithographic Web Press Limited (Glasnevin) (P0120-03), located at 57 Botanic Road, Glasnevin, Dublin 9, Dublin, c. 1.45 km to the west;

- Rentsch Dublin Limited (P0537-01), located at 33 Botanic Road, Glasnevin, Dublin 9, Dublin, c. 1.7 km to the west;
- Mater Misericordiae University Hospital (P0054-02), located at Eccles Street, Dublin 7, Dublin, c. 1.6 km to the south-west;
- Cahill Printers Limited (P0298-01), located at East Wall Road, Dublin 3, Dublin, c. 1.2 km to the south-east; and
- Alumina Chemicals Ireland (P0074-01), located at Promenade Road, Tolka Quay, Dublin 3, Dublin, c. 2 km to the south-east.

Consultations with Dublin County Council have confirmed that there are no known illegal/historic landfills within 500 metres of the site.

5.3.3 Soils and Subsoils

The GSI/Teagasc mapping shows that the soil type beneath the local area comprises 3 no. principal soil types. The approximate west half of the site is underlain by mainly basic poorly drained mineral soils (BminPD). Deep Well Drained Mineral – Mainly Acidic (BminDW) are located adjacent to the boundary of St Vincent's Hospital to the north. The central and southeast portions of the site are underlain by made ground as consistent with previous development and subsequent landscaping / earthworks which have taken place on site.

The soil type in the surrounding vicinity of the subject site is predominantly / primarily made ground due to the urban and central location. A localized zone alluvium soil underlies land aligning the banks of the Tolka River, directly southeast of the site.

Figure 5.2 Teagasc Soils Map (Source: GSI, 2023)

The Quaternary geological period extends from about 1.5 million years ago to the present day and can be sub-divided into the Pleistocene Epoch, which covers the Ice

Age period, and which extended up to 10,000 years ago and the Holocene Epoch, which extends from that time to the present day.

The GSI/ Teagasc mapping database of the subsoils in the area of the subject site indicates three principal soil type, as shown in Figure 5.3 below. The quaternary subsoil type present across the site is:

- Gravelly Alluvium (Ag) in the southern portion of the site towards Richmond Road and Tolka River;
- Till derived from Limestone (TLs) in the northern portion of the site; and
- A localised zone of Gravels derived from Limestone (GLs) is located approximately 90 m outside the eastern boundary of the site at the point of closest proximity.
- Land to the southeast of the site which are adjacent to the Tolka River (floodplain), are underlain by Alluvium (A).

According to the GSI mapping database, no bedrock outcrop or near surface subcrop are located within the boundary or immediate vicinity of the subject development.

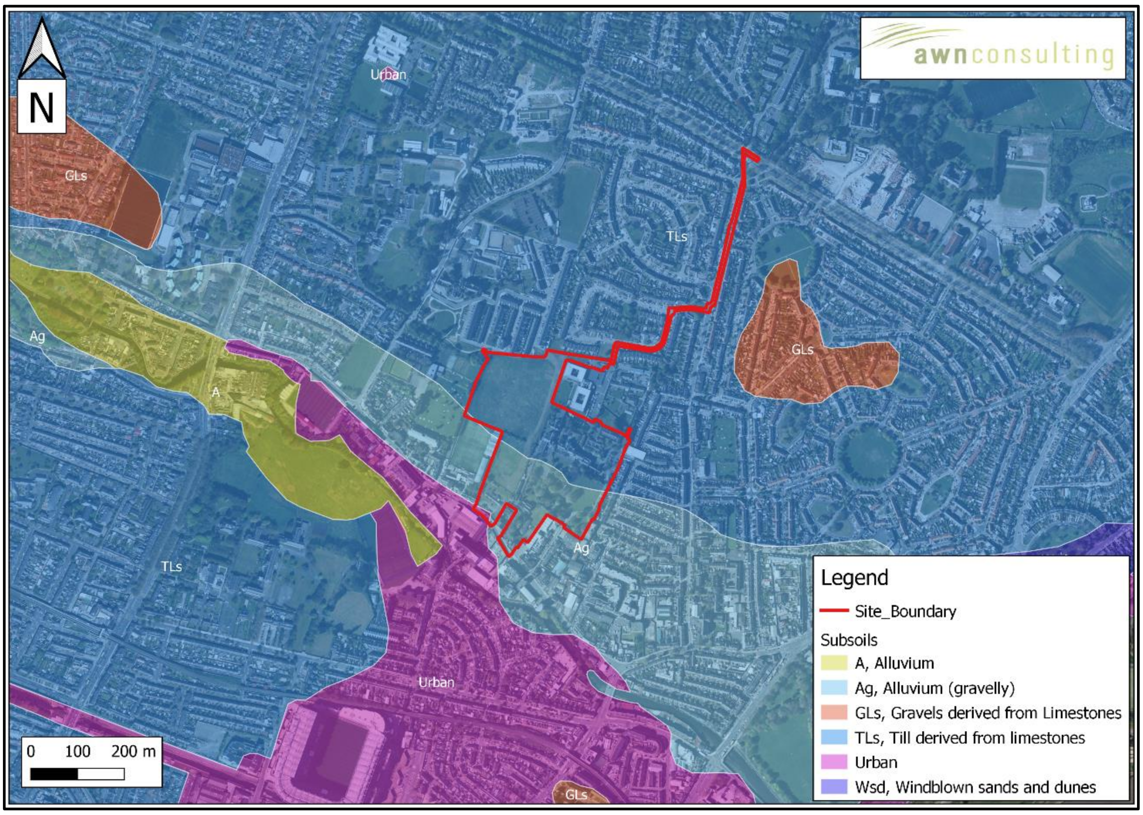


Figure 5.3 Subsoils Map (Source: GSI, 2023)

5.3.3.1 Site Investigations

Site investigations were carried out by Ground Investigations Ireland (GII) between September and November 2021. The following works were undertaken:

- 8 No. Trial Pits to a maximum depth of 3.7m BGL
- 3 Slit trenches to investigate the presence of existing services.
- 2 Foundation Pits to investigate existing foundations.
- 3 No. Soakaways to determine a soil infiltration value to BRE digest 365

- 22 No. Cable Percussion boreholes to a maximum depth of 10.2m BGL
- 15 No. Rotary Core follow on Boreholes to a maximum depth of 26m BGL
- 3 No. Plate Bearing Tests to determine CBR Value.
- Installation of 19 No. Groundwater monitoring wells

In addition, standpipes were installed in the majority of the boreholes to allow the equilibrium groundwater level to be determined.

Excerpts from the GII (2022) report are included as Appendix 5.2 to this EIAR chapter. The sequence of subsoils deposits recorded during the site investigations are shown in Table 5.1.

Table 5.1 *Strata Noted from Site Investigations (GII, 2022)*

Name	Depths/ Notes
Topsoil	Topsoil was encountered in the majority of exploratory holes and was present to a maximum depth of 0.3m BGL. Tarmac surfacing was present in BH05 and BH05A typically to a depth of 0.10m BGL.
Made Ground	Made Ground deposits were encountered beneath the Topsoil/Surfacing in the majority of the trial pits (TP01 to TP08) and boreholes (BH01 to BH04) in the south-eastern area of the site and was present to depths of between 0.6m and 1.80m BGL. Made ground deposits were also encountered in some of the boreholes in other areas of the site including BH06, BH08, BH09, BH10, BH12 and BH17 to depths of up to 3m BGL. These deposits were described generally as brown sandy slightly gravelly CLAY with occasional cobbles and contained occasional fragments of concrete, red brick, glass, ash, ceramic and plastic.
Cohesive Deposits	Cohesive deposits were encountered beneath the Made Ground and were described typically as brown sandy gravelly CLAY with occasional cobbles and boulders overlying a stiff dark brown / grey sandy gravelly CLAY with occasional cobbles and boulders. The secondary sand and gravel constituents varied across the site and with depth, with granular lenses occasionally present in the glacial till matrix. The strength of the cohesive deposits typically increased with depth and was firm and stiff to very stiff below 1.5m to 2m BGL in the majority of the exploratory holes. These deposits had some, occasional or frequent cobble and boulder content where noted on the exploratory hole logs.
Granular Deposits	Granular deposits were encountered within the cohesive deposits at some of the borehole locations and were typically described as Grey brown clayey sandy sub rounded to sub angular fine to coarse GRAVEL with occasional cobbles and rare boulders. The secondary sand/gravel and silt/clay constituents varied across the site and with depth while occasional or frequent cobble and boulder content also present where noted on the exploratory hole logs. Groundwater strikes were noted in some the boreholes logs.
Bedrock	The rotary core boreholes recovered Medium strong to very strong grey/dark grey fine to medium grained laminated LIMESTONE interbedded with weak black fine grained laminated Mudstone. This is typical of the Calp Formation, which is noted on the geological mapping to the east of the proposed site. Rare visible calcite and pyrite veins were noted during logging which are typically present within the Calp Limestone. The depth to rock across the site varies from 15.5m BGL in BH13 to a maximum of 22.5m BGL in BH21. To the northern park of the site which has a higher ground level the rock was encountered between 19.0m in BH05A and 22.50m in BH21. On the southern part of the site the rock was encountered between 15.50 in BH13 and 16.50m in BH12.

The site location of the investigation points undertaken by GII and site layout are illustrated in Figure 5.4 below.

Figure 5.4 *Site Investigation Points (Source: GII, Ground Investigation Report, 2022). Note: Site Boundary is associated to site investigation only.*

5.3.4 Bedrock Geology

Inspection of the available GSI (2023 on-line mapping database) shows that the site is entirely underlain by Dark Limestone and Shale of the Lucan formation, which comprises Carboniferous dark limestone and shale('Calp) Age Bracket (Late Chadian to Asbian), Rock Unit code (CDLUCN).

This geological formation consists of dark grey to black, fine-grained, occasionally cherty, micritic limestones that weather paler, usually to pale grey. There are rare dark coarser grained calcarenitic limestones, sometimes graded, and interbedded dark-grey calcar.

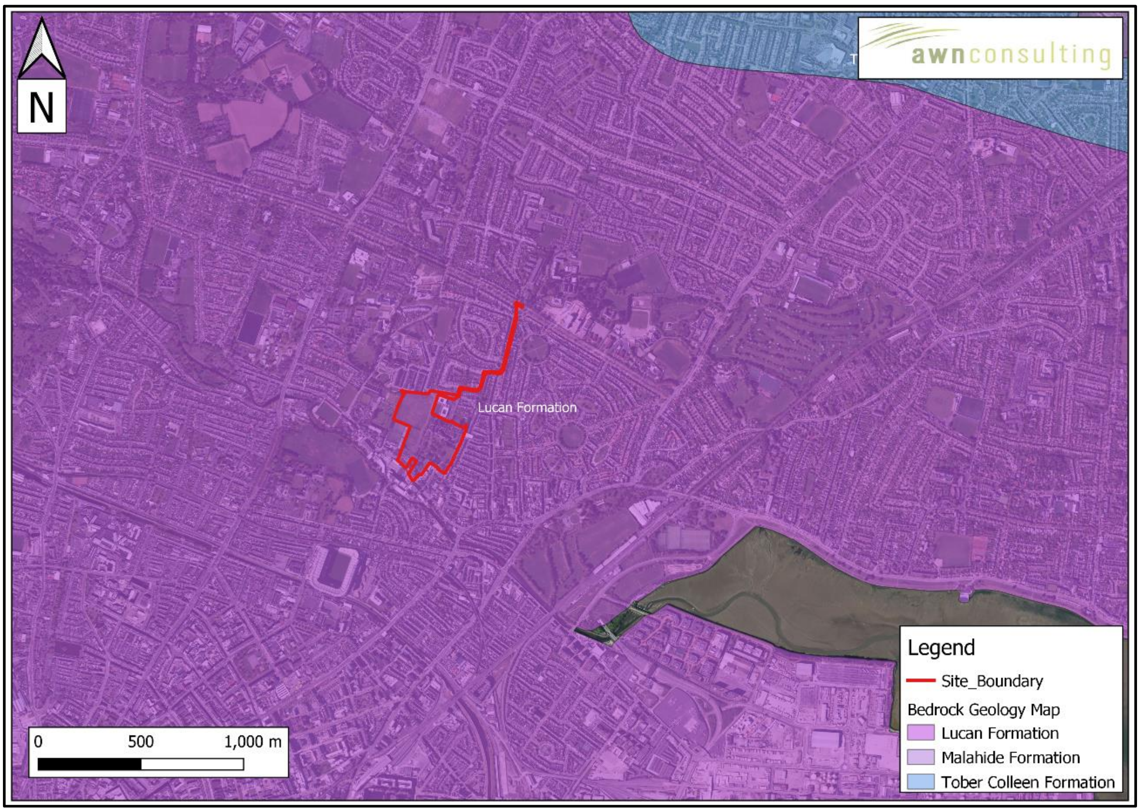


Figure 5.5 Bedrock Geology Map (Source: GSI, 2023)

5.3.5 Regional Hydrogeology

The bedrock aquifers underlying the Proposed Development site are classified as a "*Locally Important Aquifer – Bedrock which is Generally Moderately Productive only in Local Zones*" (capable of good well yields) according to the GSI (www.gsi.ie/mapping) National Draft Bedrock Aquifer Map. Refer to Figure 5.6 below.

Figure 5.6 Aquifer Classification Map (Source: GSI, 2023)

The proposed development is located entirely within the Dublin Ground Water Body (GWB) (EU Reference Code: IE_EA_G_008).

There are no karst features within the site or in the immediate vicinity.

5.3.6 Aquifer Vulnerability

Aquifer vulnerability is a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated generally by human activities. Due to the nature of the flow of groundwater through bedrock in Ireland, which is almost completely through fissures/ fractures, the main feature that protects groundwater from contamination, and therefore the most important feature in the protection of groundwater, is the subsoil (which can consist solely of/ or of mixtures of peat, sand, gravel, glacial till, clays or silts). Groundwater Vulnerability is a term used to represent the natural ground characteristics that determine the ease with which groundwater may be contaminated by human activities.

The aquifer vulnerability classification GSI for the proposed development site and its immediate vicinity is classified as a (L) – Low Vulnerability status (indicating >10 m of low permeability soil) See Figure 5.7 below.

The Vulnerability classification is consistent with data obtained from the site investigations carried out by GII (2021) at the proposed development site. As summarized in table 5.1, the depth to bedrock across the site varies from 15.5m BGL in BH13 to a maximum of 22.5m BGL in BH21.

Figure 5.7 *Aquifer Vulnerability Map (Source: GSI, 2023)*

5.3.7 Groundwater Wells and Flow Direction

The GSI Well Card Index is a record of wells drilled in Ireland, water supply and site investigation boreholes. It is noted that this record is not comprehensive as licensing of wells is not currently a requirement in the Republic of Ireland.

Figure 5.8 and Table 5.2 below sets out the locations and details of wells based on the current index.

The well in closest proximity to the site is a Borehole (GSI Name: 2923SEW027) that is located c. 1.6km West of the site adjacent to the east boundary of Glasnevin (Prospect) Cemetery. None of the proximal wells listed in Table 5.2 are categorised as domestic use. The area is serviced by Local Authority mains therefore it is unlikely that any wells are used for potable supply.

The site is not located near any public groundwater supplies or group schemes. As set out in Section 5.3.5, there are no groundwater source protection zones in the immediate vicinity of the site. The nearest groundwater source protection zones is located c. 16.1 km north-west (Ref: DUNBOYNE_PWS), the proposed development site is outside of the zone of contribution of this supply.

Regional and local groundwater flow is likely to be in line with the local topography, to the south/southwest towards the Tolka River.

Figure 5.8 GSI Well Search Map (Source: GSI, 2023)

Table 5.2 GSI Well Card Index (Source: GSI, 2023)

GSI NAME	ORIGNAME	TYPE	EASTING	NORTHING	TOWNLAND	COUNTY
292SEW024	Trial Well Cards (Duchas)	Borehole	315,050.00	237,780.00	GLASNEVIN	Dublin
2923SEW028	Production Well 3 (Duchas)	Borehole	315,100.00	236,850.00	GLASNEVIN	Dublin
2923SEW027	Trial Well 2 (Duchas)	Borehole	315,100.00	236,900.00	GLASNEVIN	Dublin
2923SEW036	BH 101	Borehole	319,600.00	235,100.00	RINGSEND	Dublin
2932SEW030	UNKNOWN	Borehole	317,500.00	234,720.00	SHERRIFF STREET UPPER	Dublin

5.3.8 Groundwater Levels

As mentioned above, site investigations carried out by GII in 2021 installed standpipes in the majority of the boreholes to allow the equilibrium groundwater level to be determined. 5 no. standpipes were installed within the bedrock (BH05, BH12, BH13, BH17 and BH20). According to the monitoring results measured in April 2022, the recorded groundwater levels ranged:

- Overburden: From above ground level in (i.e., artesian well) BH14 to 5.93 mbgl in BH05.
- Bedrock: From above ground level (i.e., artesian well) in BH13 to 4.57 mbgl in BH15.

5.3.9 Groundwater Quality

5.3.9.1 Regional Scale

The Water Framework Directive (WFD) Directive 2000/60/EC was adopted in 2000 as a single piece of legislation covering rivers, lakes, groundwater and transitional (estuarine) and coastal waters. In addition to protecting said waters, its objectives include the attainment of 'Good Status' in water bodies that are of lesser status at present and retaining 'Good Status' or better where such status exists at present. 'Good Status' was to be achieved in all waters by 2015, as well as maintaining 'high status' where the status already exists. The EPA co-ordinates the activities of the River Basin Districts, local authorities and state agencies in implementing the directive, and operates a groundwater quality monitoring programme undertaking surveys and studies across the Republic of Ireland.

Presently, the groundwater body in the region of the site (Dublin GWB - IE_EA_G_008) is classified under the WFD Risk Score system (EPA, 2023) as *"Review"* meaning the GWB is under review in order to determine whether or not the GWB has achieved its objectives and has either no significant trends or improving trends. The Dublin GWB was given a classification of *"Good"* for the last WFD cycle (2016-2021).

5.3.10 Economic Geology

The GSI (2023) mineral database was consulted to determine whether there were any mineral sites close to the study area. There were 3 mineral sites identified in the surrounding area/vicinity associated with Lead (PB) and Clay Brick (CLBR). The location and description of these mineral localities in relation to the site are presented in Table 5.3 below.

Table 5.3 *GSI Mineral Localities* (Source: GSI, 2022)

Mineral Location Ref	Mineral Type	Key Mineral	Description	Comments	Location	COUNTY
5316	PB	Lead	Non-metallic	Site of disused lead mine	2.15 km East	Dublin
16	PB	Lead	Non-metallic	N/A	2.45 km South-east	Dublin
3260	CLBR	Clay, Brick	Non-metallic	Brick field noted on 6 inch map	5.3 km West	Dublin

5.3.11 Geological Heritage

The GSI Public Viewer (www.gsi.ie/mapping) was reviewed (2023) to identify sites of geological heritage for the site and surrounding area. Glasnevin Cemetary c. 1.8 km to the West is the closest audited site and is described as this is a very large cemetery of 120 acres, dating from 1832 comprising a variety of rock types, and the variety of ways in which they have been worked, are unique.

5.3.12 Geohazards

The GSI (2023) landslide database was consulted and the nearest landslide to the proposed development was 8.8 km to the west of the site, referred to as the Diswellstown1990 which occurred on 24th of December 1999. There have been no recorded landslide events at the site. Due to the local topography and the underlying strata, there is a negligible risk of a landslide event occurring at the site.

In Ireland, seismic activity is recorded by the Irish National Seismic Network. The Geophysics Section of the School of Cosmic Physics at the Dublin Institute for Advanced Studies (DIAS) has been recording seismic events in Ireland since 1978. The station configuration has varied over the years. Currently there are five permanent broadband seismic recording stations in Ireland and operated by DIAS. The seismic data from the stations comes into DIAS in real-time and are studied for local and regional events. Records since 1980 show that the nearest seismic activity to the proposed location was in the Irish sea (1.0 – 2.0 Ml magnitude) and ~55 km to the south in the Wicklow Mountains. There is a very low risk of seismic activity to the proposed development site.

There are no active volcanoes in Ireland so there is no risk from volcanic activity.

5.3.13 Areas of Conservation

According to the NPWS (2022) on-line database there are no special protected areas (SPA) or special areas of conservation (SAC) on or within the boundary of the proposed development site. The closest conservation sites include Natura 2000 sites are as follows:

- South Dublin Bay SAC (IE000210) c. 3.7 km to the southeast of the site.
- North Dublin Bay SAC (IE000206) c. 3.9 km to the east of the site
- South Dublin Bay and River Tolka SPA (IE004024) c. 1.1 km to the southeast of the site.North Bull Island SPA (IE004006) c. 3.8 km to the east of the site
- Royal Canal c. 0.6 km to the south of the site
- North Dublin Bay pNHA c. 1.0 km to the east of the site
- Grand Canal pNHA c. 2.3 km to the south of the site
- Santry Demesne pNHA 3.2 km to the north of the site
- South Dublin Bay pNHA 3.8 km to the south-east of the site

The site currently has an indirect hydrological pathway or connection with the South Dublin Bay and River Tolka Estuary SPA through the surface water drainage network and the Tolka River which flows in an easterly direction before ultimately discharging downstream into South Dublin Bay and River Tolka Estuary SPA/pNHA site, which subsequently is hydrologically connected / linked to North Bull Island SPA and North Dublin Bay pNHA/ SAC sites. There is an indirect hydrological connection to this waterbody via ground water. Figure 5.9 below presents the location of these protected areas in the context of the subject site.

In addition to being a European sites, Sandymount Strand/ Tolka Estuary and North Bull Island are also Ramsar Convention sites (wetland site designated to be of international importance) thereby further reinforcing the environmental value and sensitivity of the area. The North Bull Island[1] is a small island built up over 200 years against a harbour wall and the adjoining foreshore of sandy beaches, saltmarshes and mudflats. The site is unique in Ireland because it supports well-developed saltmarsh and dune systems displaying all stages of development from the earliest phase of colonization to full maturity. Sandymount Strand/Tolka Estuary[2] is an intertidal system supporting a large bed of eelgrass (Zostera noltii) with extensive areas of sandflats.

1 https://rsis.ramsar.org/ris/406
2 https://rsis.ramsar.org/ris/832

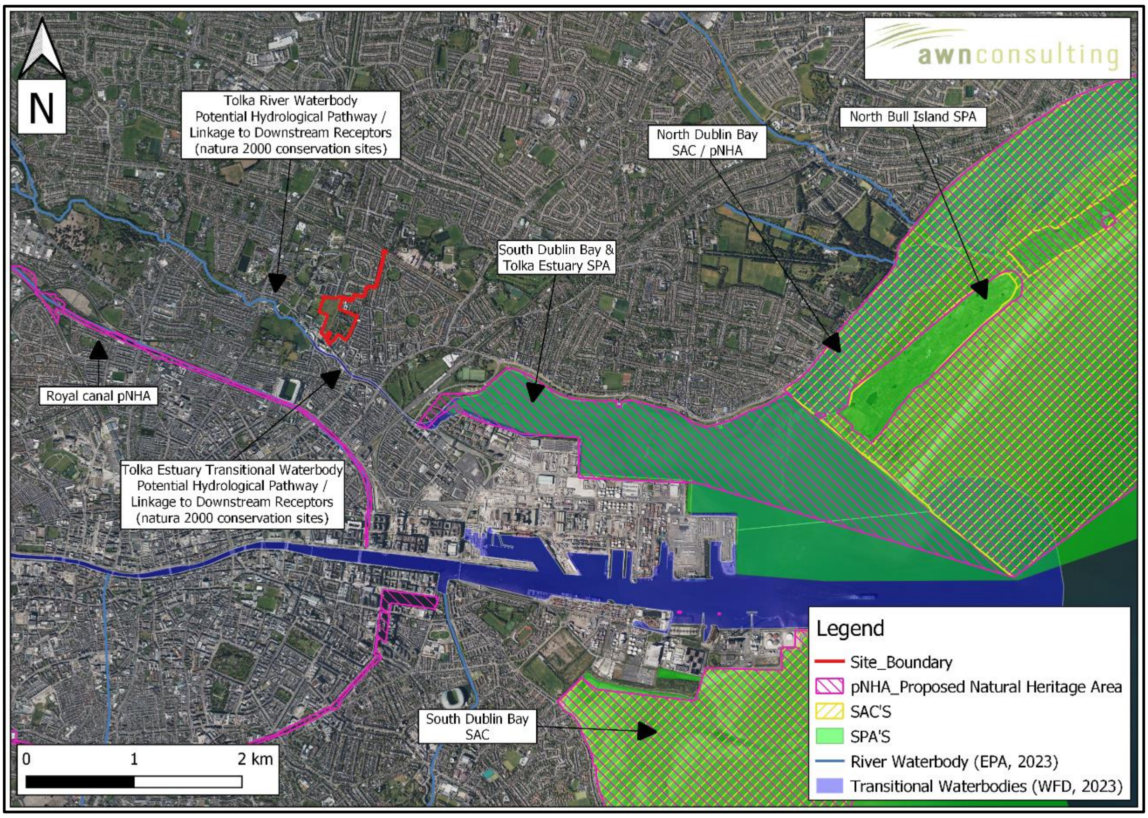


Figure 5.9 Natura 2000 Sites in the Context of the Subject Site (EPA, 2023)

5.3.14 Conceptual Site Model

AWN have developed a conceptual site model (CSM) in order to identify any likely Source-Pathway-Receptor linkages relating to the site and the proposed development. A local geological cross section and the description below present the CSM which have been developed based on the information presented in aforementioned sections:

- The subsoil underlying the site comprises the following: Gravelly Alluvium (Ag) in the southern portion of the site towards Richmond Road and Tolka River; Till derived from Limestone (TLs) in the northern portion of the site.
- , Topsoil was encountered at depths up to 0.3 mbgl. Where development has occurred, made ground deposits were encountered beneath topsoil to depths of up to 3 mbgl. Made ground is underlain by cohesive deposits composed of sandy gravelly Clay (i.e., low permeability deposits). Granular deposits composed of sand and gravel lenses were encountered below the cohesive deposits in multiple exploratory holes in the south, central and north portions of the site. The depth to rock across the site varies from 15.5m below ground level (BGL) to a maximum of 22.5m BGL.
- The site is underlain at depth, by a Locally Important Limestone Aquifer – Bedrock which is Generally Moderately productive only in Local Zones". As a result of the thick overburden cover, the bedrock aquifer is considered low vulnerability to any impact.

A conceptual cross section can be seen in Figure 5.10 below.

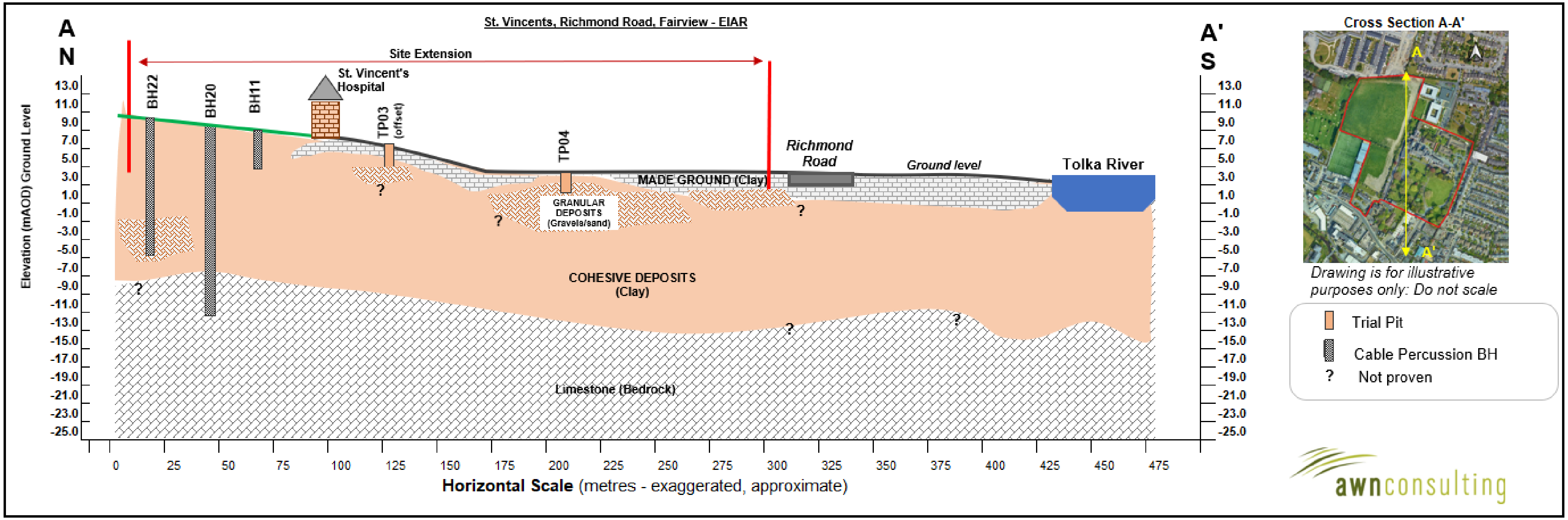


Figure 5.10 *Local Cross Section*

5.3.15 Rating of Importance of Geological and Hydrogeological Attributes

The importance of the geological, bedrock and soil features at the proposed development site is rated based on the TII methodology (2009) (See Appendix 5.1) is rated as *'Low Importance'* due to local geological attribute has a low quality, significance or value on a local scale.

The importance of the hydrogeological features at the proposed development site is rated based on the TII methodology (2009) (See Appendix 5.1) as '*Medium importance*' based on the fact that the aquifer is classified as 'locally important' and in addition to the assessment that the attribute has a medium quality significance or value on a local scale. In addition, as explained in Section 5.3.13 above, there is an *indirect* hydrogeological connection or pathway between the site and protected conservation areas (receptors), such as South Dublin Bay and River Tolka SPA which is the natura 2000 site in closest proximity.

5.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

In summary, the proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, community facilities, public open space and provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L). The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032) to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes other residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of structures and Protected Structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Old Laundry building and Rose Cottage.

A detailed description of the proposed development is set out in Chapter 2 of this EIAR (Description of the Proposed Development).

The details of the construction and operation of the proposed development in terms of Land, Soils Geology and Hydrogeology are detailed in the subsections below.

As outlined below the activities required for the construction phase of the proposed development represents the greatest risk of potential impact on the geological and hydrogeological environment. These activities primarily pertain to the site preparation, excavation, dewatering and infilling activities required to facilitate construction of the proposed development.

5.4.1 Construction Phase

The activities required for the construction phase of the proposed development represents the greatest risk of potential impact on the geological and hydrogeological environment. These activities primarily pertain to the site preparation, excavation, dewatering and infilling activities required to facilitate construction of the proposed development.

Site Levelling and Excavations

Excavations and levelling of the Site to the necessary base level for construction will require the excavation of an estimated 110,000 m^3 of top soil, subsoils and stones. The basements construction will require excavations down to the lowest formation level of c. 4.5 m below ground level).

The majority (but not all) of the topsoil stripped from the Site will be re-used on site for backfill (levels in some areas need to be raised) and landscaping with some export required. Any surplus topsoil material will be transported off site and disposed of at a fully authorised soil recovery site. It is predicted that all of the subsoil and stones will be removed from the Site and transported off site and disposed of at a fully authorised soil recovery site.

Storage of soils/aggregates

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in a secure compound area within the contractors' compound on site.

Temporary storage of spoil will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment and solid matter. Any excavated material temporarily stockpiled onsite for re-use during reinstatement will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment etc.

Storage of hazardous Material

Temporary storage of fuel required for on site for construction traffic. Liquid materials i.e., fuel storage will be located within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications - BS8007-1987) to prevent spillage.

Construction activities will necessitate storage of cement and concrete materials, temporary oils, and fuels on site. Small localised accidental releases of contaminating substances including hydrocarbons have the potential to occur from construction traffic and vehicles operating on site.

Import/Export of Materials

There will be a requirement for deliveries of imported engineering fill (sands and gravels), and other construction materials include, steel structure, concrete, cladding, ducting and piping. Construction materials will be brought to site by road.

A 'Just in Time' delivery system will operate to minimise storage of materials. Construction materials will be transported in clean vehicles. Lorries/trucks will be properly enclosed or covered during transportation of friable construction materials and spoil to prevent the escape material along the public roadway. Where possible it is proposed to source general construction materials from the local area to minimise transportation distances.

Soil requiring removal offsite will be removed from site regularly to ensure there is minimal need for stockpiling. Some of the topsoil will be re-used on site for backfill (levels in some areas need to be raised) and landscaping with some export required. Any surplus topsoil material will be transported off site and disposed of at a fully authorised soil recovery site.

Basement Excavation Extent and Sequence

A section of basement is to be provided within the residential development. This section of basement extends to 11.774 m2. The basement is located.

- c. 15m from the boundary to the site
- c. 30m from the extension to the protected structures on the site

The basement construction sequence will consist of the following outline;

- Construction of load bearing piles from ground floor level.
- Excavations down to the lowest formation level (c. 4.5m below ground level).
- Temporary dewatering as may be required.
- Breaking down of pile foundations.
- Placing of waterproofing.
- Casting of lower ground floor slab.
- Casting of RC wall to perimeter.
- Continuation of ground floor and superstructure.

The lower ground floor works would be envisaged to be undertaken at the outset of the project and would be completed within the first 6 months of the works on site.

Collection of perched groundwater

During the excavation of the proposed basement and other excavation works dewatering (removing of perched groundwater) is necessary to create a dry working environment and prevent water from seeping into the excavation and flooding the construction site. This dewatering activity would occur through the initial excavation phases and could result in the localised lowering of the local shallow (overburden) groundwater table which will not be part of the regional bedrock aquifer. There may also be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry. Based on the depth to bedrock there is no potential for impact on the aquifer water table.

The dewatering will occur via suitably installed dewatering wells/sumps containing pumps to abstract groundwater and surface water (rainfall landing on the site).

Disposal of collected water (rainfall run-off and perched groundwater)

Minerex Environmental determined that recharge to groundwater is not considered a viable option for this site due to clay rich geology encountered and its likely associated low permeability. Infiltration rates calculated based on results of soakaway tests during site investigation and the construction design associated with basement, drainage and attenuation tank excavations within this development indicate that groundwater recharge is lower than expected abstraction volumes associated with site dewatering such that a shallow (<5mbGL) percolation area would not be viable. Drilling at depth into limestone bedrock (depth to rock varies across the site, 15.5 – 22.5 mbGL) in any location on the site or drilling into granular deposits between cohesive localised clay deposits (of approximately 1 m thickness in localised areas) is not considered a viable economic option due to relatively low volumes of discharge expected and cost associated with higher level of treatment and disposal to storm sewer vs. cost of drilling and well installation and same level of treatment required.

Therefore, depending on the quality of the construction water the discharge of treated water will occur to either; to surface water (via the storm water network to the Tolka River); or to Ringsend WWTP (via the combined foul wastewater network). The discharge to surface water sewer is subject to agreement with Dublin City Council (DCC); and the discharge to the combined foul sewer are subject to agreement with Irish Water (IW). In case of any exceedances of discharge permit conditions, water will be retreated on site, or disposed of to a licenced facility. The treatment and monitoring of this water prior to disposal will occur within the construction site (See Chapter 6 (Hydrology), of this EIAR Section 6.6.1 for further details).

5.4.2 Operational Phase

The proposed development will result in the increase in hardstanding (2.29 ha) area. Increase in hardstand will have a local effect on groundwater recharge.

It should be noted that there is no requirement for bulk fuels or chemical storage, no requirement for discharge to ground and no requirement for abstraction of groundwater during operational phase.

5.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

5.5.1 Construction Phase

5.5.1.1 Potential impacts on Land, Soils, Geology and Hydrogeology

There is potential for the underlying groundwater to become contaminated with pollutants associated with construction activity. If a spill occurs, contaminated water and collected surface water run-off which arises from construction sites can pose a short-term risk to the underlying perched water table if contaminated water is allowed percolate to the aquifer unmitigated. Based on the thickness of overburden present there is no potential for impact on the bedrock water table. The potential of contamination is associated with the following sources:

- Suspended solids (muddy water with increased turbidity (measure of the degree to which the water loses its transparency due to the presence of suspended particulates) – arising from dewatering, excavation and ground disturbance;
- Cement/concrete (increase turbidity and pH) – arising from concreting works, concrete washout water, and other concrete additives.
- Hydrocarbons and other construction chemicals (ecotoxic) – accidental spillages from construction plant or stored fuels, oils, and materials.
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.

In the absence of mitigation, rainfall run-off and dewatering water during the construction phase may contain increased silt levels or otherwise become polluted from construction activities. Suspended solids in runoff water may result in an increase in suspended sediment load, resulting in increased turbidity, which may in turn impact on local infiltration capacity, or downstream infrastructure or watercourses. Concreting operations pose a potential risk of discharging concrete materials into exposed surfaces and percolate to the underlying groundwater. Concrete, especially the cement component, has a high alkalinity level. There is also the potential risk of unintentional discharge of stored materials like fuels, oils, and paints, which could have negative impacts on both surface waters on-site and downstream from the site and the underlying groundwater. It is necessary for the measures (set out in Section 5.6.1) to be implemented to reduce and prevent accidental discharges from occurring during construction, including the implementation of effective containment and monitoring procedures.

Accidental discharges can also occur from welfare facilities during construction activities. Wastewater can contain high levels of bacteria, chemicals and organic matter, which could contaminate nearby water sources if discharged incorrectly. The establishment and use of welfare facilities and connection to the existing combined foul sewer, ensures that there are no potential significant impacts; therefore, no additional mitigation is required.

In addition to the unintentional spillages of the primary sources of contaminants mentioned above, there is also a risk that rainfall run-off and dewatering water from excavation activities becoming contaminated by these sources. If not appropriately mitigated through containment, management, and monitoring, this could result in the mobilisation of these contaminants, leading to more widespread impacts on the surrounding environment. It is the intent to take necessary measures (set out in Section 5.6.1) to prevent such accidental discharges from occurring during construction, including the implementation of effective containment and monitoring procedures.

The localised groundwater dewatering will be required as part of the excavation works. Given the depth of bedrock underlying the site (15.5 – 22.5 m below ground level) and the projected excavation levels (up to 4.5 m below ground level), the expected dewatering will be associated with perched groundwater within the subsoils and not with the regional aquifer within the bedrock. It can be expected minor ingress of rainfall in the excavations will also occur during construction phase. The Basement Impact Assessment undertaken by OCSC (2022) demonstrates that the construction of the proposed basement development will not adversely / unduly impact on the underlying groundwater conditions, groundwater or surface water flow, existing patterns of surface water drainage (including infiltration into groundwater), and that groundwater quality, quantity and classification will be protected. There is no potential significant impact on underlying groundwater conditions, groundwater or surface water flow; therefore, no mitigations are required.

It is acknowledged that the excavation works will result in the local removal and reinstatement (including infilling) of the ‘protective’ topsoil and subsoil cover across the development area at the site. However, this will not change the overall vulnerability category for the site which is ‘low’’. Capping of significant areas of the site by hardstand/ building following construction and installation of drainage will minimize the potential for contamination of the aquifers beneath the site. There is no significant impact potential impacts associated with the removal of topsoil and subsoil cover across the site; therefore, no mitigations are required.

The construction of any below ground structure has the potential, if not managed and executed correctly, to impact upon neighbouring properties and public realm. The following is noted with regards to the basement associated with the proposed development:

- The basement is located within the site and set back from adjacent properties.

- No works outside of the site boundary would be required to facilitate the construction of the basement.
- Condition surveys of adjacent buildings to be undertaken prior to works commencing on site where they are in close proximity to the works.
- Strict vibration, noise, and dust monitoring to be undertaken during the works as outlined in the Outline Construction Management Plan that accompanies this pre-application.

It is envisaged that the works would be completed within the first 6 months of the works on site.

In the absence of mitigation measures the potential impacts during the construction phase on land, soils and geology, hydrogeology (groundwater) are ***negative***, ***not significant*** and ***short term***.

5.5.1.2 Potential Impacts on Human Health and Populations

Based on the nature and thickness of overburden and the potential hazards present during construction there is no potential for impact on groundwater quality within the bedrock aquifer (as bedrock will not be affected by the excavation works) and therefore no potential for negative impacts for human health and populations. There is no source pathway linkage to drinking water supplies or recreational use of the downgradient Tolka Estuary or Tolka River.

As identified in Section 5.3.7. there are no wells categorised as domestic use in the area. The area is serviced by Local Authority mains therefore it is unlikely that any wells are used for potable supply. The site is not located near any public groundwater supplies or group schemes.

The ground investigation undertaken by GII (2022) included laboratory testing of soil samples for pH and sulphate and confirmed that no elevated levels / concentrations contamination were detected. Excavation on site may encounter localised areas of contamination which will need to be excavated and disposed of appropriately to a licenced facility.

The potential impacts during the construction phase on human health and populations are ***neutral***, ***imperceptible*** and ***short term***.

5.5.1.3 Potential Impacts on Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Report that is included with the application documentation (see Appendix 6.2 of this EIAR).

The WFD assessment indicates that there is no potential for adverse or minor temporary or localised effects on the Dublin groundwater body. Therefore, it has been assessed that the proposed development will cause any significant deterioration or change on its groundwater body status or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

No further assessment of WFD is recommended given that no significant deterioration or change in water body status is expected based on the current understanding of the proposed development during construction.

As mentioned above, the proposed development will involve groundwater dewatering, but associated with perched groundwater within the subsoils and not with the Dublin Groundwater Body which is confined within bedrock. As such the proposed development will not have an impact on the quantitative aspects in consideration of water body status such as baseflow for the hydrological waterbodies.

There is a potential of accidental discharges during the construction phase (as set out in Section 5.5.1.1), however these are temporary short-lived events will not impact on the water status of the underlying bedrock aquifer long-term and as such will not impact on trends in water quality and over all status assessment.

5.5.2 Operational Phase

5.5.2.1 Potential impacts on Land, Soils, Geology and Hydrogeology

There is no abstraction of groundwater proposed. In the design and storage calculations, discharge to ground has been accounted for, taking into consideration the favourable infiltration conditions across the site. Infiltration is facilitated at the base of the attenuation tanks and pervious paving surfaces, which significantly contributes to the approval of the use of underground attenuation systems by DCC.

There is no bulk chemical or fuels required during operation. As such the only potential for a leak or spill of petroleum hydrocarbons is from vehicles. Unmitigated spills may lead to local contamination of soil. However, it is noted that during the operational phase any accidental discharge will more likely impact stormwater drainage due to the hardstand and drainage infrastructure proposed and any releases to drainage will be mitigated through petrol interceptors.

The proposed incorporation of hardstand area and the use of SUDs design measures will have a minor effect on local recharge to ground; however, the impact on the overall groundwater regime will be insignificant considering the proportion of the site area in relation to the total aquifer area. It is noted that a significant proportion of the site is unpaved, and recharge will continue as current. SuDS measures have been incorporated in the design to facilitate recharge to ground.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on land, soils, geology and hydrogeology are ***negative***, ***imperceptible,*** and ***long-term***.

5.5.2.2 Potential Impacts on Human Health and Populations

As there is no potential for impact on drinking water resources or leisure uses of water bodies there is no potential for impact on human health and population

Therefore, on this basis in the absence of mitigation measures the potential impacts during the operational phase on human health and populations due to the potential for contamination of soil and groundwater are ***neutral, imperceptible*** and ***long term***.

5.5.2.3 Potential Impacts on Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Report that is included with the application documentation (see Appendix 6.2 of this EIAR). No further assessment of WFD is recommended given that no significant deterioration or change in water body status is expected based on the current understanding of the proposed development during operation.

There is no long-term discharge planned which could have an impact on the status of the water body. In the scenario of an accidental release (unmitigated leaks mentioned above) there is potential for a temporary impact only which would not be of a sufficient magnitude to effect a change in the current water body status.

There is no potential for adverse or minor temporary or localised effects on the Dublin GWB during the operational phase. Therefore, it has been assessed that it is unlikely that the proposed development will cause any significant deterioration or change in water body status or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

There is no potential impact on Water Framework Directive status, therefore no specific mitigation measures are required.

5.6 REMEDIAL AND MITIGATION MEASURES

The design has taken account of the potential impacts of the proposed development on the land, soils, geology and hydrogeology environment local to the area where construction is taking place and containment of contaminant sources during operation. Measures have been incorporated in the design to mitigate the potential effects on the surrounding land, soils, geology and hydrogeology.

5.6.1 Construction Phase

OCSC (2023) with input from AWN Consulting have prepared a Construction Environmental Management Plan (CEMP) in respect of the proposed development. It contains best practice measures and protocols to be implemented during the construction phase of the proposed development to avoid / minimise environmental impacts. This outlines and explains the construction techniques and methodologies which will be implemented during construction of the proposed development.

Construction works and the proposed mitigation measures are informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects including but not limited to:

- Construction Industry Research and Information Association (CIRIA), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532);
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016);
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (4th edition), (C741); and
- Enterprise Ireland Best Practice Guide, Oil Storage Guidelines (BPGCS005).

The CEMP will be implemented and adhered to by the construction Contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager and Ecological Clerk of Works where relevant. All personnel working on the Site will be trained in the implementation of the procedures.

The CEMP sets out the proposed procedures and operations to be utilised on the proposed construction site to protect water quality. The mitigation and control measures outlined in the CEMP will be employed on site during the construction phase. All mitigation measures outlined here, and within the CEMP will be implemented during the construction phase, as well as any additional measures required pursuant to planning conditions which may be imposed.

5.6.1.1 Land, Soils, Geology, Hydrogeology

Suspended Solids

As there is potential for run-off to indirectly discharge / recharge to a watercourse / groundwater (Tolka River/ Dublin GWB) underlying the site and in order to manage the potential impact associated with sediment and sediment runoff the following mitigation measures will be implemented during the construction phase.

- During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.
- Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds).
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate,
- A stabilised entranceway consisting of an aggregate on a filter cloth base that is located at any entry or exit point of the construction site.
- Aggregate will be established at the site entrance points from the construction site boundary extending for at least 10 m.
- The temporary storage of soil will be carefully managed. Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection.
- Construction materials, including aggregates etc. will be stored a minimum of 20-meter buffer distance from any surface water bodies and surface water drainage points.
- Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination.
- Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.
- Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations.
- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.
- Any surface water run-off collecting in excavations will likely contain a high sediment load. This will not be allowed to directly discharge directly to the stormwater sewer, Tolka River.

In addition to the measure above, prior to excavation works occurring further detailed Waste Soil Classification (WSC) will be undertaken which will inform the contractor of the potential outlets for disposal/remediation as required. All excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants 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 and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

Cement/concrete works

Where feasible all ready-mixed concrete will be brought to site by truck. 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 storm water to the underlying subsoil.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Washouts will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker or discharged to foul sewer submit to agreement with Irish Water / DCC.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Hydrocarbons and other construction chemicals

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and other construction chemicals and prevent any resulting to surface water and groundwater systems:

- Designation of bunded refuelling areas on the Site;
- Provision of spill kit facilities across the Site;
- Where mobile fuel bowsers are used, the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and operatives must have spill response training;
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers to a volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area or within the construction compound (or where possible off the site) which will be away from surface water gulleys or drains minimum 20 m buffer zone). 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” (CIRIA 532, 2001) will be complied with.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Disposal of collected water (rainfall run-off and perched water)

Rainfall at the construction site will be managed and controlled for the duration of the construction works until the permanently intercepted and attenuated surface water drainage system of the proposed site is complete. Dewatering water from excavation works within overburden deposits will be contained within the site, treated (if required) and discharged. Depending on the quality of this water the discharge of this treated water will occur to either; surface water (via the storm water network to the Tolka River); or to Ringsend WWTP (via the combined foul wastewater network).

It is proposed that monitoring of groundwater levels outside of the excavation be undertaken during the dewatering and excavation (enabling works) to ensure there is adverse impact on groundwater levels outside of the basement excavation.

Wastewater Management

Foul wastewater discharge from the site will be managed and controlled for the duration of the construction works.

Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The main contractor will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Foul water from the offices and welfare facilities on the site will discharge into the existing sewer on site (the cabins may initially need to have the foul water collected by a licensed waste sewerage contractor before connection to the sewer line can be made).

The construction contractor will implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

5.6.1.2 Human Health and Populations

It has been established (Section 5.5.1.2) that there are no recorded groundwater boreholes for domestic use within the vicinity of the site, and the site is not located near or in close proximity of any public groundwater supplies or group schemes, or groundwater source protection zones. On a precautionary basis, the mitigation measures set out in Section 5.6.1.1, will be implemented during the construction works for the protection of human health and populations.

Furthermore, as stated in Section 5.6.1.1 all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants 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 and appropriately disposed of by a suitably permitted/licensed waste disposal contractor. All sampling and soil handling will be undertaken by suitably qualified and trained persons using suitable personal protective equipment to avoid risks to human health.

5.6.1.3 Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Report that is included with the application documentation (see Appendix 6.2 of this EIAR). It has been established (Section 5.5.1.3) that while, there is a potential of accidental discharges during the construction phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 5.6.1.1 will be implemented during the construction works for the protection of groundwater quality.

5.6.2 Operational Phase

5.6.2.1 Land, Soils, Geology, and Hydrogeology

The proposed development design includes hardstand cover across the site and as set out in the OCSC Engineering Services Report (2022) the proposed/existing surface water drainage system for this development has been designed as a sustainable urban drainage system and uses on-line overground detention basins together with a flow control device, grass swales, permeable paving, rainwater harvesting and petrol interceptors. Therefore, the risk of accidental discharge has been adequately addressed through design.

5.6.2.2 Human Health and Populations

It has been established (Section 5.5.1.2) that there are no recorded groundwater boreholes for domestic use within the vicinity of the site, and the site is not located near any public groundwater supplies or group schemes, or groundwater source protection zones. On a precautionary basis, the mitigation measures set out in Section 5.6.2.1, will be implemented during the operational phase for the protection of human health and populations.

5.6.2.3 Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Report that is included with the application documentation (see Appendix 6.2 of this EIAR). The WFD Screening Report outlines that the project-specific OCMP includes robust mitigation measures to protect the underlying hydrogeological environment. There are mitigation and design measures to protect the hydrological and hydrogeological environment. In terms of the operational phase, the risk to the aquifer is considered to be low due to the use of oil interceptors on the stormwater system prior to discharge from the site.

It has been established (Section 5.5.2.3) that while, there is a potential of accidental discharges during the operational phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 5.6.2.1 will be implemented during the operational phase to control of the bulk storage of petroleum products. It is noted that, as set out in

Chapter 6 (Hydrology) the surface water discharges from the site are indirect, and will be adequately attenuated via SuDS measures, hydrobrake (or equivalent) and oil/water interceptor to ensure there is no long-term negative impact to the WFD water quality status of the Tolka River.

5.7 MONITORING

5.7.1 Construction Phase

During construction phase the following monitoring measures will be implemented:

- Regular inspection of surface water run-off and sediments controls (e.g., silt traps);
- Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off; and
- Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).
- Due to the expected dewatering of perched water, it is proposed that monitoring of groundwater levels outside of the excavation be undertaken during the basement excavation (enabling works) to ensure there is adverse impact on groundwater levels outside of the excavations.

5.7.2 Operational Phase

Maintenance of the surface water drainage system, including separators / interceptors, and foul sewers is recommended to minimise any accidental discharges to soil or groundwater.

5.8 RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT

5.8.1 Construction Phase

5.8.1.1 Land, Soils, Geology, Hydrogeology

The implementation of the mitigation and monitoring measures detailed in Section 5.6.1 and 5.7.1, will ensure that the potential impacts on land, soils, geology, hydrogeology during the construction phase are adequately mitigated. The residual effect on surface water quality during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

Following the TII criteria (refer to Appendix 5.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

5.8.1.2 Human Health and Populations

The implementation of the mitigation and monitoring measures detailed in Section 5.6.1 and 5.7.1, will ensure that the potential impacts on human health and populations during the construction phase are adequately mitigated. The residual effect on surface water quality during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

5.8.1.3 Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Report that is included with the application documentation. The WFD Screening Report concludes that the potential effects on the WFD status to the groundwater bodies are considered no impact i.e. no change to the WFD status or elements in terms of the underlying hydrogeological environment There is no potential for adverse or minor temporary or localised effects on the Dublin groundwater body. Therefore, it has been assessed that it is unlikely that the proposed development will cause any significant deterioration or change on its water body status or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

Even in the absence of the mitigation and monitoring measures detailed in Section 5.6.1 and 5.7.1, there will be no predicted degradation during the construction stage of the current groundwater body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

There are appropriately designed mitigation measures which will be implemented during the construction phase to protect the hydrogeological environment. There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on the water status of groundwater bodies long-term and as such will not impact on trends in water quality and over all status assessment.

The residual effect on human health and populations during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

5.8.2 Operational Phase

5.8.2.1 Land, Soils, Geology, Hydrogeology

The implementation of the mitigation and monitoring measures detailed in Section 5.6.2 and 5.7.2, will ensure that the potential impacts on land, soils, geology, hydrogeology once the proposed development is constructed and operational are adequately mitigated. The residual effect on surface water quality during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

Following the TII criteria (refer to Appendix 5.1) for rating the magnitude and significance of impacts on the geological and hydrogeological related attributes, the magnitude of impact is considered **negligible**.

5.8.2.2 Human Health and Populations

The implementation of the mitigation and monitoring measures detailed in Section 5.6.2 and 5.7.2, will ensure that the potential impacts on human health and populations once the proposed development is constructed and operational are adequately mitigated. The residual effect on human health and populations during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

5.8.2.3 Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Report that is included with the application documentation. The WFD Screening Report concludes there is no potential for adverse or minor temporary or localised effects on the Dublin groundwater body. Therefore, it has been assessed that it is unlikely that the proposed development will cause any significant deterioration or change on its water body status or prevent attainment, or potential to achieve the WFD objectives or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

Even in the absence of the mitigation and monitoring measures detailed in Section 5.6.2 and 5.7.2, there will be no predicted degradation of the current water body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

There are appropriately designed mitigation and design measures which will be implemented during the construction phase to protect the hydrogeological environment. There is a potential of accidental discharges during the construction and operational phases, however these are temporary short-lived events that will not impact on the water status of underlying aquifer long-term and as such will not impact on trends in water quality and over all status assessment.

There is no abstraction of groundwater proposed. In the design and storage calculations, discharge to ground has been accounted for, taking into consideration the favorable infiltration conditions across the site. Infiltration is facilitated at the base of the attenuation tanks and pervious paving surfaces, which significantly contributes to the approval of the use of underground attenuation systems by DCC.

5.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

The cumulative impact of the proposed development with any/all relevant other planned or permitted developments are discussed below. For details on the developments considered refer to Chapter 2, Section 2.8 of this EIA Report.

Existing developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

5.9.1 Construction Phase

In relation to the potential cumulative impact on hydrology during the construction phases, the construction works which would have potential cumulative impacts are as follows:

- Surface water run-off during the construction phase may contain increased silt levels or become polluted from construction activities. Run-off containing large amounts of silt can cause damage to surface water systems and receiving watercourses.

- Stockpiled material will be stored on hardstand away from surface water drains, and gullies will be protected during works to ensure there is no discharge of silt-laden water into the surrounding surface water drainage system.
- Contamination of local water sources from accidental spillage and leakage from construction traffic and construction materials is possible unless project-specific measures are put in place for each development and complied with.

The works contractors for other planned or permitted developments will be obliged to ensure that measures are in place to protect soil and water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Groundwater) Regulations (S.I. 9 of 2010 and S.I. 266 of 2016).

A review of the permitted development set out in Chapter 2, Section 2.8 and Appendix 2.1 of this EIA Report has been undertaken and there are no proposed developments capable of combining with the proposed development and resulting in significant cumulative effects. The implementation of mitigation and monitoring measures detailed in Section 5.6.1; and 5.7.1 as well as the compliance of the above permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change to the land, soils, geology, hydrogeological environment during the construction phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible*** and ***short-term***.

5.9.2 Operational Phase

In relation to the potential cumulative impact on hydrology during the operational phases, the operational activities which would have potential cumulative impacts are as follows:

- Increased hard standing areas will reduce local recharge to ground and increase surface water run-off potential if not limited to the green field run-off rate from the Site. Cumulatively this development and others in the area will result in localised reduced recharge to ground and increase in surface run-off.
- Increased risk of accidental discharge of hydrocarbons from car parking areas, the petrol station, and along roads is possible unless diverted to surface water system with petrol interceptor.
- There will be a small loss of greenfield area locally as part of the proposed Project.

This EIAR also considers the likelihood for cumulative impacts associated with the operational phase of the proposed development and the operational phase of these permitted developments.

The proposed development and the other permitted development listed in Chapter 2, Section 2.8 and Appendix 2.1 of this EIA Report will result in an increase in hard standing which will result in localised reduced recharge to ground. The aquifer underlying the site is mostly “Locally Important – Bedrock which is Generally Moderately Productive only in Local Zones”. Based on site specific and regional geological investigations there is c. >10m of overburden overlying the bedrock aquifer, classifying it with a “Low” vulnerability (GSI classification). The cumulative impact is considered to be imperceptible. The implementation of SuDs measures on site will mitigate against and reduce the recharge rate to ground.

All developments listed in Chapter 2, Section 2.8 and Appendix 2.1 of this EIA Report are required to ensure they do not have an impact on the receiving water environment in accordance with the relevant legislation (Water Framework Directive and associated legislation) such that they would be required to manage run-off and fuel leakages.

The implementation of mitigation and monitoring measures detailed in Section 5.6.1; and 5.7.1 as well as the compliance of the above permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change to the land, soils, geology, hydrogeological environment during the operational phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible*** and ***long-term***.

5.10 REFERENCES

- Consultants and Contractors.
- CIRIA (2005). Environmental Good Practice on Site (C650).
- CIRIA (2007). CIRIA 697: The SUDS Manual.
- Enterprise Ireland (n.d.). Best Practice Guide BPGCS005: Oil Storage Guidelines.
- EPA (2023). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.
- EPA (2023). EPA Maps.
- GSI (2023). GSI Map Viewer.
- Institute of Geologists of Ireland (2013). Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements.
- NPWS (2023). Designations Viewer.
- NRA (2009). Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes.
- OPW (2023). Flood Maps.
- OPW (2009). The Planning System and Flood Risk Management: Guidelines for Planning Authorities.
- Institute of Geologists of Ireland (2013). Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements.
- Teagasc (2023). Teagasc Map Viewer.
- National Roads Authority (NRA) (2009). Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes.

CHAPTER 6

HYDROLOGY

awnconsulting
A Trinity Consultants Company

CHAPTER 6 CONTENTS

6.0 HYDROLOGY

6.1 INTRODUCTION

This chapter assesses and evaluates the likely significant effects of the development on the hydrological aspects of the site and surrounding area. In assessing likely potential and predicted effects, account is taken of both the importance of the attributes and the predicted scale and duration of the likely effects. The detailed description of the proposed development is provided in Chapter 2 of this EIAR.

6.2 METHODOLOGY

6.2.1 Criteria for rating of effects

This chapter evaluates the effects, if any, which the development has had or will have on Hydrology as defined in the Environmental Protection Agency (EPA) '*Guidelines on the Information to be contained in Environmental Impact Assessment Reports'* (EPA, 2022) as well as in line with Article 94 and Schedule 6 of the Planning and Development Regulations 2001 (as amended) and Article 5 and Annex IV of the EIA Directive (2011/92/EU, as amended).

The document entitled '*Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes*' by the Transport Infrastructure Ireland (TII) formerly National Roads Authority (NRA) (TII, 2009) is referenced where the methodology for assessment of impact is appropriate. Furthermore, in line with this TII Guidelines, an assessment of the attribute importance has been undertaken in order to provide a basis for the assessment of impact provided. The attribute importance considers the potential as well as the existing use of the surface water features as a water resource (i.e., water supply, fisheries and other uses) as well as ecological habitat requirements. The TII criteria for rating the hydrological related attributes are presented in Appendix 6.1.

The quality, significance, and duration of the potential impacts, residual effects, and cumulative effects are described using standard EIA descriptive terminology set out in Table 1.2, Chapter 1 of this EIAR.

The principal attributes (and effects) to be assessed include the following:

- Water Framework Directive (WFD) Status and potential for increased risk of deterioration of this status due to the activities of the site;
- River and stream water quality in the vicinity of the site (where available);
- Surface watercourses near the site and potential impact on surface water quality arising from proposed development related works including any discharge of surface water run-off;
- Localised flooding (potential increase or reduction) and floodplains including benefitting lands and drainage districts (if any); and
- Surface water features within the area of the site.

6.2.2 Sources of Information

Desk-based hydrological information in the vicinity of the site was obtained through accessing databases and other archives where available. Data was sourced from the following:

- Environmental Protection Agency (EPA) – website mapping and database information. Envision water quality monitoring data for watercourses in the area;
- River Basin Management Plan for Ireland 2018-2021.
- Draft River Basin Management Plan for Ireland 2022-2027.
- Dublin County Development Plan 2017-2023.
- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW));
- Office of Public Works (OPW) flood mapping data (www.floodmaps.ie)
- Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors' (CIRIA 532, 2001); and
- National Parks and Wildlife Services (NPWS) – Protected Site Register.

Site specific data was derived from the following sources:

- Engineering Services Report –St. Vincent's Hospital Redevelopment, Richmond Road and Convent Avenue, Fairview, Dublin 3, OCSC (2023);
- Outline Construction Environmental Management Plan, (OCSC, 2023);
- OCSC Consulting – Flood Risk Assessment (2023);
- Ground Investigation Report – St. Vincent's Hospital Redevelopment, Richmond Road and Convent Avenue, Fairview, Dublin 3 (Ground Investigations Ireland "GII", 2022);
- The proposed development design site plans and drawings; and
- Consultation with the project design engineers.

6.2.3 Difficulties in Compiling the Assessment

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

6.3 RECEIVING ENVIRONMENT

The proposed development covers an area of 9.46 hectares and comprises/includes the existing St. Vincent's Hospital and associated ancillary building structures, which are located at Richmond Road and Convent Avenue, Fairview, Dublin 3. The site topography is characterised in the Engineering Services Report (OCSC, 2023) by a general slope in elevation from north to south. The site falls from 11 m OD (meters ordnance datum) to c. 4.5 m OD, from levels along the northern boundary to southern portion of the site, respectively. The relief of the site comprises gentle undulations, with a significantly sharp drop in elevation located in the central portion of the site (11 m OD to 4.5 m-5 m OD).

The site currently presents a mixture of greenfield and existing hardstanding areas and multiple building and ancillary structures associated with St Vincent's Hospital. The site is occupied by an actively operating small scale psychiatric hospital and its adjacent lands. The western part of the site is largely undeveloped except for the single storey mental health facility (Crannog Day Hospital) located to the southern portion fronting onto Richmond Road. The area of open space immediately south of the existing hospital building is reserved for a new hospital.

The site is bound by the Grace Park Wood residential development to the northwest (with the Child Vision National Campus immediately beyond), an An Post depot on Lomond Avenue and residential properties on Inverness Road to the east, Griffith Court and the 'Fairview Community Unit' nursing home to the north, existing residential and commercial properties and associates structures on Richmond Road and Convent Avenue to the south, Richmond Avenue to the south east, and Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC and Ierne Sports and Social Club to the west of the site.

The majority of rainwater from the existing hardstanding areas and rooftops is discharged to the combined infrastructure, with minor areas of the site discharge to the storm water sewer on Richmond Road. Rainfall is also currently allowed to infiltrate naturally from the greenfield area.

Wastewater and stormwater drainage is discharged via a 300 mm combined sewer within the site boundary, with a 900 mm concrete sewer in Richmond Road. This 900 mm sewer flows in an easterly direction and is treated off site at Ringsend Wastewater Treatment Plant.

Public records indicate an existing 525 mm concrete storm water sewer within the site boundary. This sewer flows in the southerly direction towards Richmond Road before discharging to the 1350 mm sewer on Richmond Road. This storm sewer discharges to the Tolka River immediately downstream of the site.

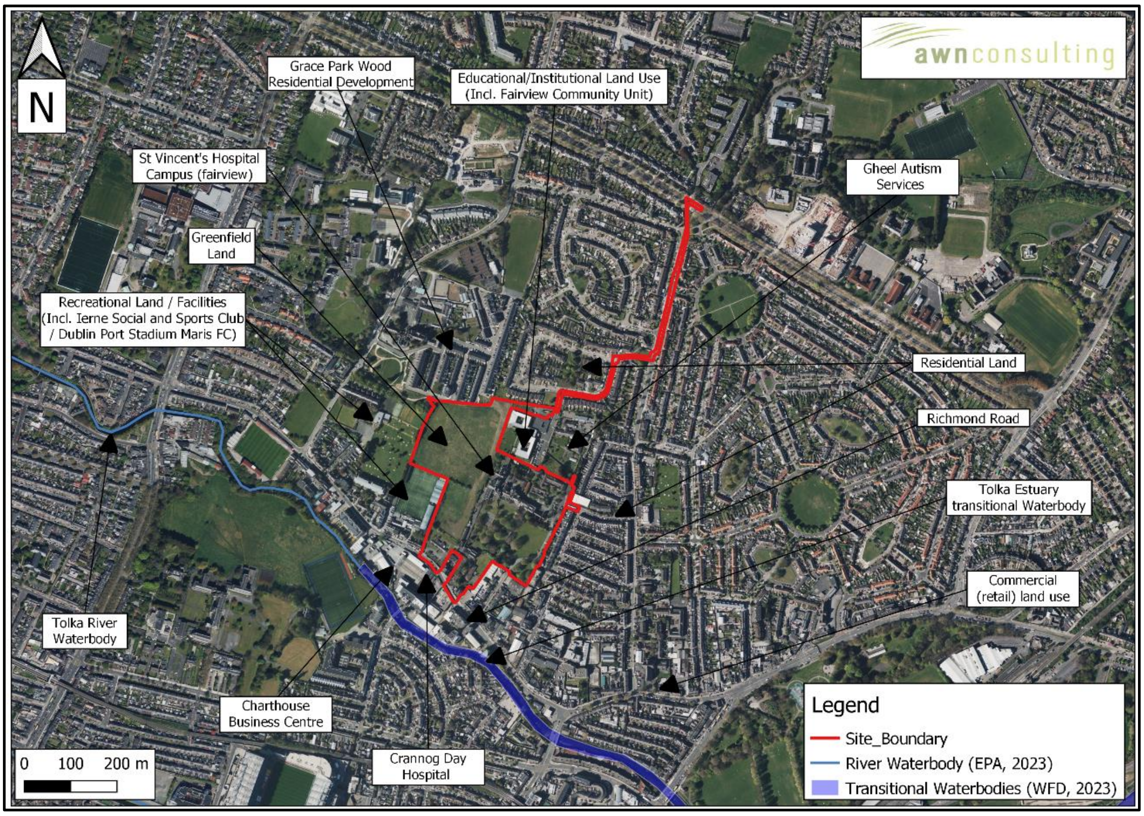


Figure 6.1 *Site Location and Surrounding Land Use Map (Source: Google Earth Pro, 2023)*

6.3.1 Hydrology

The proposed development site is located within the former Eastern River Basin District (ERBD) (now the Irish River Basin District), as defined under the Directive 2000/60/EC of the European Parliament commonly known as the Water Framework Directive (WFD). The WFD, establishes a framework for community action in the field of water policy.

According to the EPA maps, the proposed development site is situated in Hydrometric Area No. 09 of the Irish River Network and lies within the Liffey and Dublin Bay Catchment (Catchment ID: 09) and the Tolka_SC_020 Sub-Catchment.

The Tolka Estuary transitional waterbody (downstream from the Tolka River, Tolka_060) is located approximately 110 m south of the site boundary at the point of closest proximity and flows in an easterly direction before ultimately discharging to Dublin Bay and the Irish Sea. There are no water courses identified on the EPA maps within the proposed development site.

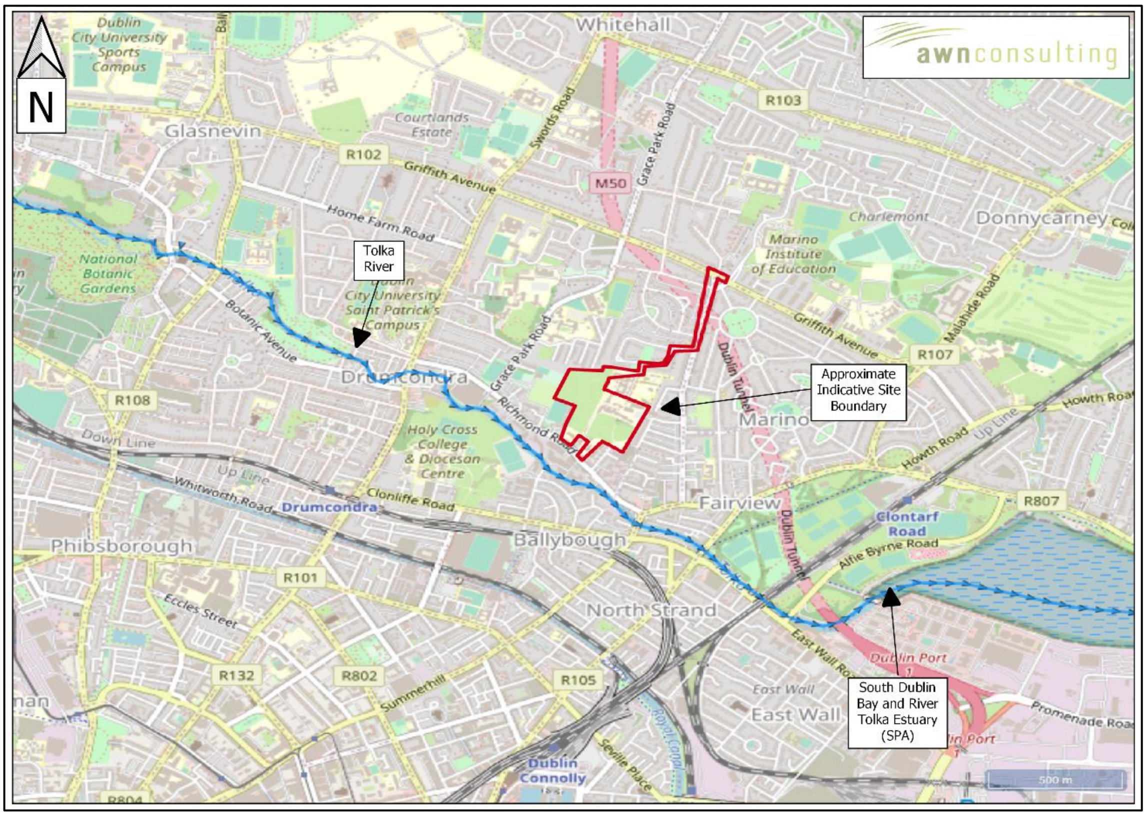


Figure 6.2 Surface Water Environment, approximate site located indicated by the red star (EPA, 2023).

6.3.2 Surface Water Quality

The WFD requires 'Good Water Status' for all European waters to be achieved through a system of river basin management planning and extensive monitoring by 2015 or, at the least, by 2027. 'Good status' means both 'Good Ecological Status' and 'Good Chemical Status'. In 2009 the first River Basin Management Plan (RBMP) 2009-2015 was published. The second cycle river basin management plan was carried out between 2018-2021 with the previous management districts now merged into one

Ireland River Basin District (Ireland RBD). The third cycle (2022-2027) is currently being undertaken.

During the development of this Plan, a prioritisation exercise was undertaken by the local authorities, the EPA and other stakeholders to identify those water bodies that require immediate action within this plan cycle to 2021. During the catchment characterisation, the EPA identified those water bodies either *'At Risk'* of not achieving their objectives or *'Under Review'*. The outcome of this prioritisation process was the selection of 190 Areas for Action across the 5 Local Authority regions. Within these 190 areas, a total of 726 water bodies were selected for initial actions during this RBMP cycle. There are 832 water bodies identified as being '*At Risk'* of not achieving their environmental objectives under this Plan that have not been included in the Areas for Action. For most of these water bodies, targeted actions will be undertaken in the third cycle RBMP from 2022-2027. The draft 3rd cycle RBMP has been reviewed in the context of ensuring mitigation measures comply with current and expected future measures required to be implemented for protection of water body status within the context of the Proposed Project.

The strategies and objectives of the WFD in Ireland have influenced a range of national legislation and regulations. These include the following:

- European Communities (Water Policy) Regulations, 2003 (S.I. No. 722 of 2003);
- European Communities (Drinking Water) Regulations 2014 (S.I. 122 of 2014);
- European Communities Environmental Objectives (Surface Waters); Regulations, 2009 (S.I. No. 272 of 2009 as amended SI No. 77 of 2019)
- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010 S.I. No. 366 of 2016);
- European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2010 (S.I. No. 610 of 2010); and
- European Communities (Technical Specifications for the Chemical Analysis and Monitoring of Water Status) Regulations, 2011 (S.I. No. 489 of 2011)
- Statutory Instrument (SI) No. 293 of 1988 European Communities (Quality of Salmonid Waters) Regulations 1988
- Local Government (Water Pollution) Acts 1977-1990
- SI No. 258 of 1988 Water Quality Standards for Phosphorus Regulations 1998
- Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board);
- Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers;
- CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors;
- CIRIA C648 Control of Water Pollution from Constructional Sites;
- Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (NRA/TII, 2006).

Surface water quality is monitored periodically by the EPA at various regional locations along with principal and other smaller watercourses. The EPA assess the water quality of rivers and streams across Ireland using a biological assessment method, which is regarded as a representative indicator of the status of such waters and reflects the overall trend in conditions of the watercourse. The biological indicators range from Q5 - Q1. Level Q5 denotes a watercourse with good water quality and high community diversity, whereas Level Q1 denotes very low community diversity and bad water quality.

In relation to the subject site, the nearest active EPA monitoring station located in the vicinity of the site is:

- ‘Violet Hill Drive Finglas’ (EPA Code: RS09T011100), located in the TOLKA_050 waterbody adjacent to Glasnevin cemetery c. 2.9 km upstream of the proposed development site. The most recent status recorded by the EPA (2023) is classified as *Q3 Poor*.

Refer to Figure 6.3 below for locations of these EPA quality monitoring points in the context of the site.

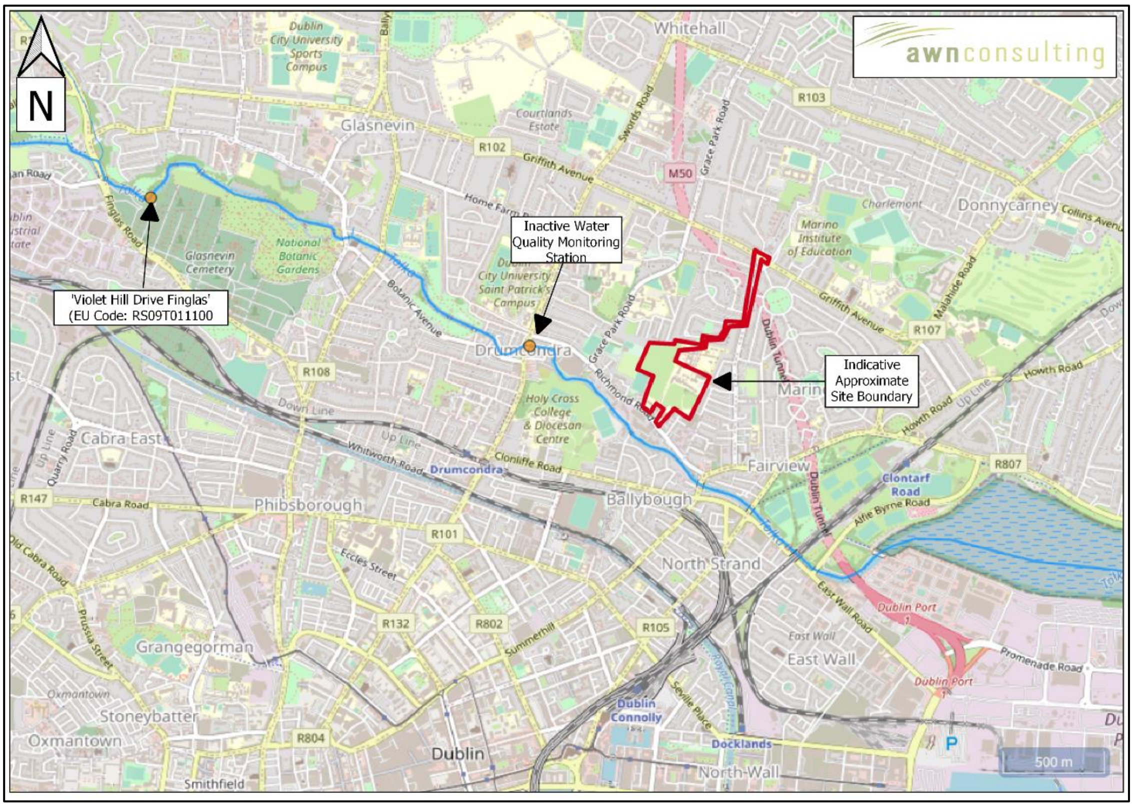


Figure 6.3 EPA Surface Water Quality Stations, approximate site location indicated by the red star (Source: EPA, 2023).

The Tolka River belongs to the TOLKA_060 WFD surface waterbody (European code: IE_EA_09T011150) and is currently classified by the EPA as having *‘Poor’* WFD water quality status (2016-2021 period) and is ‘*At risk of not achieving good status*’. The main pressures identified on the Tolka_060 are associated with the presently ‘poor’ ecological status or potential. This status is likely attributable to a combination of elevated Alkalinity-total (as CaCO3).

The Tolka Estuary transitional waterbody (European Code: IE_EA_090_0200) is currently classified by the EPA as having ‘Poor’ WFD water quality status (2016-2021 period) and is ‘At risk of not achieving good status.

6.3.3 Bathing Waters and Recreational Waterbodies

The local environment also includes areas of natural resources that relate to populations and human health that may be impacted by the proposed development, this includes economic resources, recreational and bathing waters, and drinking water resources.

A review of Environmental Sensitivity Mapping online maps that includes the Register of Protected Areas (RPA) under the Water Framework Directive (WFD) has shown that there are no Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the Tolka Estuary.

It should be noted that Dollymount Strand and Sandymount Strand bathing water areas may be hydrologically connected to the proposed development site, but are located further away than the Tolka Estuary (c. 5.7 km and 8.0 km from the subject site, respectively); therefore, they were excluded from the assessment due to their distance from the development and significant dilution through its pathway.

It should be noted that the bathing status has no direct relevance to the water quality status of the coastal waterbodies and Natura 2000 sites due to rapid mixing and dilution resulting in no measurable change in water quality within the overall water body.

6.3.4 Existing Utilities and Drainage Infrastructure

Foul Wastewater

Irish Water records a 300 mm foul sewer within the site boundary with a 900 mm concrete sewer in Richmond Road (OCSC, 2023). This 900 mm sewer flows in an easterly direction and is treated at Ringsend WWTP. Refer to the Engineering Services Report, prepared by OCSC (2023) included with this Application for the foul sewer arrangement.

This WWTP is required to operate under an EPA licence (D0034-01) and meet environmental legislative requirements as set out in such licence. It is noted that a planning permission for a new upgrade to this facility was received in 2019 and is currently in the process of construction/ implementation. The upgrade works commenced in 2018 and are expected to be fully completed by 2025. When all the proposed works are complete in 2025, the Ringsend Wastewater Treatment Plant will be able to treat wastewater for up to 2.4 million population equivalent while meeting the required standards.[1]

The 2019 planning permission facilitated upgrading works to meet nitrogen and phosphorus standards set out in the licence, which are temporarily exceeded currently. Works on the first of four contracts to retrofit the existing treatment tanks with aerobic granular sludge technology commenced in November 2020 and was completed in December 2021. In September 2021, the second contract was awarded, and its construction works commenced in November 2021 and is expected to take approximately 2 years to complete. The upgrade works will result in treatment of sewage to a higher quality than current, thereby ensuring effluent discharge to Dublin Bay will comply with the Urban Wastewater Treatment Directive for a population equivalent of 2.1 million by Q4 2023.

In November 2021, the third contract was awarded, and its Construction works are anticipated to commenced in late 2022 (according to Irish Water). The fourth contract is scheduled to commence in mid-2023.

[1] https://www.water.ie/projects/local-projects/ringsend/

Potable Water Supply

Irish Water records show an existing 3 and 5-inch cast iron potable watermain within the site and a 6-inch main on Richmond Road (OCSC, 2023).

Refer to the Engineering Services Report, prepared by OCSC (2023) included with this Application for the potable water arrangement.

Stormwater Drainage

The existing units and hardstanding areas currently discharge surface water to the local combined infrastructure, with minor areas of the site discharging to the storm water sewer on Richmond Road.

As mentioned above, the project engineers (OCSC, 2023) have identified that public records show an existing 525 mm concrete storm water sewer within the site boundary. This sewer flows in a southerly direction towards Richmond Road before discharging to the 1350 mm sewer on Richmond Road. This sewer discharges to the Tolka River immediately downstream of the site.

6.3.5 Flood Risk Assessment

OCSC Multidisciplinary Engineering Consults have carried out and prepared a Site Specific Flood Risk Assessment (SSFRA) that is included with the application documentation. This Flood Risk Assessment was undertaken in accordance with 'The Planning System and Flood Risk Management Guidelines' and is in agreement with the core principles contained within.

OCSC have undertaken a review of the historic flood information / events onsite or the surrounding vicinity. Information provided by DCC noted an extreme rainfall event which occurred in October 2011 that resulted in extensive pluvial flooding in Dublin including flooding in St. Vincent's lands (subject site), where Grace Park Stream West and East were culverted through the lands in a 525mm diameter surface water pipe. This event was subsequently followed up by remediation emergency works carried out by DCC in 2012 within St. Joseph's site to manage the flood risk downstream in St. Vincent's lands. Those works included the construction of new infrastructure upstream of St. Vincent's land (900 mm surface pipe) that eventually connects to the 525mm diameter surface water sewer that runs through St. Vincent's lands and connects to the existing drainage system on Richmond Road.. No recorded flooding has occurred in the area since upgrade works have been carried out. Refer to SSFRA undertaken by OCSC (2023).

Predictive flood maps undertaken as part of the CFRAM study places the site within Flood Zone C whereby annual probability of fluvial flooding is less than 0.1%. There are no reports or records of fluvial flooding occurring within the proposed site, however multiple Historical flooding events are reported in the vicinity of the site relating to the Tolka River.

The resulting flood maps from the previously mentioned OCSC report confirm that the site is located within Flood Zone C. The flood maps indicate that a portion of the site lies within the 10% AEP pluvial flood extent. The pluvial flood risk to the site will be mitigated as the proposed development includes a new surface water network which will manage the surface water onsite, and therefore mitigating the risk of pluvial flooding onsite.

The predictive areas that would be inundated occur in multiple localized zones across the subject site. According to GSI (2023) there are no reported incidents of groundwater flooding in the vicinity of the site.

The proposed measures ensure that all units and upgraded areas within the St Vincent's Hospital development site will not be impacted by the predicted flood events and will ensure that pluvial flooding will not occur.

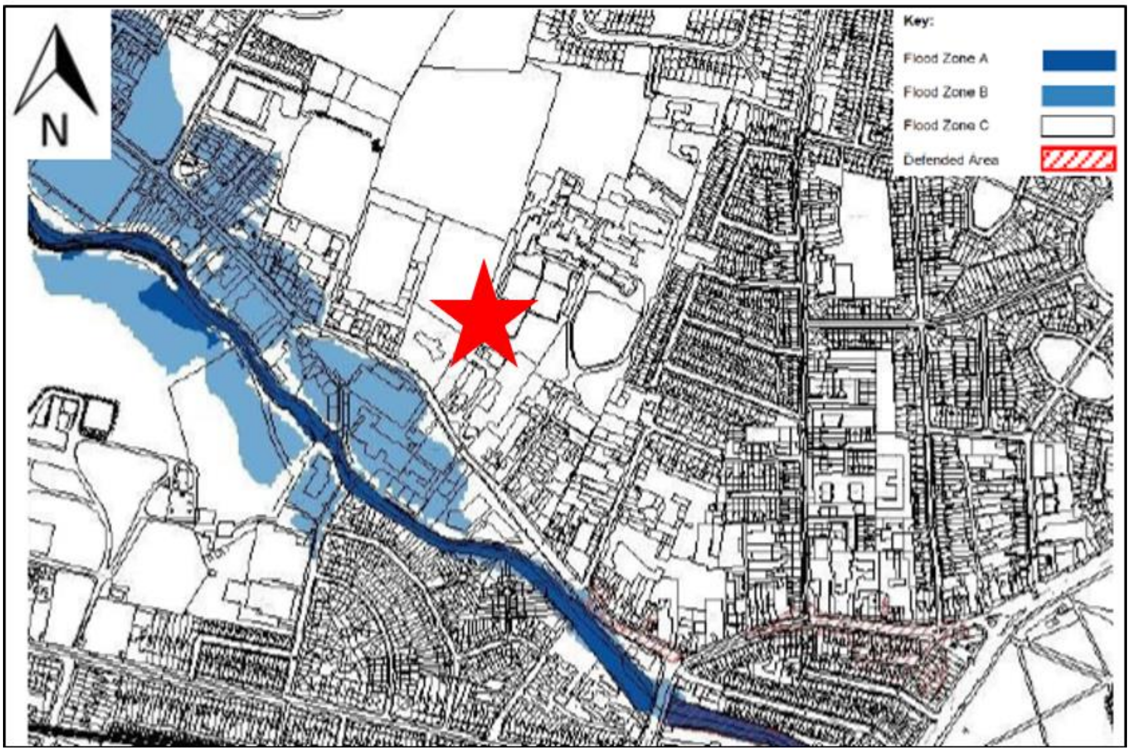


Figure 6.4 *Extract from DCC SFRA, approximate site location indicated by the red star (Source: OCSC, 2023).*

The FRA has demonstrated that the site is not at risk of flooding from external sources, or as result of the proposed development. The proposed buildings for this development are located within Flood Zone C. Pluvial and groundwater flooding will be managed through the implementation of the drainage measures outlined in Section 6.4 below.

It should be noted that multiple historic flood events in the area have been recorded in close vicinity to the South boundary of the site and few along the bank of Tolka River:

- 1954 Tolka River Flooding, Millmount Ave. Dublin. A number of defence assets and mitigation measures were put in place since one or more of the flood events described by this item.
- Single Flood event in November 1965 along the banks of the Tolka River.
- 2002 Flooding on the Tolka Catchment. A number of defence assets and mitigation measures were put in place since one or more of the flood events described by this item.
- Single flood event 1986 Tolka Richmond Road August. A number of defence assets and mitigation measures were put in place since one or more of the flood events described by this item.

6.3.6 Areas of Conservation

According to the NPWS (2022) on-line database there are no special protected areas (SPA) or special areas of conservation (SAC) on or within the boundary of the proposed development site. The closest conservation sites include Natura 2000 sites are as follows:

- South Dublin Bay SAC (IE000210) c. 3.7 km to the southeast of the site.
- North Dublin Bay SAC (IE000206) c. 3.9 km to the east of the site
- South Dublin Bay and River Tolka SPA (IE004024) c. 1.1 km to the southeast of the site.
- North Bull Island SPA (IE004006) c. 3.8 km to the east of the site
- Royal Canal c. 0.6 km to the south of the site
- North Dublin Bay pNHA c. 1.0 km to the east of the site
- Grand Canal pNHA c. 2.3 km to the south of the site
- Santry Demesne pNHA 3.2 km to the north of the site
- South Dublin Bay pNHA 3.8 km to the south-east of the site

The site currently has an indirect hydrological pathway or connection with the South Dublin Bay and River Tolka Estuary special protection area (SPA) through the surface water drainage network which discharges to the which flows in an easterly direction before ultimately discharging downstream into South Dublin Bay and River Tolka Estuary SPA/pNHA site, which subsequently is hydrologically connected / linked to North Bull Island SPA and North Dublin Bay pNHA/ SAC sites. Figure 5.9 below presents the location of these protected areas in the context of the subject site.

In addition to being a European site, Sandymount Strand (located within the South Dublin Bay and River Tolka SPA) / Tolka Estuary and North Bull Island are also Ramsar Convention sites (wetland site designated to be of international importance) thereby further reinforcing the environmental value and sensitivity of the area. The North Bull Island[2] is a small island built up over 200 years against a harbour wall and the adjoining foreshore of sandy beaches, saltmarshes and mudflats. The site is unique in Ireland because it supports well-developed saltmarsh and dune systems displaying all stages of development from the earliest phase of colonization to full maturity. Sandymount Strand/Tolka Estuary[3] is an intertidal system supporting a large bed of eelgrass (Zostera noltii) with extensive areas of sandflats. The site is important for various species of waterbirds, supporting internationally important numbers of Brent Geese and large numbers of roosting gulls and terns.

As mentioned in Section 6.3.3, the Sandymount Strand bathing water areas may be hydrologically connected to the proposed development site but is located further away than the Tolka Estuary (c. 8.0 km from the subject site).

Figure 6.6 below presents the location of these protected areas in the context of the proposed development site.

[2] https://rsis.ramsar.org/ris/406
[3] https://rsis.ramsar.org/ris/832

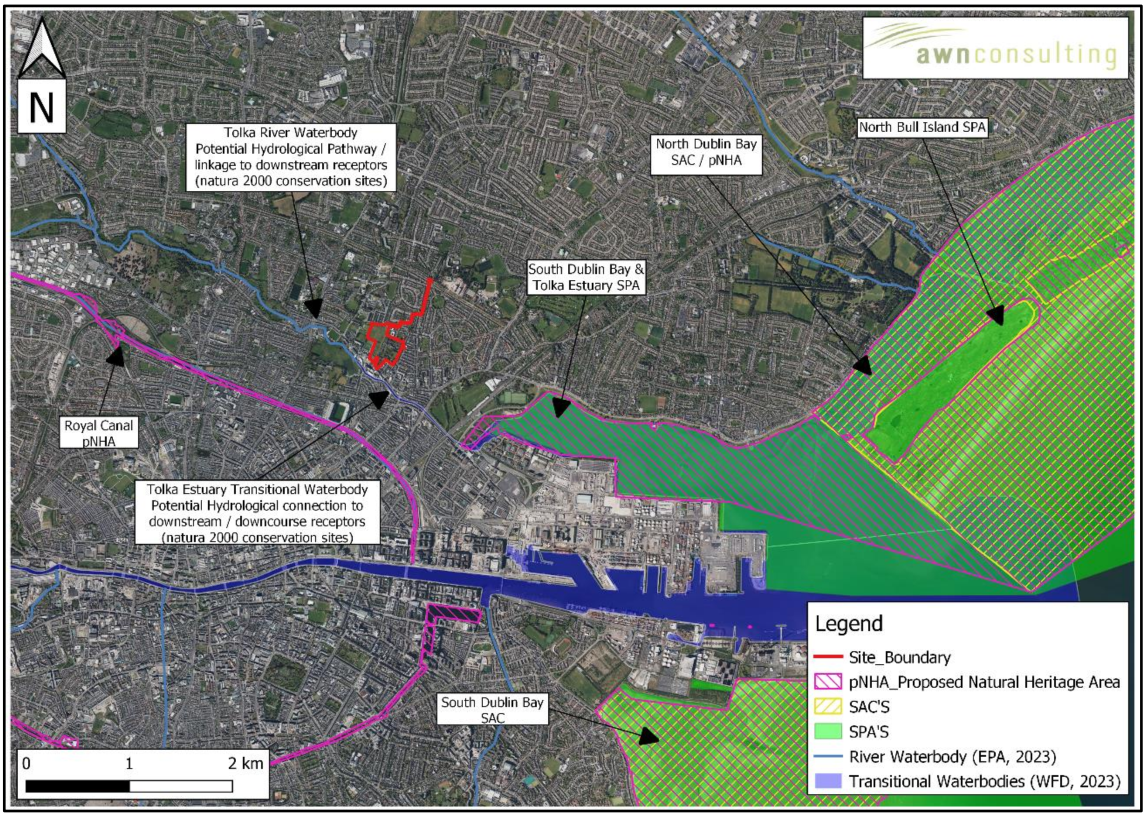


Figure 6.6 Natura 2000 Sites in the Context of the Subject Site

6.3.7 Rating of Importance of Hydrological Attributes

Based on the TII methodology (2009) (See Appendix 6.1) the importance of the hydrological features at this site is rated as '*medium importance'* based on the assessment that the attribute has a medium-quality significance or value on a local scale, due to the Biotic Index which determines the quality class for the subject site, provides a Class C / Poor (Q3) classification.

6.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS

Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

A detailed description of the proposed development is set out in Chapter 2 of this EIAR (Description of the Proposed Development). The details of the construction and operation of the development in terms of Hydrology are detailed in the subsections below.

6.4.1 Construction Phase

Storage of soils/aggregates

Aggregate materials such as sands and gravels will be stored in clearly marked receptacles in a secure compound area within the contractors' compound on site.

Temporary storage of spoil will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment and solid matter. Any excavated material temporarily stockpiled onsite for re-use during reinstatement will be managed to prevent accidental release of dust and uncontrolled surface water run-off which may contain sediment etc.

Storage of hazardous Material

Temporary storage of fuel required for on site for construction traffic. Liquid materials i.e., fuel storage will be located within temporary bunded areas, doubled skinned tanks or bunded containers (all bunds will conform to standard bunding specifications - BS8007-1987) to prevent spillage.

Construction activities will necessitate storage of cement and concrete materials, temporary oils, and fuels on site. Small localised accidental releases of contaminating substances including hydrocarbons have the potential to occur from construction traffic and vehicles operating on site.

Collection of perched groundwater

During the excavation of the proposed basement and other excavation works dewatering (removing of perched groundwater) is necessary to create a dry working environment and prevent water from seeping into the excavation and flooding the construction site. This dewatering activity would occur through the initial excavation phases and could result in the localised lowering of the local shallow (overburden) groundwater table which will not be part of the regional bedrock aquifer. There may also be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavation is kept relatively dry. Based on the depth to bedrock there is no potential for impact on the aquifer water table.

The dewatering will occur via suitably installed dewatering wells/sumps containing pumps to abstract groundwater and surface water (rainfall landing on the site).

Disposal of collected water (rainfall run-off and perched groundwater)

Minerex Environmental was appointed by the applicant to undertake a review of the feasibility of discharge to ground, surface water, and to the combined foul sewer and to determine the likely discharge volumes and quality of water discharged from the site during construction. Minerex Environmental completed a data analysis, water balance calculations, technical interpretation and analysis of the following information and data provided; desk based geological data interpretation, reviewing of available site investigations(GII, 2022), engineering drawings (OCSC, 2022), planning documents, consideration of construction design and interface with hydrogeological setting, analysis of localised rainfall, consideration of aquifer properties (groundwater quality, flow directions, specific yields etc.), drainage network constraints, commerciality, efficiency and efficacy of treatment types, typical licence conditions, drawn upon its experience in obtaining discharge licences from various county council and considered environmental best practice and industry guidance (e.g. CIRIA).

Minerex Environmental have determined that the discharge volumes are expected to range from 5-15 l/s with highest flows expected at commencement of dewatering and during heavy rainfall events. Groundwater quality (perched water) is expected to contain localised minor concentrations of petroleum hydrocarbons associated with made ground deposits typical of that in urban areas. Other parameters are not expected to be elevated above groundwater reference concentrations (European GW Regulations[4] or EPA IGV's[5]).

Minerex Environmental determined that recharge to groundwater is not considered a viable option for this site due to clay rich geology encountered and its likely associated low permeability. Infiltration rates calculated based on results of soakaway tests during site investigation and the construction design associated with basement, drainage and attenuation tank excavations within this development indicate that groundwater recharge is lower than expected abstraction volumes associated with site dewatering such that a shallow (<5mbGL) percolation area would not be viable. Drilling at depth into limestone bedrock (depth to rock varies across the site, 15.5 – 22.5 mbGL) in any location on the site or drilling into granular deposits between cohesive localised clay deposits (of approximately 1 m thickness in localised areas) is not considered a viable economic option due to relatively low volumes of discharge expected and cost associated with higher level of treatment and disposal to storm sewer vs. cost of drilling and well installation and same level of treatment required.

Therefore, depending on the quality of the construction water the discharge of treated water will occur to either; to surface water (via the storm water network to the Tolka River); or to Ringsend WWTP (via the combined foul wastewater network). The discharge to surface water sewer is subject to agreement with Dublin City Council (DCC); and the discharge to the combined foul sewer are subject to agreement with Irish Water (IW). In case of any exceedances of discharge permit conditions, water will be retreated on site, or disposed of to a licenced facility. The treatment and monitoring of this water prior to disposal will occur within the construction site (See Section 6.6.1 for further details).

6.4.2 Operational Phase

The proposed development characteristics which relate to the water and hydrological environment during operation of the proposed development are summarised below:

There will be an increase in hardstand area of 2.29 Ha and a resultant increase in run-off for storm water due to the proposed development at a local scale.

It is proposed to separate the surface water and wastewater drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and wastewater sewer networks respectively.

[4] EC Environmental Objectives (Groundwater) Regulations, S.I. no. 9 of 2010 and Amendments S.I. no. 366 of 2016
[5] Towards Setting Guideline Values For The Protection Of Groundwater In Ireland – Interim Report http://www.epa.ie/pubs/advice/water/ground/ towardssettingguidelinevaluesfortheprotectionofgroundwaterinireland.htm

The proposed surface water design prepared by OCSC (2023) consists of:

- The proposed development is to be served by a sustainable drainage system that is to be integrated with the developments landscaping features and is typically to comprise green roofs, blue podium, intensive landscaping, pervious paving and filter drains, rain gardens, infiltration basins, trapped road gullies, flow control devices, attenuation storages.
- The overall development is divided into a number of surface water subcatchments as a result of the natural topography, site layout, and other site constraints. All surface water runoff is to be attenuated and treated within the new development site boundary, before ultimately discharging to the existing public surface water network on Richmond Road.
- Sustainable Drainage Systems are to be provided, wherever practicable, and these are discussed in more detail in the Engineering Services Report prepared by OCSC (2023), with discharge rates from site being restricted to the greenfield equivalent runoff rate for design rainfall events up to, and including, the 1% AEP, in accordance with the DCC County Development Plan and the GDSDS.
- Surface water runoff will discharge at multiple locations to the existing public surface water network on Richmond Road, that ultimately discharges to the Tolka River. The discharge rates at both outfall locations are to be restricted to a maximum flow rate of 3.0 l/s/ha, which is equal to the greenfield runoff equivalent.

The proposed foul wastewater design prepared by OCSC (2023) consists of:

- The overall development is to be separated into 2nr. individual gravity wastewater catchments and is to be drained by a gravity wastewater network, based on the natural topography of the development site. It is proposed to provide two individual connections to the existing 900mm public wastewater sewer on Richmond Road (one for the hospital and one for the residential part of the development). All proposed wastewater sewer design is to be carried out in accordance with Irish Water's Code of Practice for Wastewater Infrastructure and submitted as part of the PCE application process.
- The wastewater from the Hospital element has been estimated by OCSC to be an Average daily discharge of 0.57 l/s, and a Peak daily discharge of 2.57 l/s
- The wastewater from the Residential element element has been estimated by OCSC to be an Average daily discharge of 5.67 l/s, and a Peak daily discharge of 17.03 l/s.
- A Pre-Connection Enquiry (PCE) (IW Ref Nr. CDS22004338) was prepared by OCSC Consulting Engineers and submitted to Irish Water on the basis of the anticipated foul water flows for the proposed development site. A Confirmation of Feasibility was issued by Irish Water on the 21st July 2022 stating that the connection is Feasible Subject to upgrades, further consultation was undertaken with IW by the design team. Irish Water's review concluded on 31st of January 2023 that the connection is Feasible Subject to upgrades. The connection of the Hospital can proceed prior to any works as it will replace the existing Hospital and hence does not increase the overall load on the downstream network. In order to accommodate the proposed connection (excluding the Hospital) at the Premises, Storm Sewer Separation works are required to reduce the load on the downstream combined network.
- All foul wastewater will be treated off site and Ringsend Waste Water Treatment Plant.

The proposed potable water design prepared by OCSC (2023) consists of:

- It is proposed to serve the proposed development by providing a new 200mm high density polyethylene (HDPE) connection to the existing 12” CI as noted in the Irish Water Confirmation of Feasibility
- The potable water demand from the Hospital element has been estimated by OCSC to be an Average daily demand- 0.65 l/s, and a Peak daily demand – 3.25 l/s.
- The average and peak daily demands for potable water during operation of the residential units are estimated to be 6.44 l/s and 32.22 l/s respectively.
- A Pre-Connection Enquiry (PCE) (IW Ref Nr. CDS22004338) was prepared OCSC Consulting Engineers and submitted to Irish Water on the basis of the anticipated potable water demand for the proposed development site. A Confirmation of Feasibility was issued by Irish Water on the 21st July 2022 stating that the connection is Feasible Subject to upgrades, further consultation was undertaken with IW by the design team. Irish Water’s review concluded on 31st of January 2023 that the connection is Feasible Subject to upgrades. In order to accommodate the proposed connection upgrade works are required to increase the capacity of the Irish Water network as described further in Section 2.7.1 of Chapter 2.

6.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

6.5.1 Construction Phase

6.5.1.1 Potential Impacts on Surface Water Quality

There is potential for water (rainfall and/or groundwater) to become contaminated with pollutants associated with construction activity. This contaminated water which arises from construction sites can pose a significant, and short-term risk to the Tolka River and the downstream Tolka Estuary Protected area, Dublin Bay and the Irish Sea in the absence of mitigation.

During construction of the development, the potential of contamination is associated with the following sources:

- Suspended solids (muddy water with increased turbidity (measure of the degree to which the water loses its transparency due to the presence of suspended particulates) – arising from dewatering, excavation and ground disturbance;
- Cement/concrete (increase turbidity and pH) – arising from construction materials.
- Hydrocarbons and other construction chemicals (ecotoxic) – accidental spillages from construction plant or onsite storage.
- Wastewater (nutrient and microbial rich) – arising from accidental discharge from on-site toilets and washrooms.

In the absence of mitigation, rainfall run-off and dewatering water during the construction phase may contain increased silt levels or otherwise become polluted from construction activities. Suspended solids in runoff water may result in an increase in suspended sediment load, resulting in increased turbidity, which may in turn impact on local infiltration capacity, or downstream infrastructure or watercourses. Concreting operations pose a potential risk of discharging concrete materials into exposed surfaces and percolate to the underlying groundwater. Concrete, especially the cement component, has a high alkalinity level. There is also the potential risk of unintentional discharge of stored materials like fuels, oils, and paints, which could have negative impacts on surface waters on-site and downstream from the site. It is necessary for the measures (set out in Section 6.6.1) to be implemented to reduce and prevent accidental discharges from occurring during construction, including the implementation of effective containment and monitoring procedures.

Accidental discharges can also occur from welfare facilities during construction activities. Wastewater can contain high levels of bacteria, chemicals and organic matter, which could contaminate nearby water sources if discharged incorrectly. The establishment and use of welfare facilities and connection to the existing combined foul sewer, ensures that there are no potential significant impacts; therefore, no additional mitigation is required.

In addition to the unintentional spillages of the primary sources of contaminants mentioned above, there is also a risk that rainfall run-off and dewatering water from excavation activities becoming contaminated by these sources. If not appropriately mitigated through containment, management, and monitoring, this could result in the mobilisation of these contaminants, leading to more widespread impacts on the surrounding environment. It is the intent to take necessary measures (set out in Section 6.6.1) to prevent such accidental discharges from occurring during construction, including the implementation of effective containment and monitoring procedures.

It can be expected minor ingress of rainfall in the excavations will also occur during construction phase. The Basement Impact Assessment undertaken by OCSC (2022) demonstrates that the construction of the proposed basement development will not adversely / unduly impact on the underlying groundwater conditions, groundwater or surface water flow, existing patterns of surface water drainage (including infiltration into groundwater), and that groundwater quality, quantity and classification will be protected. There is no potential significant impact on underlying groundwater conditions, groundwater or surface water flow; therefore, no mitigations are required.

Depending on the stage of construction, the disposal of water (required for basement excavation and general site water management) will occur to; to surface water (via the storm water network to the Tolka River); or to Ringsend WWTP (via the combined foul wastewater network). The discharge to surface water sewer is subject to agreement with Dublin City Council (DCC); and the discharge to the combined foul sewer are subject to agreement with Irish Water (IW).

The quality of discharged water to the foul and storm network is expected to be compliant with respective licence conditions following treatment and management. A staged treatment system (treatment-train) will be in place during construction works that will ensure the quality of the discharge water to foul sewer and storm sewer is maintained (Set out in Section 6.5.1). In case of any exceedances of the discharge permit parameters, water will be retreated on site, or disposed of to a licenced facility.

Wastewater during construction discharged to foul sewer, in accordance with permit required from Irish Water, would discharge to Ringsend Wastewater Treatment Plant (WWTP) (D0034-01). Due to the nature of the potential loading and volume of contamination during construction (c. 500L hydrocarbon spill from a construction vehicle leak), or temporary increase in pH (from construction cement works), there is no potential for this to be above detection limit following the significant dilution that would occur within the foul wastewater network which is fed from the overall North Dublin sewer catchment. Even without treatment at the Ringsend WWTP, the peak effluent discharge during construction would not have a measurable impact on the overall water quality within Dublin Bay or the Natura 2000 sites located therein, and therefore would not have an impact on the current Water Body Status (as defined within the Water Framework Directive).

Welfare facilities for domestic wastewater will be provided for the contractors on site during the construction works. These facilities will be connected to the proposed foul drainage system on site or portable sanitary facilities will be provided with waste collected and disposed of appropriately.

The potential impacts on surface water quality may also have a potential impact on areas of conservation located downstream, specifically the South Dublin Bay SAC, North Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA. The potential impacts on Natura 2000 sites are further explained in Chapter 7 (Biodiversity) and in the separate Appropriate Assessment (AA) Screening and Natura Impact Statement submitted with the application.

In the absence of mitigation measures the potential impacts during the construction phase on surface water quality are ***negative***, ***significant*** and ***short term***.

6.5.1.2 Potential Impacts on Surface Water Flow and Quantity

Land clearing, earthworks and excavations will be required for construction phase operations to facilitate site clearance, construction of new buildings, foundations and installation of services. This will include site levelling, construction, and building foundation excavation, this will necessitate the removal of vegetation cover and the excavation of soil and subsoils.

The gradual introduction of impermeable surfaces and the compaction of soils across the construction site as a result of the land clearing and earthworks will reduce the infiltration capacity and increase the rate and volume of direct surface run-off to be discharged to the public stormwater sewer and the projected recharge system. The potential impact of this is a possible increase in surface water run-off and sediment loading, which could potentially impact local drainage if not adequately mitigated.

This increase in the rate and volume of surface run-off can result in increased sediment loading, scouring impacts on the local sewer network, the projected recharge system and the Tolka River watercourse, and downstream impacts.

This contaminated water which arises from construction sites can pose a significant, and short-term risk to the Tolka River and downstream Estuary, Dublin Bay and Irish Sea.

There are no surface water abstractions proposed, therefore no potential impacts on the quantity of surface water.

There are no proposed diversions of any drainage ditches or waterbodies as part of the proposed development.

These potential impacts on surface water flow and quantity may also have a potential impact on areas of conservation located downstream, specifically the South Dublin Bay SAC, North Dublin Bay pNHA / SAC, South Dublin Bay and River Tolka Estuary SPA, and North Bull Island SPA. The potential impacts on Natura 2000 sites are further explained in Chapter 7 (Biodiversity) and in the separate AA Screening and Natura Impact Statement submitted with the application.

In the absence of mitigation measures the potential impacts during the construction phase on surface water flow and quantity are ***negative***, ***significant*** and ***short term***.

6.5.1.3 Potential Impacts on Human Health and Populations

A reduction in water quality via unmitigated pollutants entering the Tolka River (as set out in Section 6.5.1.2) has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, it is noted that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the Tolka Estuary.

Therefore, on this basis in the absence of mitigation measures the potential impacts during the construction phase on human health and populations due to changes to the hydrological environment are ***negative***, ***not significant*** and ***short term***.

6.5.1.4 Potential Impacts on Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Report that is included with the application documentation (Appendix 6.2 of the EIAR).

The WFD assessment indicates that, based on the current understanding of the proposed development, there is no potential for adverse or minor temporary/ long-term or localised effects on the Tolka Estuary surface water body. Therefore, it has been assessed that the proposed development will not cause any significant deterioration or change in water body status or prevent attainment, or potential to achieve, future good status or to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

No further assessment of WFD is recommended given that no significant deterioration or change in water body status is expected based on the current understanding of the proposed development during construction.

There is a potential of accidental discharges during the construction phase (as set out in Section 6.5.1.2), however these are temporary short-lived events that will not impact on the surface water status of the Tolka River long-term and as such will not impact on trends in water quality and overall WFD status assessment.

6.5.2 Operational Phase

6.5.2.1 Potential Impacts on Surface Water Quality

Surface Water Drainage

Surface water runoff from roads, car parking, and hardstanding areas, can potentially contain elevated levels of contaminants such as hydrocarbons. These pollutants such as hydrocarbons that are a known carcinogen (cause cancer) in many animals and suspected to be carcinogenic to humans and changes in water pH in runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc).

This surface water runoff during the operational phase will more likely impact stormwater drainage, rather than directly impact surface water bodies, due to the hardstand and drainage infrastructure proposed. Surface water drainage strategy includes the proposed development to be served by a sustainable drainage system that is to be integrated with the developments landscaping features and is typically to comprise green roofs, blue podium, intensive landscaping, pervious paving and filter drains, rain gardens, infiltration basins, trapped road gullies, flow control devices, attenuation storages. All surface water runoff is to be attenuated and treated within the new development site boundary, before ultimately discharging to the existing public surface water sewer network on Richmond Road, which subsequently outfalls / discharges to the Tolka River. There is therefore an indirect hydrological connection, via the proposed stormwater network, to the Tolka River during the operational phase. Refer to the Engineering Services Report, prepared by OCSC included with this Application for the location of the details of the proposed stormwater network.

These potential impacts on surface water quality may also have a potential impact on areas of conservation located downstream, specifically the South Dublin Bay SAC, North Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA. The potential impacts on Natura 2000 sites are further explained in Chapter 7 (Biodiversity) and in the separate AA Screening and Natura Impact Statement submitted with the application.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water quality are ***negative***, ***not significant,*** and ***long-term***.

Foul Wastewater Drainage

As described it is proposed to provide two individual connections to the existing 900mm public wastewater sewer on Richmond Road (one for the hospital and one for the residential part of the development). There is no onsite waste water treatment, all waste water will be collected on site and treated off site at Ringsend Wastewater Treatment Plant (WWTP) (D0034-01).

In respect of the indirect hydrological link to the European sites associated with Dublin Bay and Tolka Estuary, via foul water – foul waste arising at the site that will discharge to Ringsend Wastewater Treatment Plant (D0034-01).

There is no direct connection from the proposed development to the nearby Tolka River, however, there is an indirect hydrological connection to the European sites associated with Dublin Bay, via foul wastewater arising at the site that will discharge to Ringsend WWTP (D0034-01).

With regard to the Ringsend WWTP, as outlined in Section 6.3.4, upgrade works commenced in 2018 and are expected to be fully completed by 2025. The upgrade works will result in treatment of sewage to a higher quality than current, thereby ensuring effluent discharge to Dublin Bay will comply with the Urban Wastewater Treatment Directive for a population equivalent of 2.1 million by Q4 2023. The project is being progressed in stages to ensure that the plant continues to treat wastewater to the current treatment levels throughout the delivery of the upgrade.

On the basis of a grant of planning the estimated completion of Phase 1 is Q2 2026; and the estimated completion of Phase 2 is Q1 2028. However, these are likely to be best case scenarios it is likely that the Ringsend WWTP will be upgraded by the time the connection to the foul sewer is made.

However, it is worth noting that even without treatment at the Ringsend WWTP, the peak effluent discharge, estimated for the proposed development as 69.2 l/s (maximum capacity of the network according to OCSC, which would equate to 0.62%

of the licensed discharge at Ringsend WWTP [peak hydraulic capacity]), would not have a measurable impact on the overall water quality within Dublin Bay or the Natura 2000 sites located therein, and therefore would not have an impact on the current Water Body Status (as defined within the Water Framework Directive). In addition, as the Proposed Development will not contribute any additional stormwater drainage to the WWTP, the development will therefore have no measurable impact on the water quality in any overflow situation from Ringsend to South Dublin Bay.

These potential impacts on surface water quality may also have a potential impact on areas of conservation located downstream, specifically the South Dublin Bay SAC, North Dublin Bay SAC, South Dublin Bay and River Tolka Estuary SPA, North Bull Island SPA. The potential impacts on Natura 2000 sites are further explained in Chapter 7 (Biodiversity) and in the separate AA Screening and Natura Impact Statement submitted with the application.

On the basis of the design characteristics of the proposed development, and feasibility of the connection with Irish Water to Ringsend WWTP, there are ***neutral, imperceptible, long-term*** in respect of wastewater loading.

6.5.2.2 Potential Impacts on Surface Water Flow and Quantity

The proposed increase in hardstanding area 2.29 Ha has the potential to resulting in increase in run-off from the site if not adequately mitigated. An increase in surface water run off can have an adverse effect on the hydrological regime of downstream environments via flooding and inundation to downstream properties.

The surface water drainage from the proposed development site has been designed by OCSC (2023) to ensure that there is no increase in flow rates and volumes, from the development site, being discharged to the receiving infrastructure and waterbodies; thus causing no adverse impact on adjoining and other downstream properties.

The discharge rates at both outfall locations are to be restricted to a maximum flow rate of 3.0 l/s/ha, which is equal to the greenfield runoff equivalent.

With reference to OCSC Site Specific Flood Risk Assessment the proposed buildings for this development are located within Flood Zone C. A portion of the site (localized zones) which is at risk of pluvial flooding has been identified onsite. The SFRA maps indicate that the entire site is located within a flood Zone C.

There are no surface water abstractions proposed, therefore no potential impacts on the quantity of surface water.

In the absence of mitigation measures or the potential impacts during the operational phase on surface water flow and quantity are ***negative***, ***significant,*** and ***long-term***.

6.5.2.3 Potential Impacts on Human Health and Populations

A reduction in water quality via unmitigated pollutants entering the Tolka River (as set out in Section 6.5.2.1) has the potential to lead to negative impacts on human health and populations. Hydrocarbons and petroleum products for example have the greatest risk for human health when they are in drinking water. However, it is noted that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the TolkaRiver. However, as yet unknown recreational, bathing or surface water abstractions may exist.

The potential for unmitigated off-site flooding as a result of the increased hardstanding areas, and due to the flood risk at the site (as set out in section 6.5.2.2) the proposed development has the potential to impact on human health, populations, and material assets, located downstream of the site.

In the absence of mitigation measures the potential impacts during the construction phase on human health and populations due to changes to the hydrological environment are ***negative***, ***not significant*** and ***long term***.

6.5.2.4 Potential Impacts on Water Framework Directive Status

There are limited indirect discharges of water during the operational phase to open waterbody/ watercourse from the proposed development. These discharges will be adequately treated via SuDS measures, hydrobrake (or equivalent) and oil/water interceptor to ensure there is no long-term negative impact to the WFD water quality status of the receiving watercourse. The SuDS and proposed measures have been designed in detail with the ultimate aim of protecting the hydrological (& hydrogeological) environment. The SuDS and project design measures will be maintained correctly as per specifications to ensure long-term/ on-going integrity of same.

In the scenario of an accidental release (unmitigated leaks mentioned above in Section 6.5.2.1) there is potential for a temporary impact only which would not be of a sufficient magnitude to effect a change in the current water body status.

There is no potential impact on water framework directive status, therefore no specific mitigation measures are required.

6.6 REMEDIAL AND MITIGATION MEASURES

The design has taken account of the potential impacts of the development on the hydrological environment local to the area where construction is taking place and containment of contaminant sources during operation. Measures have been incorporated in the design to mitigate the potential effects on the surrounding water bodies.

6.6.1 Construction Phase

OCSC (2023) with input from AWN Consulting have prepared a Construction Environmental Management Plan (CEMP) in respect of the proposed development. It contains best practice measures and protocols to be implemented during the construction phase of the proposed development to avoid / minimise environmental impacts. This outlines and explains the construction techniques and methodologies which will be implemented during construction of the proposed development.

Construction works and the proposed mitigation measures are informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects including but not limited to:

- Construction Industry Research and Information Association (CIRIA), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors (C532);
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016);

- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (4th edition), (C741); and
- Enterprise Ireland Best Practice Guide, Oil Storage Guidelines (BPGCS005).

The CEMP will be implemented and adhered to by the construction Contractor and will be overseen and updated as required if site conditions change by the Project Manager, Environmental Manager and Ecological Clerk of Works where relevant. All personnel working on the Site will be trained in the implementation of the procedures.

The CEMP sets out the proposed procedures and operations to be utilised on the proposed construction site to protect water quality. The mitigation and control measures outlined in the CEMP will be employed on site during the construction phase. All mitigation measures outlined here, and within the CEMP will be implemented during the construction phase, as well as any additional measures required pursuant to planning conditions which may be imposed.

Suspended solids

As there is potential for run-off to indirectly discharge / recharge to a watercourse / groundwater (Tolka River/ Dublin GWB) underlying the site and in order to manage the potential impact associated with sediment and sediment runoff the following mitigation measures will be implemented during the construction phase.

- During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts.
- Run-off water containing silt will be contained on site via settlement tanks and treated to ensure adequate silt removal.
- Silt reduction measures on site will include a combination of silt fencing and settlement measures (silt traps, silt sacks and settlement tanks/ponds).
- Any hard surface site roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads shall be restricted to essential site traffic only.
- A power washing facility or wheel cleaning facility will be installed near to the site compound for use by vehicles exiting the site when appropriate,
- A stabilised entranceway consisting of an aggregate on a filter cloth base that is located at any entry or exit point of the construction site.
- Aggregate will be established at the site entrance points from the construction site boundary extending for at least 10 m.
- The temporary storage of soil will be carefully managed. Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection.
- Construction materials, including aggregates etc. will be stored a minimum of 20-meter buffer distance from any surface water bodies and surface water drainage points.
- Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent contamination.
- Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.
- Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise the potential for water ingress into excavations.
- Weather conditions will be considered when planning construction activities to minimise the risk of run-off from the site.

- Any surface water run-off collecting in excavations will likely contain a high sediment load. This will not be allowed to directly discharge directly to the stormwater sewer, Tolka River.

In addition to the measures above, all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants 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 and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

Surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the proposed site is complete. A temporary drainage system shall be established prior to the commencement of the initial infrastructure construction works to collect and discharge any treated construction water during construction.

Cement/concrete works

Where feasible all ready-mixed concrete will be brought to site by truck. 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 storm water to the underlying subsoil.

No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within 10 meters of an existing surface water drainage point. Washouts will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker or discharged to foul sewer submit to agreement with Irish Water / DCC.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Hydrocarbons and other construction chemicals

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages to ground of fuels and other construction chemicals and prevent any resulting to surface water and groundwater systems:

- Designation of bunded refuelling areas on the Site.
- Provision of spill kit facilities across the Site.
- Where mobile fuel bowsers are used, the following measures will be taken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use.
    - The pump or valve will be fitted with a lock and will be secured when not in use.
    - All bowsers to carry a spill kit and operatives must have spill response training.
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers to a volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.
- All drums to be quality approved and manufactured to a recognised standard.
- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area or within the construction compound (or where possible off the site) which will be away from surface water gulleys or drains minimum 20 m buffer zone). 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" (CIRIA 532, 2001) will be complied with.

The construction contractor will be required to implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

Disposal of collected water (rainfall run-off and perched water)

Rainfall at the construction site will be managed and controlled for the duration of the construction works until the permanently intercepted and attenuated surface water drainage system of the proposed site is complete. Dewatering water from excavation works within overburden deposits will be contained within the site, treated (if required) and discharged. Depending on the quality of this water the discharge of this treated water will occur to either; to surface water (via the storm water network to the Tolka River); or to Ringsend WWTP (via the combined foul wastewater network).

A staged treatment system (treatment-train) will be in place during construction works that will ensure the quality of the discharge water to foul sewer and storm sewer is maintained in accordance with discharge permit conditions. The dewatering will occur via suitably installed dewatering wells/sumps containing pumps to abstract groundwater and surface water (rainfall landing on the site) into a flocculation system and settlement and floating oil adsorption lined pond system from which compliant water will be abstracted via floating pumps that take water preferentially from near the surface. The system will contain sensors that will record live data to monitor discharge rate (Flow), cumulative volume, pH, temperature, turbidity (proxy for suspended solids), rainfall and water level which will display on a remotely monitored telemetry and integrated automation system. This system contains automatic controls to switch on and off pumps remotely based on the live data received from sensors on the site, meaning it can detect the water quality in the treatment system and divert the discharge to either the foul sewer, the storm sewer or cease pumping depending on compliance with the discharge licence conditions (i.e. if pH approaches pH 9, then flow will divert from storm to foul, if flow approaches pH 10, discharge ceases or pumping ceases from certain areas of the site only until suitable mitigation or treatment is applied. The telemetry system will also be monitored by a competent person who also checks the CCTV cameras that are installed in the system to monitor water quality. Water samples will be taken at the frequency that the discharge licence dictates and sent to an accredited laboratory for analysis. Weekly discharge licence reports will be submitted to the licensing authorities containing details of emission limit value compliance and flows. The aim of employing this technology is to assist in achieving a 100% Dry Compliant Site.

The treatment system will ensure that the discharge to foul sewer does not exceed the following parameters (or otherwise stipulated by discharge permit conditions); Temperature (Maximum 35 degrees C), pH (6-10 pH units), Suspended Solids (24hr Average 100mg/l, Maximum 200mg/l), BOD (24hr Average 100mg/l, Maximum 200mg/l), COD-Cr (24hr Average 200mg/l, Maximum 400mg/l), Total Petroleum Hydrocarbons (24hr Average 5mg/l, Maximum 5mg/l),Mineral Oils (24hr Average 10mg/l, Maximum 10mg/l). Maximum allowable daily load (kg/day) will also be stipulated for each of the emission limit values (apart from pH and temperature).

The treatment system will ensure that the discharge to storm sewer does not exceed the following parameters (or otherwise stipulated by discharge permit conditions); Temperature (Maximum 25 degrees C), pH (6-9 pH units), Suspended Solids (24hr Average 20mg/l, Maximum 30mg/l), BOD (24hr Average 5mg/l, Maximum 10mg/l), COD (24hr Average 20mg/l, Maximum 40mg/l), Phosphates (as PO4-P) (Maximum 1mg/l), Sulphates (as SO4) (Maximum 100mg/l), Ammonium as N (1mg/l), Nitrates as N (Maximum 10mg/l N), Total petroleum hydrocarbons (Maximum 1mg/l). Maximum allowable daily load (kg/day) will also be stipulated for each of the emission limit values (apart from pH and temperature).

The discharge to surface water sewer is subject to agreement with Dublin City Council (DCC); and the discharge to the combined foul sewer are subject to agreement with Irish Water (IW).

The quality of discharged water to the foul and storm network is expected to be compliant with respective licence conditions following treatment and management. In case of any exceedances of the above parameters (or otherwise stipulated by discharge permit conditions), water will be retreated on site, or disposed of to a licenced facility. The discharges to storm water and combined foul water network shall comply with the requirements established in the discharge licence to Dublin City Council (for storm water network) and/or Irish Water (for foul water network).

Wastewater Management

Foul wastewater discharge from the site will be managed and controlled for the duration of the construction works.

Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The main contractor will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Foul water from the offices and welfare facilities on the site will discharge into the existing sewer on site (the cabins may initially need to have the foul water collected by a licensed waste sewerage contractor before connection to the sewer line can be made).

The construction contractor will implement emergency response procedures, and these will be in line with industry guidance. All personnel working on the Site will be suitably trained in the implementation of the procedures.

6.6.1.1 Surface Water Flow and Quantity

During construction a site drainage and protection system will be built to reduce the flow of run-off from the site, prevent soil erosion, and protect water quality in the Tolka River. Temporary excavated channels, bunds, or ridges or a combination of the three, may be constructed to divert sediment-laden water to an appropriate sediment retention structure. These will be installed to provide permanent diversion of clean stormwater away from erosion exposed soil areas, or to provide a barrier between exposed areas and unexposed areas of the construction site. Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.

Silt fences will be installed around the perimeter of the site where construction is proposed to detain flows from runoff so that deposition of transported sediment can occur through settlement. Inspection and maintenance of the silt fences during construction phase is crucial to ensuring that they work as intended. They will remain in place throughout the entire construction phase.

It is envisaged that a number of geotextile lined settling basins and temporary mounding's and/or silt fences will be installed to ensure silts do not flow off site during the construction stage. This temporary surface water management facility will throttle runoff and allow suspended solids to be settled out and removed. All inlets to the settling basins will be 'riprapped' to prevent scour and erosion in the vicinity of the inlet.

Surface water discharge from the site will be managed and controlled for the duration of the construction works until the permanently attenuated surface water drainage system of the proposed site is complete. A temporary drainage system shall be established prior to the commencement of the initial infrastructure construction works to collect and discharge any treated construction water during construction.

6.6.1.2 Human Health and Populations

It has been established (Section 6.5.1.3) that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the Tolka River. On a precautionary basis, the mitigation measures set out in Section 6.6.1.1, and Section 6.6.1.2 will be implemented during the construction works for the protection of human health and populations.

Furthermore, as stated in Section 5.6.1.1 all excavated materials will be visually assessed by suitably qualified persons for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants 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 and appropriately disposed of by a suitably permitted/licensed waste disposal contractor.

6.6.1.3 Potential Impacts on Water Framework Directive Status

It has been established (Section 6.5.1.4) that while, there is a potential of accidental discharges during the construction phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 6.6.1.1, and Section 6.6.1.2 will be implemented during the construction works for the protection of surface water quality.

6.6.2 Operational Phase

6.6.2.1 Surface Water Quality

The design has taken account of the potential impacts of the development on surface water quality; measures have been incorporated in the design to mitigate these potential impacts.

The proposed development stormwater drainage network design includes sustainable drainage systems (SuDS) these measures by design ensure the stormwater leaving the site is to be attenuated and treated within the new development site boundary to ensure suitable quality, before discharging to the existing public surface water network on Richmond Road, which subsequently outfalls to the nearby Tolka River.

The purpose of the proposed design is to:

- Treat runoff and remove pollutants to improve quality.
- Restrict outflow and to control quantity.
- Increase amenity value.

The layout of the proposed surface water drainage network is shown on OCSC Drawing Set included with this Application. It is proposed to separate the surface water and wastewater drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and wastewater sewer networks respectively.

In respect of the indirect hydrological link to the European sites associated with Dublin Bay and Tolka Estuary, via foul water – foul waste arising at the site that will discharge to Ringsend Wastewater Treatment Plant (D0034-01). As mentioned above, Irish Water has confirmed that the connection is feasible subject to upgrades to stormwater separation works.

6.6.2.2 Surface Water Flow and Quantity

The design has taken account of the potential impacts of the development on surface water flow; measures have been incorporated in the design to mitigate these potential impacts.

There are no direct discharges to any open water courses included in the design. As set out in the OCSC Engineering Services Report (2022) flow restriction is achieved by means of a hydro-brake, or similar approved, installed at the outfall manhole of each surface water catchment within the development, with the excess storm water stored on site for the duration of the storm periods of up to 1 in 100 years. The surface water network has been designed to provide sufficient capacity to contain and convey all surface water run-off associated with the 1-in-100-year event to the attenuation basins without any overland flooding including an additional allowance of 20% in rainfall intensities due to climate change. The layout of the proposed surface water drainage network is shown on OCSC Drawing Set included with this Application.

With reference to OCSC (2022) Site Specific Flood Risk Assessment the following design mitigation are included within the project design in respect of flood risk. It has been demonstrated in the earlier sections that the site is not at risk of flooding from external sources, or as result of the proposed development. In order to minimise the risk of flooding within the development, it is recommended that all drainage infrastructure is designed and installed in accordance with the relevant standards. The proposed units are located outside the 1 in 100 and 1 in 1000-year fluvial flood extents. The Dublin Pluvial Study identified a portion of the site as being at risk of pluvial flooding (localized zones dispersed across the site). The proposed development includes a new surface water network which will mitigate he pluvial risk to the site in line with SuDS measures.

Water conservation measures will be used, to reduce overall potable water demand and consumption, including low volume flush / dual flush WC's, spray taps, draw off tap controls, leak detection measures – through the metering of supply.

6.6.2.3 Human Health and Populations

It has been established (Section 6.5.2.3) that there are no recorded Recreational Waters, Bathing Waterbodies, or Surface Water Drinking RPA, located downstream in the Tolka River. On a precautionary basis, the mitigation measures set out in Section 6.6.2.1, and Section 6.6.2.2 will be implemented during the operational phase for the protection of human health and populations, and downstream material assets.

6.6.2.4 Potential Impacts on Water Framework Directive Status

AWN Consulting have prepared a Water Framework Directive (WFD) Screening Report that is included with the application documentation (Appendix 6.2 of the EIAR). The WFD Screening Report outlines that the project-specific OCEMP includes robust mitigation measures to protect the underlying hydrogeological environment. In terms of the operational phase, the risk to the waterbodies is considered to be low due to the use of oil interceptors on the stormwater system prior to discharge from the site.

It has been established (Section 6.5.2.4) that while, there is a potential of accidental discharges during the operational phase this will not impact on trends in water quality and overall WFD status assessment. On a precautionary basis, the mitigation measures set out in Section 6.6.3.1, and Section 6.6.3.2 will be implemented during the construction works for the management of surface water flows the indirect discharges. The surface water discharges from the site are indirect, and will be adequately attenuated via SuDS measures, hydro-brake (or equivalent) and oil/water separator ensure there is no long-term negative impact to the WFD water quality status of the Tolka River.

6.7 MONITORING

6.7.1 Construction Phase

During construction phase the following monitoring measures will be considered:

- Weekly checks will be carried out to ensure surface water drains are not blocked by silt, or other items, and that all storage is located at least 20 m from surface water receptors.
- Regular inspection of surface water run-off and sediments controls (e.g., silt traps). Inspection and maintenance of the silt fences during construction phase is crucial to ensuring that they work as intended. They will remain in place throughout the entire.

- Runoff diversion channels/bunds need regular maintenance to keep functioning throughout their life.
- Soil sampling to confirm disposal options for excavated soils in order to avoid contaminated run-off; and
- Regular inspection of construction / mitigation measures (e.g., concrete pouring, refuelling, etc).
- The treatment system will contain automatic controls to switch on and off pumps remotely based on the live data received from sensors on the site, meaning it can detect the water quality in the treatment system and divert the discharge to either the foul sewer, the storm sewer or cease pumping depending on compliance with the discharge licence conditions (i.e. if pH approaches pH 9, then flow will divert from storm to foul, if flow approaches pH 10, discharge ceases or pumping ceases from certain areas of the site only until suitable mitigation or treatment is applied.
- The telemetry system will also be monitored by a competent person who also checks the CCTV cameras that are installed in the system to monitor water quality.
- Water samples will be taken at the frequency that the discharge licence dictates and sent to an accredited laboratory for analysis. Weekly discharge licence reports will be submitted to the licensing authorities containing details of emission limit value compliance and flows. The aim of employing this technology is to assist in achieving a 100% Dry Compliant Site.

6.7.2 Operational Phase

No future surface water monitoring is proposed for the proposed development due to the low hazard potential at the Site.

Oil separators will be maintained and cleaned out in accordance with the manufacturer's instructions.

Maintenance of the surface water drainage system and foul sewers as per normal urban developments is recommended to minimise any accidental discharges to surface water.

6.8 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

6.8.1 Construction Phase

6.8.1.1 Surface Water Quality

The implementation of the mitigation and monitoring measures detailed in Section 6.6.1 and 6.7.1, will ensure that the potential impacts on surface water quality during the construction phase are adequately mitigated. The residual effect on surface water quality during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

6.8.1.2 Surface Water Flow and Quantity

The implementation of the mitigation and monitoring measures detailed in Section 6.6.1 and 6.7.1, will ensure that the potential impacts on surface water flow and quantity during the construction phase are adequately mitigated. The residual effect on surface water flow and quantity during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

6.8.1.3 Human Health and Populations

The implementation of the mitigation and monitoring measures detailed in Section 6.6.1 and 6.7.1, will ensure that the potential impacts on human health and populations (and material assets) during the construction phase are adequately mitigated. The residual effect on human health and populations during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

6.8.1.1 Water Framework Directive Status

Even in the absence of the mitigation and monitoring measures detailed in Section 6.6.1 and 6.7.1, there will be no predicted degradation of the current water body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

There are appropriately designed mitigation measures which will be implemented during the construction phase to protect the hydrological environment. There is a potential of accidental discharges during the construction phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term and as such will not impact on trends in water quality and over all status assessment.

The residual effect on human health and populations during the construction phase is considered to be ***neutral, imperceptible*** and ***short-term***.

6.8.2 Operational Phase

6.8.2.1 Surface Water Quality

The implementation of the mitigation and monitoring measures detailed in Section 6.6.2 and 6.7.2, will ensure that the potential impacts on surface water quality once the proposed development is constructed and operational are adequately mitigated. The residual effect on surface water quality during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

There will be no impact to the quality of downstream designated sites due to the lack of direct hydraulic connectivity and the mitigation measures cited. In addition, Overall, the SuDS, attenuation proposed for the project and installation of hydrocarbon interceptors / separators will improve flood management and water quality.

6.8.2.2 Surface Water Flow and Quantity

The implementation of the mitigation and monitoring measures detailed in Section 6.6.2 and 6.7.2, will ensure that the potential impacts on surface water flow and quantity once the proposed development is constructed and operational are adequately mitigated. The residual effect on surface water flow and quantity during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

There will be no impact to the quality of downstream designated sites due to the lack of direct hydraulic connectivity and the mitigation measures cited. Overall, the attenuation proposed for the project and installation of interceptors will improve flood management and water quality.

6.8.2.3 Human Health and Populations

The implementation of the mitigation and monitoring measures detailed in Section 6.6.2 and 6.7.2, will ensure that the potential impacts on human health and populations (and material assets) once the proposed development is constructed and operational are adequately mitigated. The residual effect on human health and populations during the operational phase is considered to be ***neutral, imperceptible*** and ***long-term***.

6.8.2.1 Water Framework Assessment

Even in the absence of the mitigation and monitoring measures detailed in Section 6.6.2 and 6.7.2, there will be no predicted degradation of the current water body (chemically, ecological and quantity) or any impact on its potential to meet the requirements and/or objectives in the second RBMP 2018-2021 (River Basin Management Plan) and draft third RBMP 2022-2027.

There are appropriately designed mitigation measures which will be implemented during the operational phase to protect the hydrological environment. There is a potential of accidental discharges during the operational phase, however these are temporary short-lived events that will not impact on the water status of waterbodies long-term and as such will not impact on trends in water quality and over all status assessment.

There are no untreated discharges of wastewater during the operational phase to any open waterbody / watercourse. The discharge to surface water sewer will be adequately treated via SuDS measures, hydro-brake (or equivalent) and oil/water interceptor / separator to ensure there is no long-term negative impact to the WFD water quality status of the receiving watercourse. The SuDS and proposed measures have been designed in detail with the ultimate aim of protecting the hydrological (& hydrogeological) environment. The SuDS and project design measures will be maintained correctly as per specifications to ensure long-term / on-going integrity of same.

6.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

The cumulative impact of the proposed development with any/all relevant other planned or permitted developments are discussed below. For details on the developments considered refer to Chapter 2, Section 2.8 of this EIA Report.

Existing developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

6.9.1 Construction Phase

In relation to the potential cumulative impact on hydrology during the construction phases, the construction works which would have potential cumulative impacts are as follows:

- Surface water run-off during the construction phase may contain increased silt levels or become polluted from construction activities. Run-off containing large amounts of silt can cause damage to surface water systems and receiving watercourses.

- Stockpiled material will be stored on hardstand away from surface water drains, and gullies will be protected during works to ensure there is no discharge of silt-laden water into the surrounding surface water drainage system.
- Contamination of local water sources from accidental spillage and leakage from construction traffic and construction materials is possible unless project-specific measures are put in place for each development and complied with.

The works contractors for other planned or permitted developments as set out in Chapter 2, Section 2.8 and Appendix 2.1 of this EIA Report. will be obliged to ensure that measures are in place to protect water quality in compliance with legislative standards for receiving water quality (European Communities Environmental Objectives (Surface Water) Regulations (S.I. 272 of 2009 and S.I. 77 of 2019).

A review of the permitted development set out in Chapter 2, Section 2.8 and Appendix 2.1 of this EIA Report has been undertaken and there are no proposed developments capable of combining with the proposed development and resulting in significant cumulative effects. The implementation of mitigation and monitoring measures detailed in Section 6.6.1; and 6.7.1 as well as the compliance of the above permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change in surface water during the construction phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible*** and ***short-term***.

6.9.2 Operational Phase

In relation to the potential cumulative impact on hydrology during the operational phases, the operational activities which would have potential cumulative impacts are as follows:

- Increased hard standing areas will reduce local recharge to ground and increase surface water run-off potential if not limited to the green field run-off rate from the Site.
- Increased risk of accidental discharge of hydrocarbons from car parking areas, and along roads is possible unless diverted to surface water system with oil separator.
- Additional foul discharges to be discharge to the foul sewer system.

Increase in wastewater loading and water supply requirement is an impact of all development. Each development will require approval from the Irish Water confirming available capacity in the water and wastewater infrastructure. The surface water and foul drainage infrastructure and water supply requirements for the proposed development have been designed to accommodate the proposed development. IW have confirmed connection to its water and foul network can be facilitated subject to a connection agreement.

Development will result in an increase in hard standing which will result in localised reduced recharge to ground and increase in run-off rate. Each permitted development is required by the Local Authority and IW to comply with the Local Authority and IW requirements by providing suitable attenuation on-site and ensure that there is no increase in off-site flooding as a result of the development in question.

All developments are required to ensure they do not have an impact on the receiving water environment in accordance with the relevant legislation (Water Framework

Directive and associated legislation) such that they would be required to manage run-off and fuel leakages.

The implementation of mitigation and monitoring measures detailed in Section 6.6.1; and 6.7.1 as well as the compliance of the above permitted development with their respective planning conditions, will ensure there will be minimal cumulative potential for change in surface water during the operational phase of the proposed development. The residual cumulative impact of the proposed development in combination with other planned or permitted developments can therefore be considered to be ***neutral, imperceptible*** and ***long-term***.

6.10 REFERENCES

- CIRIA (2001). Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors.
- CIRIA (2005). Environmental Good Practice on Site (C650).
- CIRIA (2007). CIRIA 697: The SUDS Manual.
- Department of Housing, Planning & Local Government (2018). River Basin Management Plan for Ireland 2018 – 2021.
- Eastern Regional Fisheries Board (2006). Fisheries Protection Guidelines: Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites.
- Enterprise Ireland (n.d.). Best Practice Guide BPGCS005: Oil Storage Guidelines.
- EPA (2023a). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.
- EPA (2023b). EPA Maps.
- GSI (2023). GSI Map Viewer.
- Institute of Geologists of Ireland (2013). Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements.
- NPWS (2023). Designations Viewer.
- NRA (2009). Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes.
- OPW (2022). Flood Maps.
- OPW (2009). The Planning System and Flood Risk Management: Guidelines for Planning Authorities.
- Teagasc (2023). Teagasc Map Viewer.
- National Roads Authority (NRA) (2009). Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes.

CHAPTER 7

BIODIVERSITY

CHAPTER 7 CONTENTS

7.0 BIODIVERSITY

7.1 INTRODUCTION

This chapter assesses the biodiversity value of the proposed development area and the potential impacts of the development on the ecology of the surrounding area and within the potential zone of influence (ZOI), prior to and after proposed mitigation.

The programme of work in relation to biodiversity aspects of the EIAR have been designed to identify and describe the existing ecology of the area and detail sites, habitats or species of conservation interest. It also assesses the significance of the likely impacts of the scheme on the biodiversity elements and designs mitigation measures to alleviate identified impacts. Mitigation measures are outlined within the Biodiversity Chapter and elsewhere within the EIAR.

A separate Natura Impact Statement, in accordance with the requirements of Article 6(3) of the EU Habitats Directive, has been produced by Altemar Ltd. to identify potential impacts of the development on Natura 2000 sites, Annex species or Annex habitats. It concludes that '*Following the implementation of the mitigation measures outlined, the construction and operation of the proposed development will not result in direct, indirect or in-combination effects which would have the potential to adversely affect the qualifying interests/special conservation interests of the European sites screened in for NIS with regard to the range, population densities or conservation status of the habitats and species for which these sites are designated (i.e. conservation objectives). All other European Sites were screened out at AA Screening Stage. The proposed project will not will adversely affect the integrity of European sites*.'

Standard construction and operational phase control measures, in addition to monitoring measures are proposed to minimise potential impacts and to improve the biodiversity potential of the proposed development site.

7.2 METHODOLOGY

This chapter has been prepared having regard to the following guidelines:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018).
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017).
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022).
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment.(European Commission, 2013).
- Guidelines for Assessment of Ecological Impacts of National Roads Schemes: Revision 2 (National Roads Authority, 2009)
- Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018).
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016)
- Bat Mitigation Guidelines for Ireland V2 (Marnell, *et al,* 2022)

- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (National Roads Authority, 2006a)
- Bird Monitoring Methods - A Manual of Techniques for Key UK Species (Gilbert et al., 1998).
- Best Practice Guidance for Habitat Survey and Mapping (Smith et al., 2011).
- Guide to Habitats in Ireland (Fossitt, 2000).

A pre-survey biodiversity data search was carried out in March 2021 and updated in March 2023. This included examining records and data from the National Parks and Wildlife Service (NPWS), National Biological Data Centre (NBDC) and the Environmental Protection Agency (EPA), in addition to aerial, 6-inch maps and satellite imagery. Habitat surveys of the site were undertaken within the appropriate seasonal timeframe for terrestrial fieldwork. Field surveys were carried out as outlined in Table 7.1. All surveys were carried out in the appropriate seasons.

Table 7.1 *Outline of Field surveys*

Field surveys	Surveyors	Survey Dates
Wintering Birds	Niall Keogh	Six survey visits to the site between 22nd January and 23rd March 2021
Wintering Birds	Hugh Delaney	14 winter bird surveys September 2021 and March 2022 9 wintering bird surveys October 2022- March 2023
Bat Survey	Bryan Deegan (Altemar)	27th April 2021, 16th September 2021, 28th September 2022 (Static Detector 16-24th September 2021)
Mammal	Bryan Deegan (Altemar)	27th April 2021, 28th September 2022
Terrestrial and avian Ecology	Bryan Deegan (Altemar)	27th April 2021, 16th September 2021 and 28th September 2022,

Desk studies were carried out to obtain relevant existing biodiversity information within the proposed development area. The assessment also extends beyond the immediate development area to include those species and habitats that are likely to be impacted upon by the proposed mixed use development and included the storm water and foul sewerage connections on site. Details of the proposed development are seen in Chapter 2 (Description of Proposed Development) of this EIA Report. The proposed layout, drainage strategy and landscape design in addition to the CEMP were reviewed to inform this assessment. Further information was also reviewed within the EIAR and in particular, Chapter 5, (Land, Soils, Geology & Hydrogeology), Chapter 6 (Hydrology), Chapter 8 (Air Quality), Chapter 10 (Noise and Vibration) and Chapter 15 (Material Assets) of the EIA Report.

7.2.1 Zone of Influence

As outlined in CIEEM (2018) 'The '*zone of influence' for a project is the area over which* ecological *features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries*.' In line with best practice guidance an initial zone of influence be set at a radius of 2km for non-linear projects (IEA, 1995).

The potential ZOI of the project in the absence of mitigation was deemed to be; within the site outline, and nearby sensitive receptors including the River Tolka and designated sites downstream of the proposed works. Given the extent of the construction works, and the proximity of the River Tolka to the subject site (100m), in the absence of mitigation there is the potential for dust and surface water runoff to enter the proximate watercourse. As a result, out of an abundance of caution, the ZOI of the proposed works site is extended to the River Tolka and downstream designated conservation sites located within Dublin Bay.

In the case of the proposed development, the potential ZOI extends beyond the site, with the potential for downstream impacts to extend beyond the proposed development area via the proposed construction works and the surface water/foul water networks during construction and operation. The application site outline is shown in Figures 7.1. and 7.2.

7.2.2 Proximity to designated conservation sites and habitats or species of conservation interest.

Based on the source-pathway-receptor model (OPR Guidance) and the precautionary principle the designated conservation sites within 15km of the proposed combined development site were examined for potential effect. Sites beyond 15km have no direct or indirect pathways or are across the marine environment where significant dilution, mixing and settlement would occur and given the scale of the proposed development, impacts on sites beyond 15km would be at negligible levels. This assessment included sites of international importance; Natura 2000 sites (Special Areas of Conservation (SAC), Special Protection Areas (SPA)) and Ramsar sites and sites of National importance ((Natural Heritage Areas (NHA), proposed Natural Heritage Areas (pNHA). Up to date GIS data (NPWS data shapefiles) were acquired and plotted against 1, 5, 10 and 15km buffers from the proposed development site. GIS data of rare and threatened species within proximity of the site was provided by NPWS. Additional information on rare and threatened species was researched through the National Biodiversity Data Centre maps.

7.2.3 Terrestrial and Avian Ecology

A pre-survey data search was carried out. This included a literature review to identify and collate relevant published information and ecological studies previously conducted and comprised of information from the following sources; the National Parks and Wildlife Service, NPWS Rare and Protected Species Database, National Biodiversity Data Centre, EPA WMS watercourses data, in addition to aerial, 6 inch, satellite imagery. Following the desktop study, walk-over assessments of the site were carried out on the 27th April 2021, 16th September 2021 & 28th September 2022. The presence of mammals is indicated principally by their signs, such as resting areas, feeding signs or droppings - though direct observations are also occasionally made. Camera traps were also placed on site proximate to areas where mammal activity was noted.

Habitat mapping was carried out according to Fossitt (2000) using AcrGIS 10.5 and displayed on Bing satellite imagery or street mapping based on the 28th September 2022 site visit. Any rare or protected species or habitats were noted. As part of the fieldwork an invasive species assessment was carried out.

7.2.4 Bat Fauna

Onsite buildings, that are to be demolished or upgraded, and trees were inspected for bats and/or their signs using a powerful torch (141 Lumens) – Petzl MYO RXP. The site survey was supplemented by a review of Bat Conservation Ireland’s (BCIreland) National Bat Records Database. A bat detector and emergent survey that covered the entire application site was carried out on the 16th September 2021 and 28th September 2022. A static detector was in place from the 16-24th September 2021. All surveys were in optimal conditions.

7.2.5 Rating of Effects

The terminology for rating impacts is derived from the EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022).

7.2.6 Difficulties Encountered

No difficulties were encountered in relation to the preparation of the Biodiversity chapter. The bat surveys were undertaken within the active bat period (April to September) and detector surveys were possible.

7.3 RECEIVING ENVIRONMENT

7.3.1 Designated Sites

As can be seen from Figures 7.3 (SAC's within 15km), 7.4 (SPA's within 15km), 7.5 (NHA and pNHA within 15km), and 7.6 (Ramsar sites within 15km), there are two Natura 2000 sites within 5km, six proposed National conservation sites within five kilometres of the proposed development site, and two Ramsar sites within 5km of the proposed development site. The distance and details of the conservation sites within 15km of the proposed development, and conservation sites beyond 15km with the potential for a hydrological connection, are seen in Table 7.2a and Table 7.2b. Given the extent of the proposed works, the proximity of the subject site to the River Tolka (100m), and the fact that the existing surface water drainage network on-site outfalls to the River Tolka, it is considered that there is a hydrological pathway to designated sites located within Dublin Bay. Figures 7.7 – 7.11 demonstrate watercourses proximate to the subject site and designated conservation sites with a hydrological pathway. In addition, foul wastewater will be directed to, and subsequently treated within Ringsend WwTP.

Table 7.3a *Natura 2000 sites within 15km / with potential hydrological connection to the subject site*

	Name	Distance (km)
SAC		
000210	South Dublin Bay SAC	3.7 km
000206	North Dublin Bay SAC	4.0 km
000199	Baldoyle Bay SAC	7.9 km
000202	Howth Head SAC	9.5 km
003000	Rockabill to Dalkey Island SAC	10.1 km
000205	Malahide Estuary SAC	10.4 km
002193	Ireland's Eye SAC	12.2 km
002122	Wicklow Mountains SAC	14.2 km
001209	Glenasmole Valley SAC	14.3 km
000208	Rogerstown Estuary SAC	14.8 km
SPA		
004024	South Dublin Bay and River Tolka Estuary SPA	1.1 km
004006	North Bull Island SPA	4.0 km
004016	Baldoyle Bay SPA	8.3 km
004025	Malahide Estuary SPA	10.4 km
004117	Ireland's Eye SPA	12 km
004113	Howth Head Coast SPA	12.5 km
004172	Dalkey Islands SPA	13.7 km
004040	Wicklow Mountains SPA	14.5 km

Table 7.3b *Designated conservation sites within 15km / with potential hydrological connection to the subject site*

	Name	Distance (km)
pNHA		
	Royal Canal	0.6 km
	North Dublin Bay	1.0 km
	Grand Canal	2.3 km
	Santry Demesne	3.2 km
	South Dublin Bay	3.8 km
	Dolphins, Dublin Docks	3.9 km
	Booterstown Marsh	6.5 km
	Liffey Valley	7.0 km
	Feltrim Hill	7.9 km
	Baldoyle Bay	7.9 km
	Sluice River Marsh	8.4 km
	Howth Head	9.2 km
	Dodder Valley	10.1 km
	Malahide Estuary	10.4 km
	Fitzsimon's Wood	10.5 km
	Dalkey Coastal Zone And Killiney Hill	11 km
	Ireland's Eye	12.2 km
	Dingle Glen	14.3 km
	Glenasmole Valley	14.3 km
	Portraine Shore	14.7 km
	Rogerstown Estuary	14.7 km
	Lugmore Glen	14.9 km
Ramsar		
	Sandymount Strand / Tolka Estuary	3.8 km
	North Bull Island	4.1 km
	Baldoyle Bay	8.3 km
	Broadmeadow Estuary	10.7 km

Figure 7.1 – Southern Portion of Proposed Development Site Outline (red)

Figure 7.2 – Northern Portion of Proposed Development Site Outline (red)

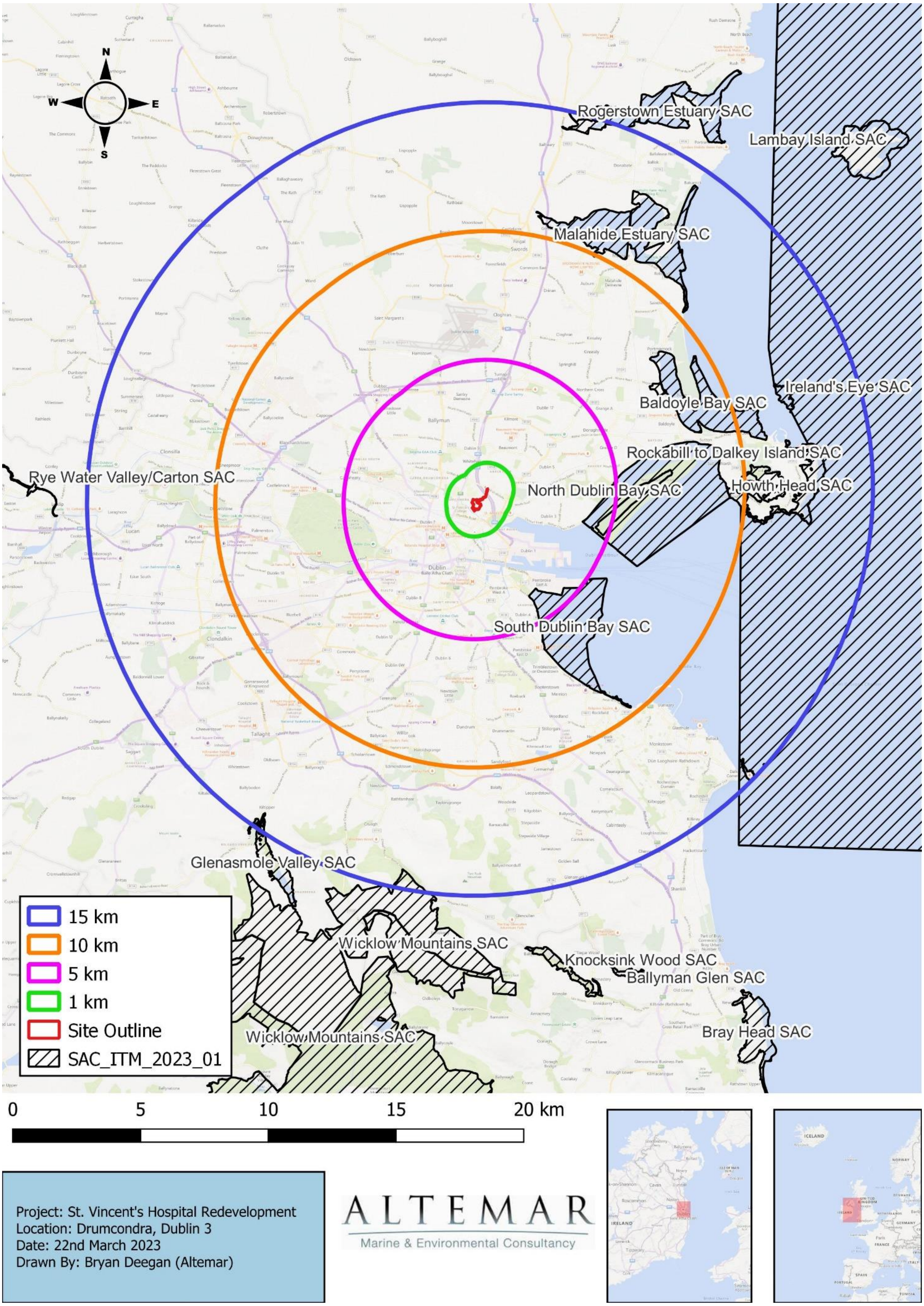


Figure 7.3 – Special Areas of Conservation within 15km of the proposed development site

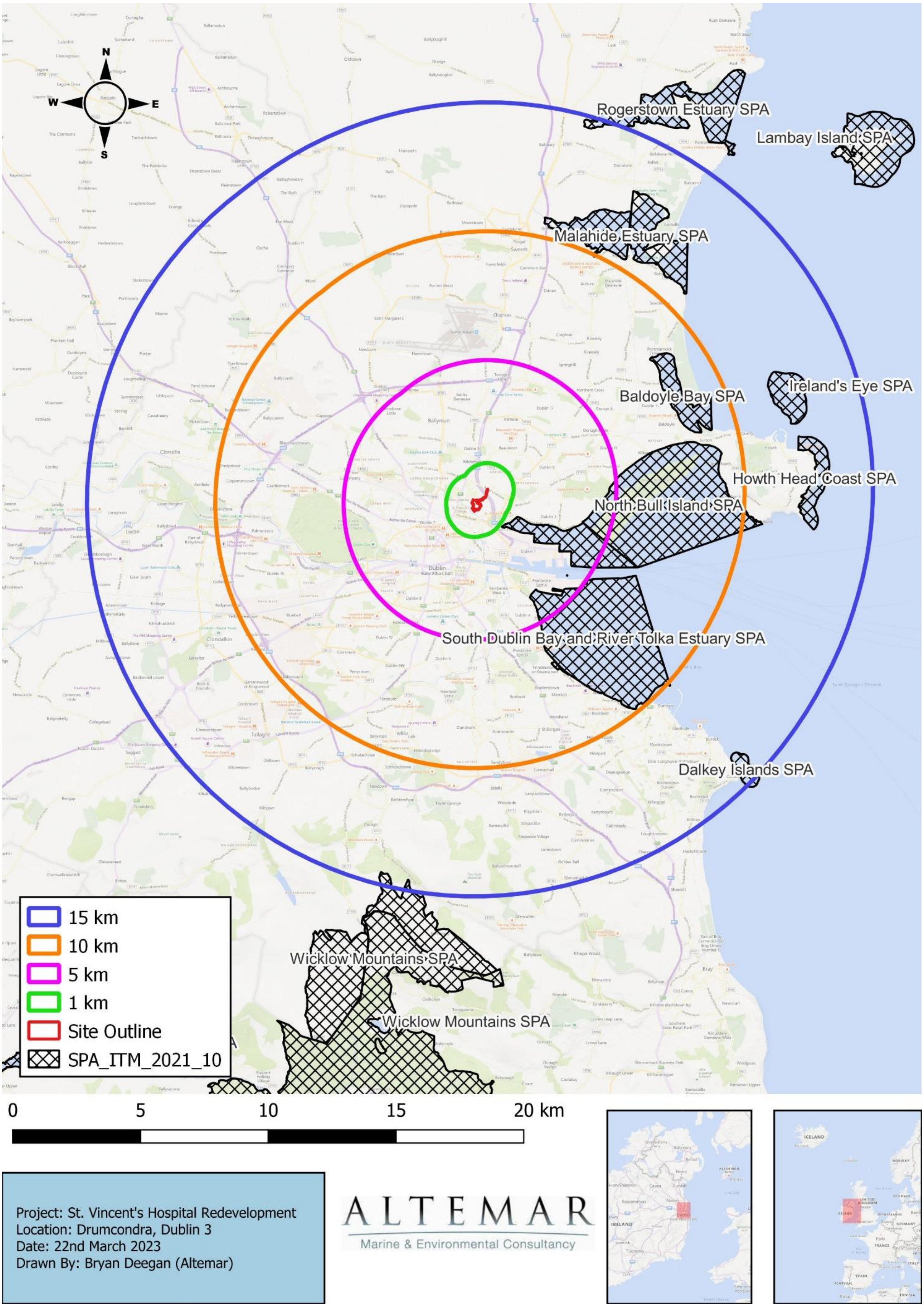


Figure 7.4 – Special Protection Areas within 15km of the proposed development site

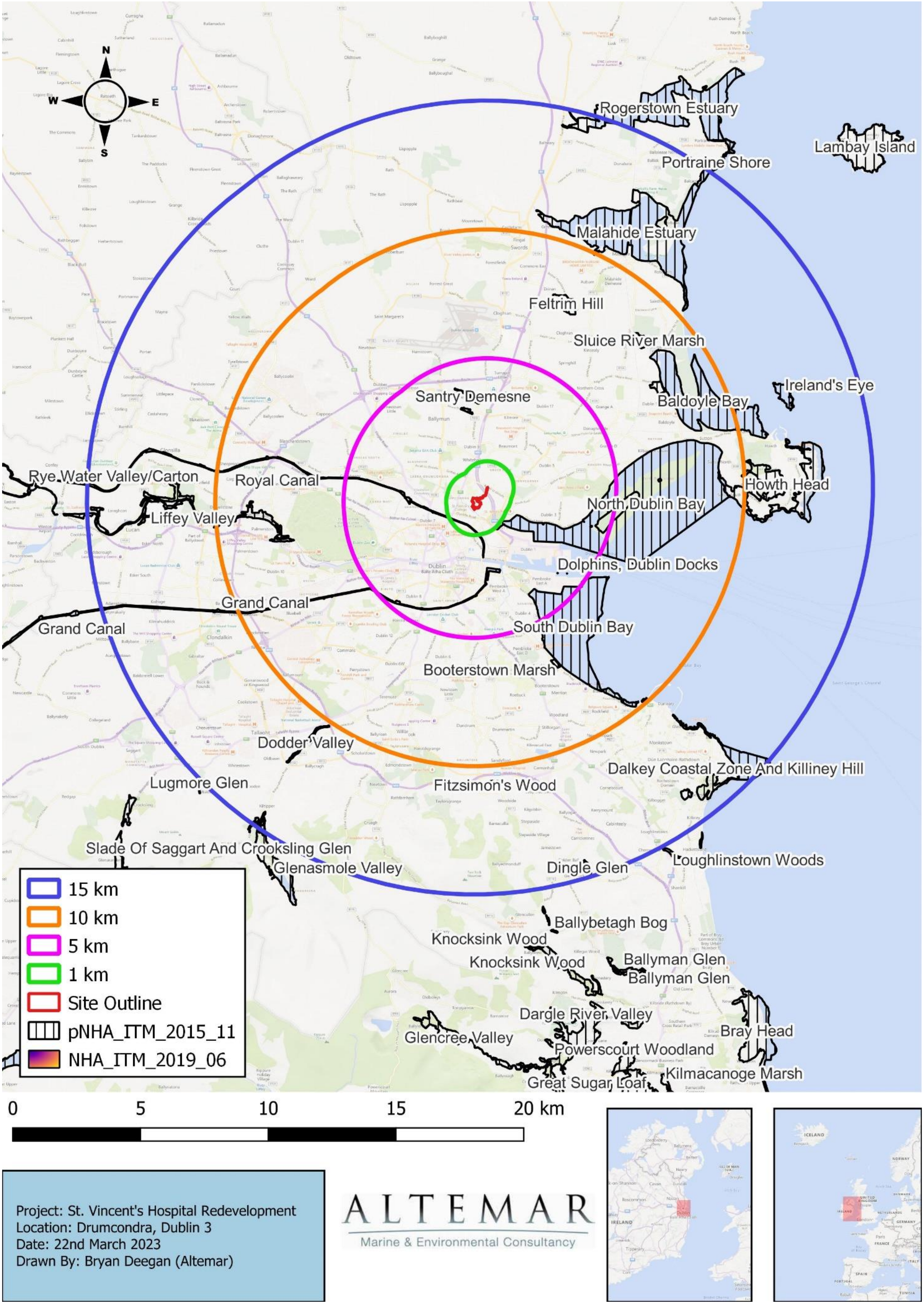


Figure 7.5 – NHAs and pNHAs within 15km of the proposed development site

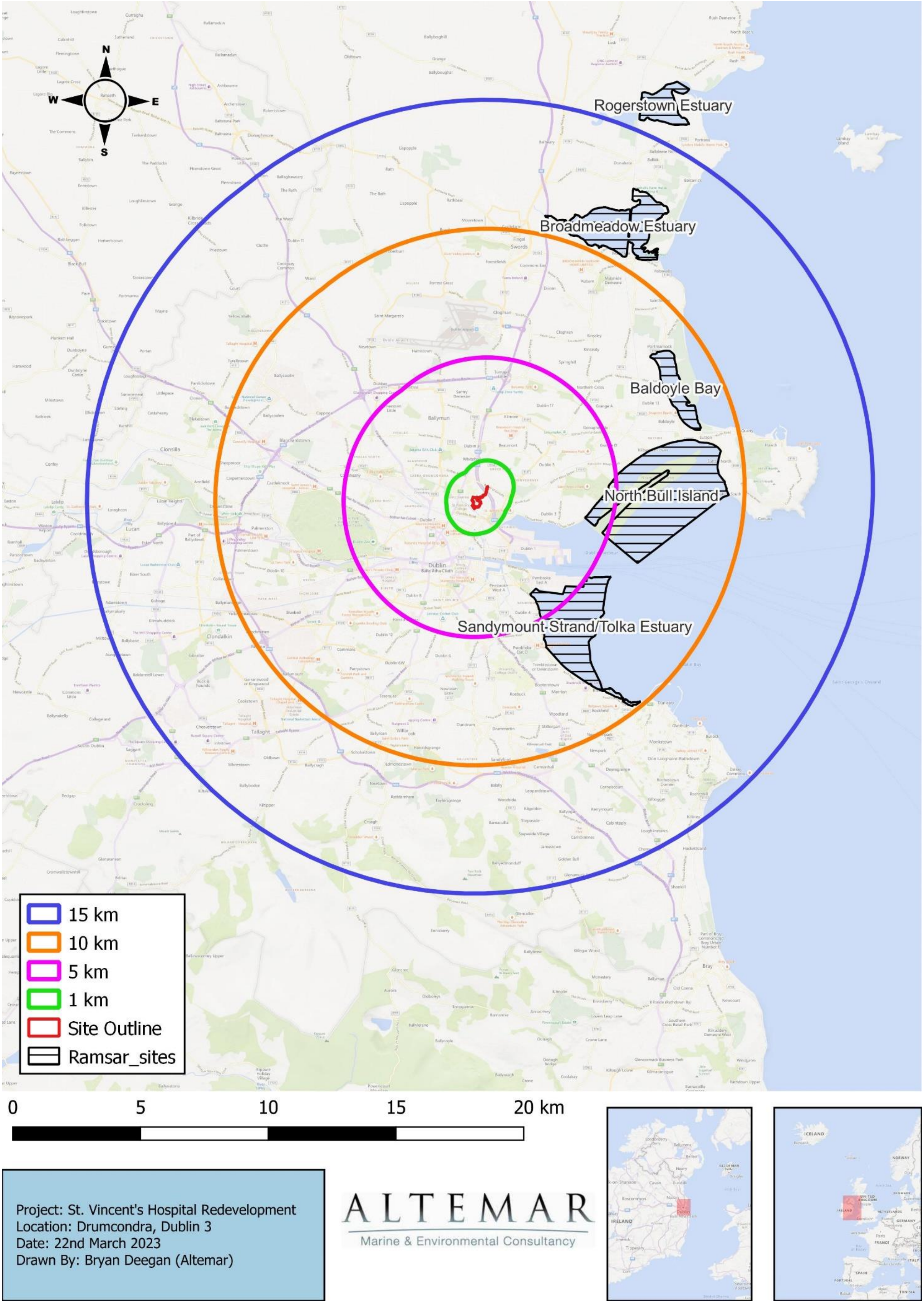


Figure 7.6 – Ramsar sites within 15km of the proposed development site

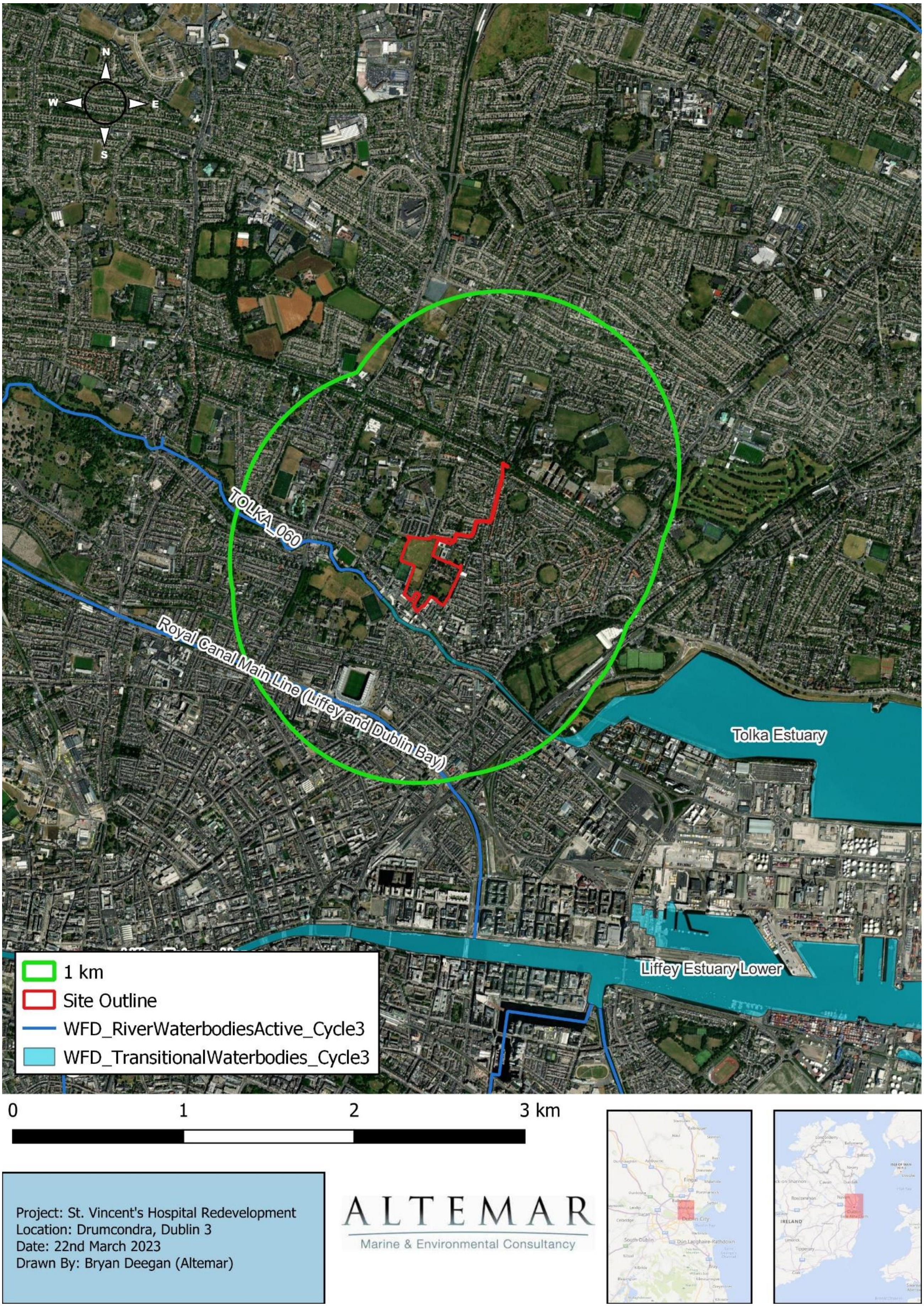


Figure 7.7 *Waterbodies proximate to the proposed development site*

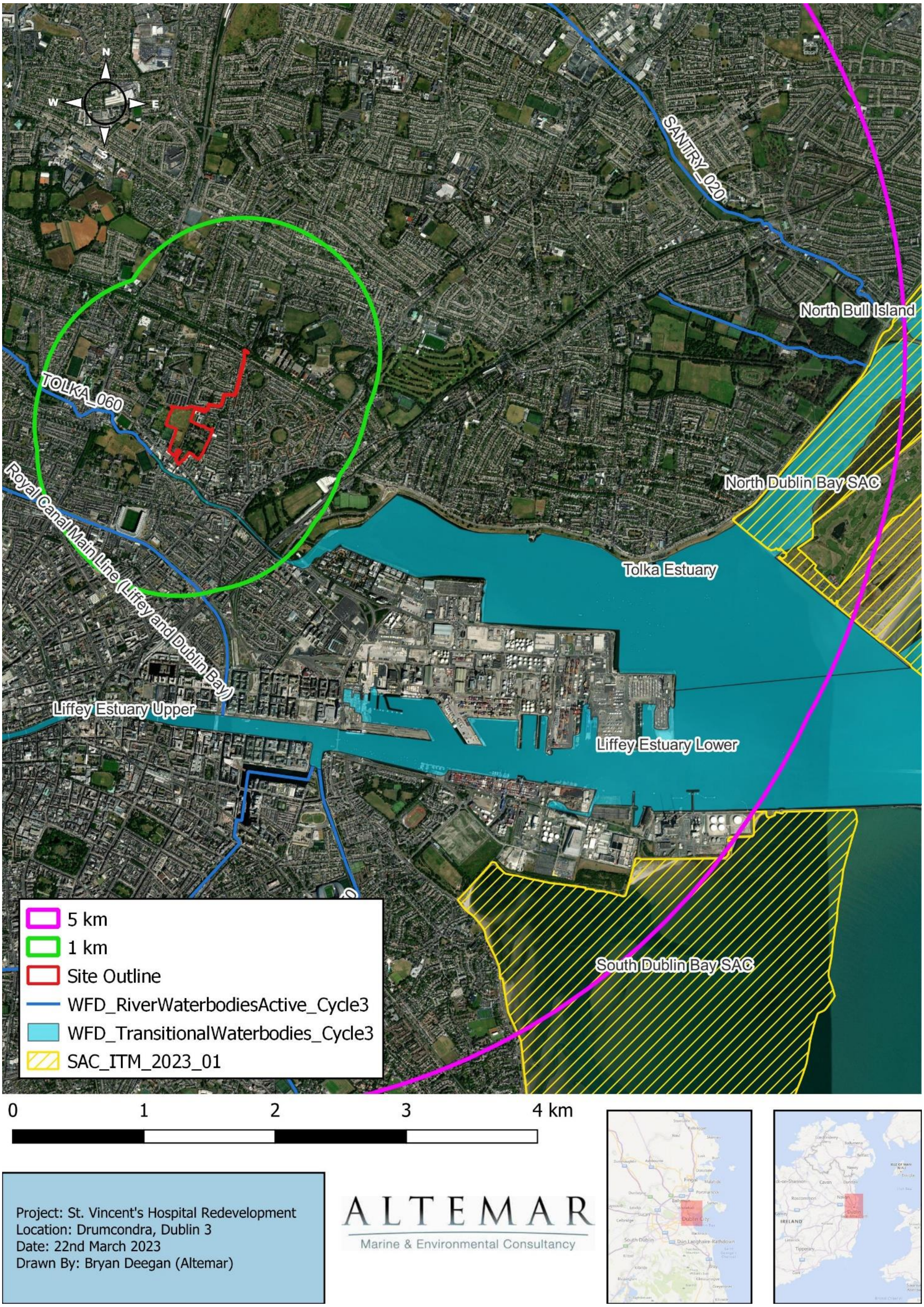


Figure 7.8 *Waterbodies and SACs proximate to the proposed development site*

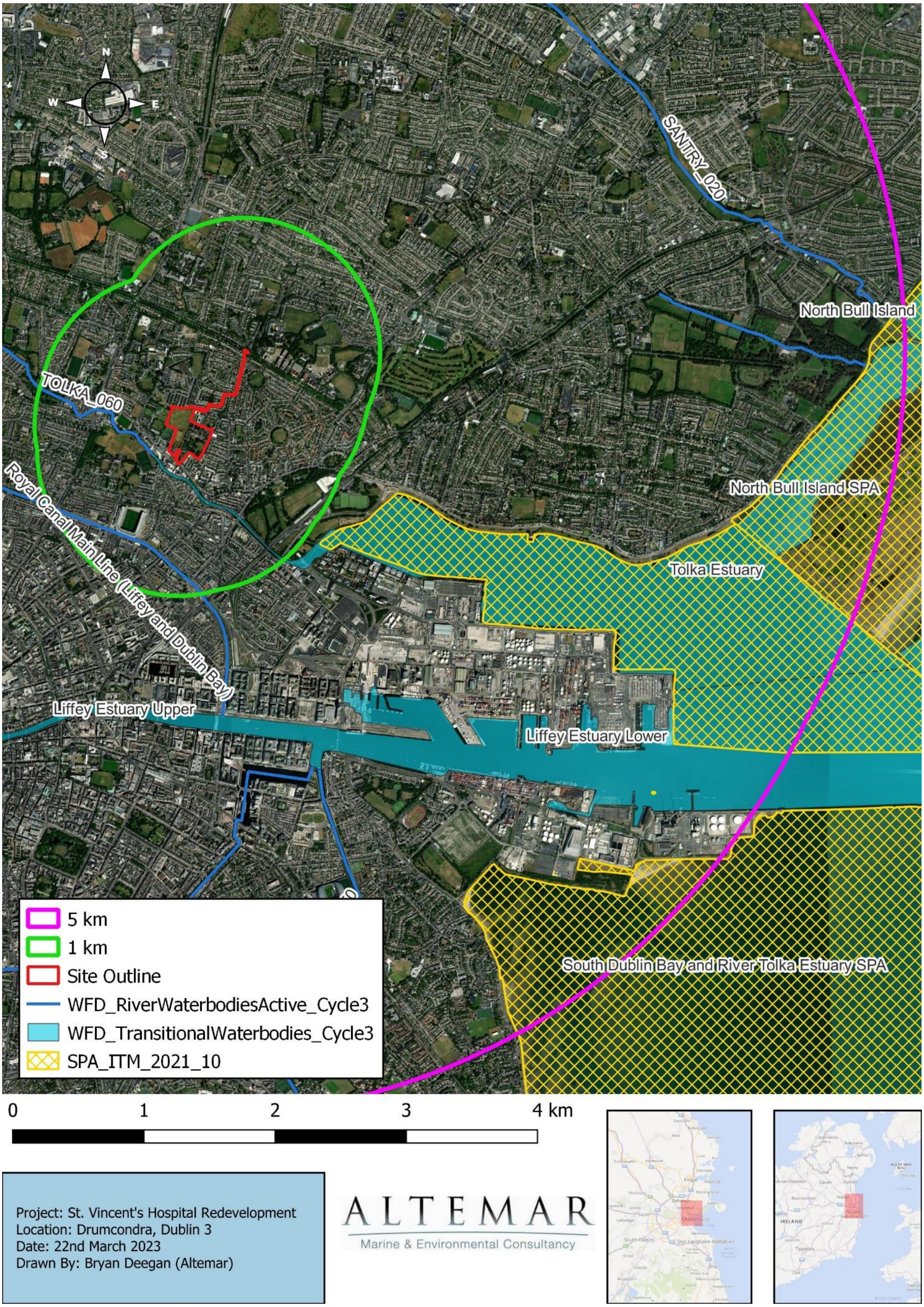


Figure 7.9 *Waterbodies and SPAs proximate to the proposed development site*

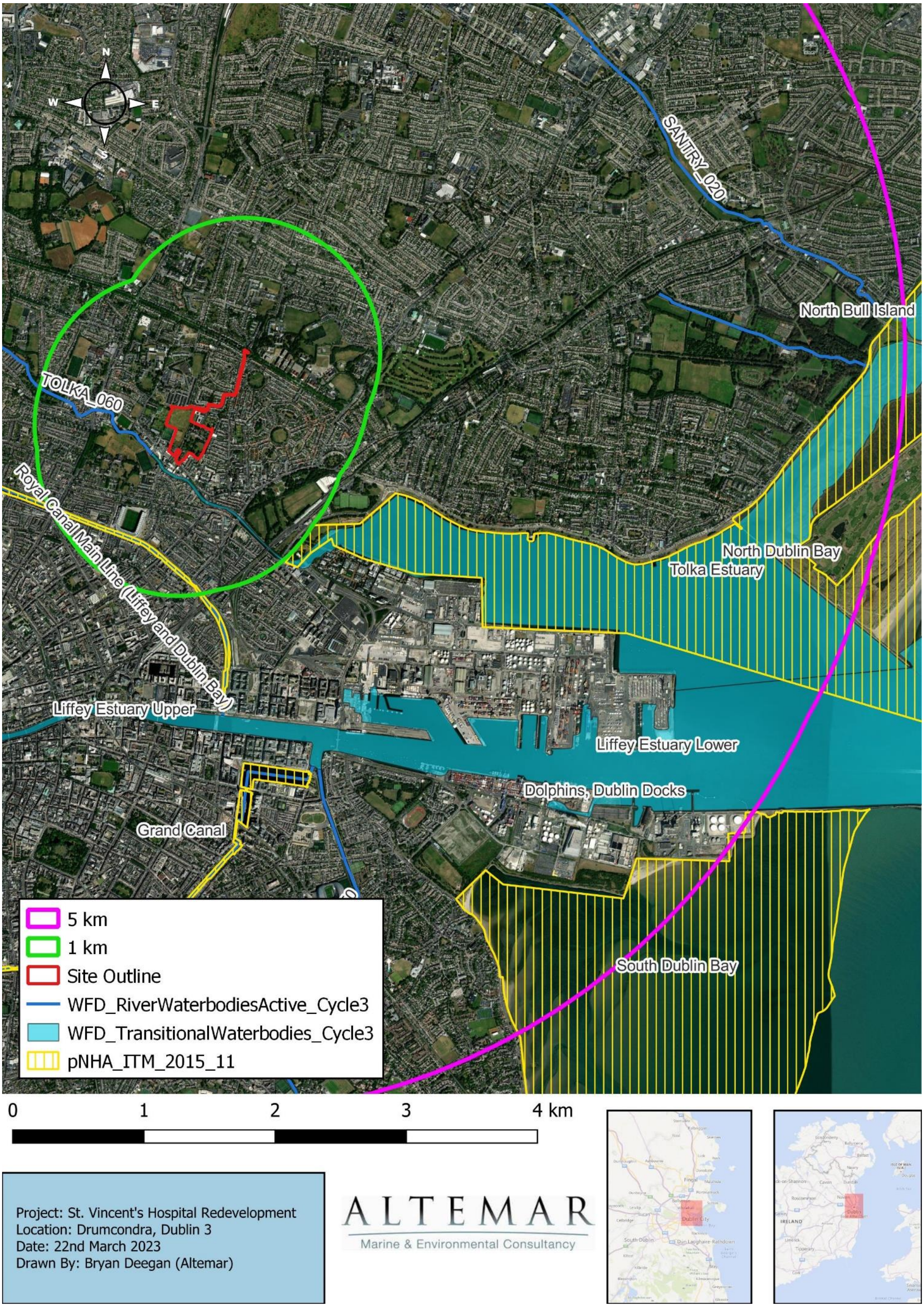


Figure 7.10 *Waterbodies and pNHAs proximate to the proposed development site*

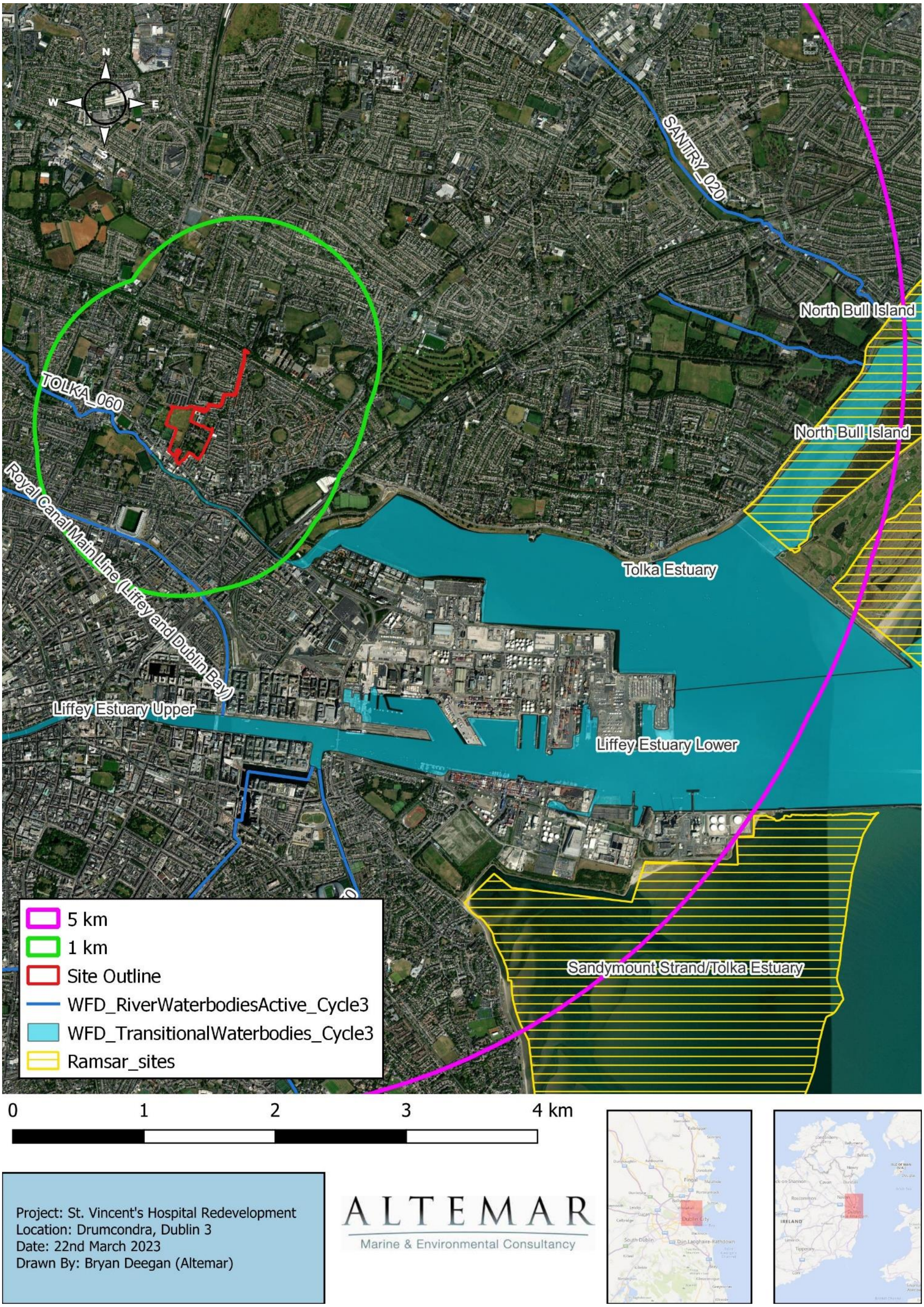


Figure 7.11 *Waterbodies and Ramsar sites proximate to the proposed development site*

7.3.2 Biodiversity Records

A single record count of rose-ringed parakeet (*Psittacula krameri*) (denoted as a High Impact Invasive Species) was noted on-site at fine resolution within the NBDC records. However, it should be noted that no species of conservation importance were noted on site, based on NPWS and NBDC records as fine resolution. Species recorded within the 2km^2 grid (O13T) include are seen in Table 7.4a.

Table 7.4a *Table of species, NBDC (O13T)*

Date of Record	Species Name	Designation
01/11/2002	Common Frog (*Rana temporaria*)	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
06/04/2020	Smooth Newt (*Lissotriton vulgaris*)	Protected Species: Wildlife Acts
31/12/2011	Barn Swallow (*Hirundo rustica*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Black-headed Gull (*Larus ridibundus*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
09/03/2018	Brent Goose (*Branta bernicla*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
22/08/2014	Common Kingfisher (*Alcedo atthis*)	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/08/2017	Common Starling (*Sturnus vulgaris*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
09/05/2022	Common Swift (*Apus apus*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Common Wood Pigeon (*Columba palumbus)*	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
10/04/2020	Eurasian Curlew (*Numenius arquata*)	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
31/08/2017	Eurasian Oystercatcher (*Haematopus ostralegus*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
09/07/2015	Herring Gull (*Larus argentatus*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
31/08/2017	House Martin (*Delichon urbicum*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern ||

Date of Record	Species Name	Designation
		Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
14/02/2016	House Sparrow (*Passer domesticus*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
17/07/2017	Little Egret (*Egretta garzetta*)	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species
02/03/2013	Mallard (*Anas platyrhynchos*)	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
17/07/2017	Mute Swan (*Cygnus olor*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
31/12/2011	Rock Pigeon (*Columba livia*)	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species
28/09/2021	Rose-ringed Parakeet (*Psittacula krameri*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species
31/12/2011	Sand Martin (*Riparia riparia*)	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
20/07/2016	*Arthurdendyus triangulatus*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species
18/04/2013	*Australoplana sanguinea*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
13/08/2018	Butterfly-bush (*Buddleja davidii*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
10/05/2019	Giant Hogweed (*Heracleum mantegazzianum*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
23/09/2021	Himalayan Honeysuckle (*Leycesteria formosa*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
15/07/2013	Indian Balsam (*Impatiens glandulifera*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
27/06/2021	Japanese Knotweed (*Fallopia japonica*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
13/08/2018	Narrow-leaved Ragwort (*Senecio inaequidens*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
29/11/2021	Sea-buckthorn (*Hippophae rhamnoides*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
13/08/2018	Sycamore (*Acer pseudoplatanus)*	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact Invasive Species
22/03/2021	Three-cornered Garlic (*Allium triquetrum*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> Medium Impact

Date of Record	Species Name	Designation
		Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
14/11/2021	Harlequin Ladybird (*Harmonia axyridis*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
24/05/2020	Small Heath (*Coenonympha pamphilus*)	Threatened Species: Near threatened
16/08/2018	Large Red Tailed Bumble Bee (*Bombus (Melanobombus) lapidarius*)	Threatened Species: Near threatened
12/07/2013	Moss Carder-bee (*Bombus (Thoracombus) muscorum*)	Threatened Species: Near threatened
01/02/2012	Bird's-claw Beard-moss (*Barbula unguiculata*)	Threatened Species: Least concern
01/02/2012	Intermediate Screw-moss (*Syntrichia intermedia*)	Threatened Species: Least concern
01/02/2012	Rough-stalked Feather-moss (*Brachythecium rutabulum*)	Threatened Species: Least concern
01/02/2012	Silver-moss (*Bryum argenteum*)	Threatened Species: Least concern
10/07/2022	Eastern Grey Squirrel (*Sciurus carolinensis*)	Invasive Species: Invasive Species || Invasive Species: Invasive Species >> High Impact Invasive Species || Invasive Species: Invasive Species >> EU Regulation No. 1143/2014 || Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)
17/06/2021	West European Hedgehog (*Erinaceus europaeus*)	Protected Species: Wildlife Acts

An assessment of files received from the NPWS (Code No. 2022_120) which contain records of rare and protected species and grid references for sightings of these species was carried out. No rare or protected species were noted on site. The following table provides a summary of the species identified, the year of identification, survey name and Grid Reference of species proximate to the proposed development site.

Table 7.4b *Recorded species within NPWS Records proximate to the site*

Sample ID	Species Name	Survey Name	Sample Year
22188	Common Frog (*Rana temporaria*)	Frog IPCC data from National Frog Survey 2011	2008
33812	Smooth Newt (*Triturus vulgaris*)	Newt Survey IWT	2010
33670	Eurasian Badger (*Meles meles*)	Hare Survey of Ireland 2006/2007: Non-hare records	2007
3399	Irish Hare (*Lepus timidus subsp. hibernicus*)	Badger and Habitat Survey of Ireland	1991
2042	Opposite-leaved Pondweed (*Groenlandia densa*)	*Groenlandia densa*	1900
29045	Eurasian Otter (*Lutra lutra*)	Otter survey of Ireland 1982 – Vincent Wildlife Trust	1980
1312	West European Hedgehog (*Erinaceus europaeus*)	AFF Mammals, Reptiles & Amphibians Distribution Atlas 1978 (II)	1975

7.3.3 Site Survey

Habitat assessments were carried out on the 27th April 2021, 16th September 2021 and 28th September 2022. Habitats within the Proposed Development site were classified according to Fossitt (2000) based on the most recent site visit of the 28th September 2022 (Figure 7.12a and 7.12b) and the species noted within each habitat are described.

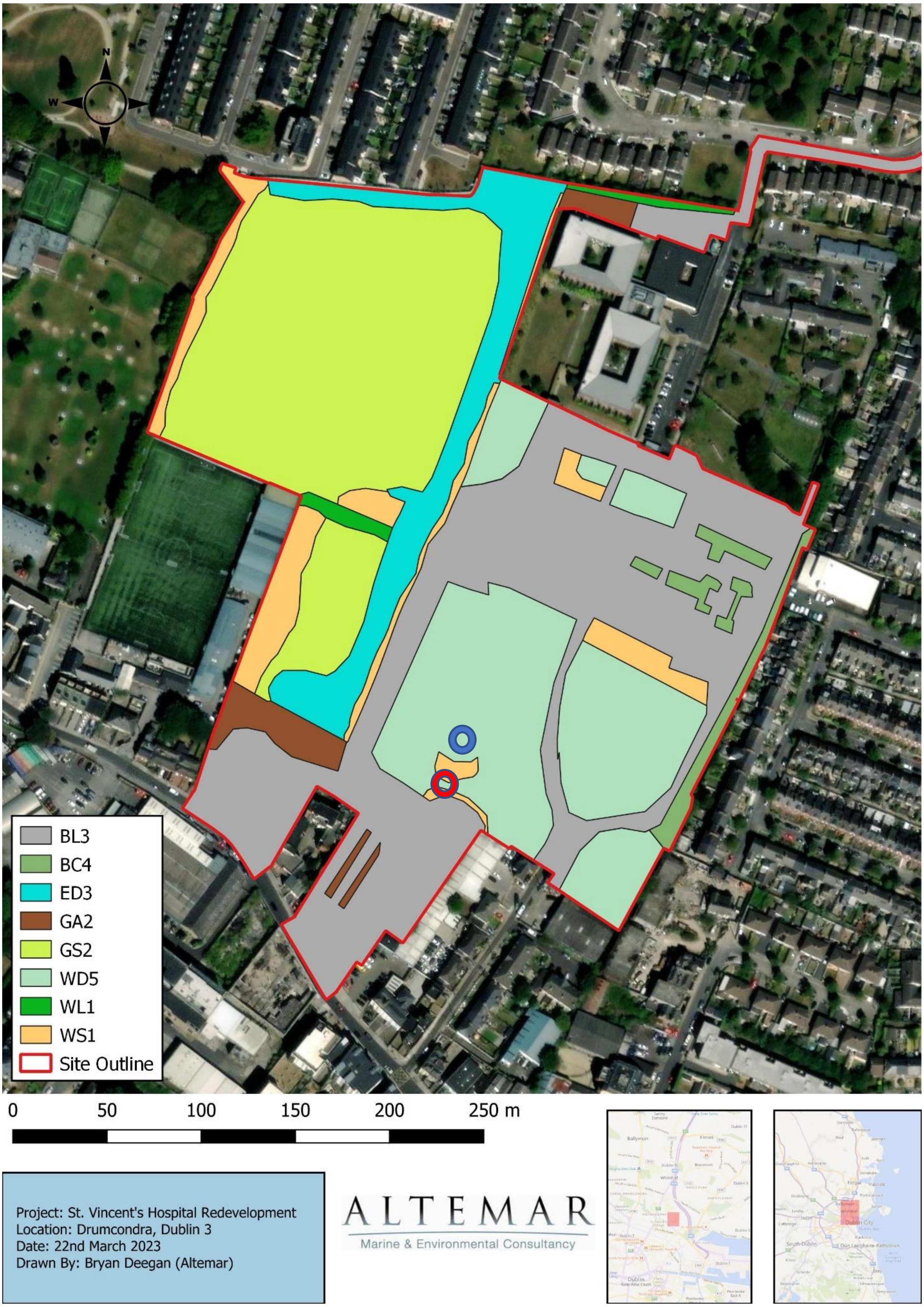


Figure 7.12a: *Fossitt Habitats on southern portion of site (See habitat descriptions for the explanation to the Fossitt codes). (Large burrow-red circle, location of giant hogweed in 2021- blue circle)*

Figure 7-12b *Fossitt Habitats on northern portion of site*

BL3-Buildings and artificial surfaces

Plate 1 *Buildings and artificial surfaces*

Approximately 35% of the Proposed Development site consists of Built Land (Fossitt 2000). This consists primarily of buildings, roads, hard standing. The site is well maintained with evidence of herbicide use. Opportunistic flora species had begun to grow in cracks and joints. Species included bramble (*Rubus fruticosus agg.)*, dandelion (*Taraxacum spp*.), plantains (*Plantago spp*.), red valerian (*Centranthus ruber*), ivy (*Hedera helix*), cleavers (*Galium aparine*), thistles (*Cirsium arvense & C. vulgare*), docks (*Rumex spp*), rape (*Brassica napus*), hoary willowherb (*Epilobium parviflorum*), and hedge bindweed (*Calystegia sepium*).

ED3-Recolonising Bare Ground

Plate 2 *Recolonising Bare Ground.*

The eastern section of the large field on site has been recently cleared. Based on an examination of satellite imagery it appears that this area was bare ground from 2018-2022 and appeared to be associated with the recently developed Grace Park development to the north. This area is being recolonised by opportunistic species such as nettle (*Urtica dioica*), rape (Brassica *napus*), dandelion (*Taraxacum spp*.), oxeye daisy (Leucanthemum vulgare), bramble (*Rubus fruticosus agg*.), creeping buttercup (*Ranunculus repens*), clover (*Trifolium spp*.), daisy (*Bellis perennis*), plantains (*Plantago spp*.), thistles (*Cirsium arvense & C. vulgare*), Groundsel (*Senecio vulgaris*), docks (*Rumex spp*.), common birds-foot-trefoil (*Lotus corniculatus*), ragwort (*Senecio sp*.), pineappleweed (*Matricaria discoidea*), sun spurge (*Euphorbia helioscopia*), shepherd's purse (*Capsella bursa-pastoris*) and silverweed (*Potentilla anserina*).

WS1-Scrub

***Plate 3**. Scrub.*

Several areas of scrub were noted on site. These are as a result of a natural succession and encroachment from grassland, to primarily bramble *Rubus fruticosus* agg.) dominated scrub, paticularly along the field boundaries. Other species included butterfly-bush (*Buddleja spp.`),* thistles (*Cirsium arvense & C. vulgare*), nettle (*Urtica dioica*), docks (*Rumex spp*.), rosebay willowherb (*Chamaenerion angustifolium*), great willowherb (*Epilobium hirsutum*). elder (*Sambucus nigra*), ivy (*Hedera helix*), koneysuckle (*Lonicera periclymenum*), hedge bindweed (*Calystegia sepium*), cleavers (Galium aparine) and gog-rose (Rosa canina). In 2021 a specimen of giant hogweed (*Heracleum mantegazzianum*) was noted on site and immediately treated. It was not observed in the 2022 survey.

WL1- Hedgerows

A short old hedgerow is located within the GS2-Dry meadows and grassy verges habitat. The hedgerow is comprised of species including elder (*Sambucus nigra*), hawthorn (*Crataegus monogyna*), dog-rose (*Rosa canina*), wild carrot (*Daucus carota*), lords-and-ladies (*Arum maculatum*), bramble (*Rubus fruticosus agg*.), ivy (*Hedera helix*), honeysuckle (*Lonicera periclymenum*) and cleavers (*Galium aparine*).

GS2-Dry meadows and grassy verges

Plate 4 *Dry meadows and grassy verges.*

The western field is not maintained and as a result has become Dry meadows and grassy verges habitat. Species in this habitat included thistles (*Cirsium arvense & C. vulgare*), clover (*Trifolium spp*.), docks (*Rumex spp.),* ragwort (*Senecio sp.),* Scarlet pimpernel (Anagallis arvensis), great willowherb (*Epilobium hirsutum*), nettle (Urtica dioica), bramble (*Rubus fruticosus agg*.), creeping buttercup (*Ranunculus repens*), silverweed (*Potentilla anserina*) and saplings of willow (*Salix sp*).

Flower beds and borders BC4

Plate 5 *Ornamental flower beds and borders.*

Ornamental flower beds and borders are located primarily adjacent to buildings and along road-sides and parking spaces on the development. These contain a high proportion of non-native species or varieties of plants. Species include sycamore (*Acer pseudoplatanus*), birch (*Betula sp*.), mosses (*Sphagnum sp*.), Fuchsia, St John's-wort (*Hypericum sp*.), nettle (*Urtica dioica*), dandelion (*Taraxacum spp*.), bramble (*Rubus fruticosus agg*.), creeping buttercup (*Ranunculus repens*), clover (*Trifolium spp*.), daisy (*Bellis perennis*), plantains (*Plantago spp*.), thistles (*Cirsium arvense & C. vulgare*), docks (*Rumex spp*.), butterfly-bush (*Buddleja spp*.), ivy (*Hedera helix*), hoary willowherb (*Epilobium parviflorum*), common poppy (*Papaver rhoeas*), holly (*Ilex aquifolium*), rowan (*Sorbus aucuparia*), Hydrangea (*Hydrangea macrophylla*), ash (*Fraxinus excelsior*) and willow (salix sp.)

Scattered trees and parkland WD5

Plate 6 *Scattered Trees and Parkland.*

Scattered across the site are small areas of Scattered trees and parkland. These are highly managed areas with short grass. Species in these areas included holly (Ilex aquifolium), western red cedar (Thuja plicata), ash (*Fraxinus excelsior*), horse chestnut (*Aesculus hippocastanum*), common lime (*Tilia x europaea*), London plane (*Platanus x hispanica*), sycamore (Acer pseudoplatanus), cherry (*Prunus sp*), copper beech (Fagus sylvatica), Lombardy poplar (Populus nigra ‘Italica’), in addition to thistles (*Cirsium arvense & C. vulgare*), clover (*Trifolium spp*.), docks (*Rumex spp*.), nettle (*Urtica dioica*), bramble (*Rubus fruticosus agg.*) and creeping buttercup (*Ranunculus repens*)

Bats

Foraging activity of three species (soprano pipistrelle (*Pipistrellus pygmaeus*), Leisler bat (*Nyctalus leisleri*) and common pipistrelle (*Pipistrellus pipistrellus*) were noted on site. No bats were noted emerging from buildings or trees on site. No evidence of bats roosting was noted on site. A bat assessment report is seen in Appendix 7.1.

Mammals

Badgers have been anecdotically noted on site by hospital staff. Potential snuffle holes were located proximate to a large burrow in Figure 7.11. A camera trap was put in place for 3 weeks (28th September-October 17th 2022) to determine if badgers are using the burrow. No mammals were noted using the burrow over the three-week period. This is supported by the fact that numerous leaves were present in the burrow and it appears abandoned. Foxes (*Vulpes vulpes*) (not protected) were noted on site.

Amphibians/Reptiles

The common frog (*Rana temporaria*) was not observed on site. There are no features within the site boundary that could be important to frogs. The common lizard (*Zootoca vivipara*) or smooth newt (*Lissotriton vulgaris*) were not recorded on site.

Bird Assessments

A wintering bird/flightline assessment was carried out by Hugh Delaney (Appendix 7.2). As outlined in the 2022-2023 assessment (Appendix 7.2b) '*In total 49 Bird species were recorded overall at the St Vincent's Hospital site in Fairview during 9 surveys over the course of the winter bird survey period 2022-2023. Species recorded that are red listed as wintering species of conservation concern (Birdwatch Ireland's birds of conservation concern in Ireland 2020-2026) include Curlew, Snipe and Redwing, only Snipe and Redwing were recorded foraging on-site, Snipe once (likely roosting only) and Redwing in very small numbers. The remaining species and other amber listed species (such as Brent Geese and Gull species) were all only recorded passing over the site. The most suitable feeding areas (fields at west of site) continue to be sub-optimal for feeding for these species being of long grass sward mixed with other species and rank vegetation. Herring Gull were occasionally noted foraging in very small numbers on the limited maintained grass areas on the rest (east side) of the site.*

Results suggest that the site is not significant ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's). Brent Geese and Curlew were recorded passing over and especially adjacent the site, in common with observations from previous surveys it was apparent that the preferred flightline routes for species these species were to the south (birds following the Tolka River it acting as a navigational landmark or highway so to speak to sites farther west) and to the north of the Hospital structure complex itself, although occasional flocks were recorded passing closer and over the Hospital, however the biggest movements were consistently outside the confines of the hospital area. Movements recorded were largely early and late in the day reflecting movements of birds from Dublin Bay to and from feeding sites farther west of the site. Other species observed from the site included Little Egret, Grey Heron, Cormorant and Mallard, these species noted almost exclusively recorded following the Tolka River south of the site. Sparrowhawk and Buzzard were quite frequently recorded on-site, with Sparrowhawk especially evidently breeding nearby or on-site (displaying regularly observed).'

As outlined in the 2021-2022 assessment (Appendix 7.2a) 2 "*In total 51 Bird species were recorded overall at the St Vincent's Hospital site in Fairview during 14 surveys over the course of the 2021-2022. Species recorded that are red listed as wintering species of conservation concern (Birdwatch Ireland's birds of conservation concern in Ireland 2020-2026) included Curlew, Redshank, Oystercatcher, Snipe and Redwing, only Snipe and Redwing were recorded foraging on-site, albeit in very small numbers. The remaining species and other amber listed species (such as Brent Geese and Gull species) were all only recorded passing above the site. The most suitable feeding areas (fields at west of site) being sub-optimal for feeding for these species being of long grass sward mixed with other species and rank vegetation. Herring Gull were occasionally noted foraging in very small numbers on the limited maintained grass areas on the rest of the site.*

Results suggest that the site is not a significant ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection Areas (SPA's). It was apparent that the preferred flightline routes for species such as Brent Geese and Curlew were to the south (birds likely following the River Tolka being a natural landmark) and to the north of the Hospital structure complex itself, although occasional *flocks were recorded passing close and over the Hospital. Movements recorded were largely early and late in the day reflecting movements of birds from Dublin Bay to feeding site farther west of the site. Other species observed from the site included Grey Heron, Little Egret, Cormorant and Mallard, these species noted almost exclusively recorded following the River Tolka south of the site. Sparrowhawk and Buzzard were quite frequently recorded on-site*."

An additional Wintering bird survey was carried out by Niall Keogh in Spring 2021. As outlined in Appendix 7.2c "*Results from the survey suggested the site is not an ex-situ foraging or roosting site for species of qualifying interest from nearby Special Protection Areas (SPAs) such as the North Bull Island SPA (https://www.npws.ie/protected-sites/spa/004006) and the South Dublin Bay and River Tolka Estuary SPA (https://www.npws.ie/protected-sites/spa/004024).*

Of the 53 bird species recorded on or over the site, three relate to species of qualifying interest at nearby coastal SPAs: Light-bellied Brent Goose, Eurasian Curlew and Black-headed Gull. For each of these species, sightings of birds at SVHF referred to those commuting over the location, likely utilising sports pitches and other amenity grasslands in the area for foraging and travelling to or from roosting and additional foraging sites on the coast in the nearby SPA network. Foraging conditions at SVHF would be considered suboptimal for Light-bellied Brent Goose in the context of urban Dublin habitats where away from coastal estuaries and wetlands, geese primarily forage on maintained amenity grasslands with a short sward (e.g. sports pitches and greens). The largest area of open ground, referred to here as the 'brownfield' site, is comprised of rough grassland with the sward height and species composition such that grazing conditions are not favourable for Light-bellied Brent Goose. Eurasian Curlew could in theory forage in such rough grassland habitats, but none were observed using the site during these surveys and any sightings during vantage points surveys (n=3) referred to birds commuting over the area"

<u>Plant Species</u>

The plant species encountered at the various locations on site are detailed above. No rare plant species, or plant species of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded on the proposed site. A single plant of Giant Hogweed was noted in 2021 and was treated. No other invasive plant species that could hinder removal of soil from the site during groundworks, such as Japanese knotweed, giant rhubarb or Himalayan balsam were noted on site.

7.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, community facilities, public open space and provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L). The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032) to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes other residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of structures and Protected Structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Old Laundry building and Rose Cottage.

The locations of the proposed buildings and overall site layout / masterplan is discussed in Scott Tallon Walker (STW) Architectural Design Statement. Please refer to drawing SVRD-STW-ST-00-DR-A-022003 in the planning application pack for an overall site layout.

A detailed description of the proposed development is set out in Chapter 2 of this EIAR (Description of the Proposed Development). The details of the construction and operation of the proposed development in terms of Biodiversity are detailed in the subsections below.

7.4.1 Construction Phase

The proposal includes the demolition of existing structures on site with a GFA of 5,872 sq.m, The extent of demolition is shown in drawing SVRD-STW-ST-ZZ-DR-A-022101 included with the planning application. The proposal will also involve the clearance of greenfield and previously landscaped habitats and the construction activities within the site and built land. Construction activities will also involve excavations for basements, construction of new buildings, drainage connections and associated landscape elements which have involved the been designed in consultation with Altemar, to provide a local resource for biodiversity on site.

7.4.2 Operational Phase

The operational phase of the development will generate typical anthropogenic impacts associated with the usual operation of a large-scale, residential, and apartment complex. In addition, St. Vincent’s Hospital, Fairview will continue to be operated by the current board of trustees to provide psychiatric care to the population of Dublin North Central. Separate surface water and wastewater drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and wastewater sewer networks respectively. Landscaping which has been designed in consultation with Altemar will be managed on site to ensure that biodiversity value of the site is maintained.

7.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

7.5.1 Construction Phase

In the absence of mitigation measures the overall development of the site is likely to have direct negative impacts upon the existing habitats, fauna and flora within the site. Direct negative effects will be manifested in terms of the removal of the site’s internal and perimeter habitats. The removal of these habitats will result in a loss of species of low biodiversity importance. The area is not deemed to be an important foraging area for terrestrial mammals or birds. The potential impacts of the proposed construction of the development are outlined below:

Designated Conservation sites

The proposed development is not within a designated conservation site. It should be noted that the proposed development site is located 100m from the River Tolka and the nearest Natura 2000 site is South Dublin Bay and River Tolka Estuary SPA, located 1.1 km from the subject site. The nearest pNHA with a potential hydrological pathway is North Dublin Bay pNHA, located 1 km from the subject site, and the nearest Ramsar site is Sandymount Strand/Tolka Estuary (located 3.8 km downstream).

During construction it is proposed to discharge to foul and surface water based on monitoring on site. Ringsend WWTP is required to operate under an EPA licence (D0034-01) and meet environmental legislative requirements as set out in such licence. It is noted that a planning permission for a new upgrade to this facility was received in 2019 and is currently in the process of construction/ implementation. The upgrade works commenced in 2018 and are expected to be fully completed by 2025. When all the proposed works are complete in 2025, the Ringsend Wastewater Treatment Plant will be able to treat wastewater for up to 2.4 million population equivalent while meeting the required standards.[1]

The 2019 planning permission facilitated upgrading works to meet nitrogen and phosphorus standards set out in the licence, which are temporarily exceeded currently. Works on the first of four contracts to retrofit the existing treatment tanks with aerobic granular sludge technology commenced in November 2020 and was completed in December 2021. In September 2021, the second contract was awarded, and its construction works commenced in November 2021 and is expected to take approximately 2 years to complete. The upgrade works will result in treatment of sewage to a higher quality than current, thereby ensuring effluent discharge to Dublin Bay will comply with the Urban Wastewater Treatment Directive for a population equivalent of 2.1 million by Q4 2023.

In November 2021, the third contract was awarded, and its Construction works are anticipated to commenced in late 2022 (according to Irish Water). The fourth contract is scheduled to commence in mid-2023.

Despite the scale of the proposed works, the site's proximity to the River Tolka (100m), and the fact that surface water drainage from the site outfalls to an existing surface water drainage that ultimately outfalls to the River Tolka, it is considered that there is an indirect hydrological pathway to downstream designated conservation sites. In the absence of mitigation, there is potential for effects on downstream designated conservation sites as a result of the potential for contaminated runoff and silt from the site entering drainage networks.

Potential Effects: Slight effects/ International / Negative Impact / Not significant / short term. Mitigation is needed to limit the potential impact from contaminated surface water.

Terrestrial mammalian species

No protected terrestrial mammals were observed on site. No active setts were observed on site. Loss of habitat and habitat fragmentation may affect some common mammalian species. Habitat lost that would be potentially used by mammals include areas scrub, grassland and scattered trees and parkland. Construction activities would remove areas of these habitats and create localised disturbance on site that could potentially impact on mammals on site. In the interim between the surveys being

[1] https://www.water.ie/projects/local-projects/ringsend/

carried out on site and construction works commencing mammals of conservation importance could begin to utilise the site.

Potential Effects: Slight effects / site / negative effect / not significant / short term/likely.

Flora

No protected flora was noted on site. Site clearance will remove the flora species on site. Site clearance will result in the loss of areas of grassland, scrub and trees on site. Dust from construction activities could lead to deposition into adjacent habitats to be retained on site. Trees to be retained could potentially be impacted by machinery and works on site. A single plant of giant hogweed was noted on site and was treated with herbicide. In the interim between the surveys and the commencement of construction invasive species could potentially enter the site or Giant Hogweed could potentially grow from seed if viable seeds are within the site outline. If viable seeds are present in the vicinity of the recorded plant on site these seeds would be expected to be within the root protection area of the adjacent trees and would not be impacted by the proposed works.

Potential Effects: Slight effects / site negative effect / not significant / short term/likely.

Bat Fauna

No bats were noted roosting on site. No bats were noted emerging from buildings on site. Minor foraging was noted on site. Lighting from construction could potentially lead to a reduction of foraging on site. There is potential for bats to utilise structures and trees to be felled on site, following the surveys on site and prior to works commencing. In relation to the proposed buildings' height and the potential for this to pose a collision risk to local bats, the proposed development site is not within an important site for bats. Bats observed on site are in low numbers and are the most common species observed in Ireland. Investigations into the reasons for bat collisions with buildings noted that building material and their sound reflecting properties are important elements to be considered in relation to collision risk (Greif et al., 2017). Smooth vertical surfaces such as windows and large expanses of glass can be problematic to bats (Timm, 1989; Greif et al., 2017). Glazing has been included in the facades of buildings. However, glazing will be broken up with additional materials including concrete which have good reflective properties. The proposed structures would represent a low risk in terms of collision and the effect of this development would be of low significance to the local bat population. The landscape plan has been designed in consultation with the ecologists to provide additional foraging resources for bats on site. Bat boxes have been included into the building design where feasible on site. Lighting design has been carried out in consultation with the project ecologists.

Potential Effects: Slight effects / site / Negative effect / Not significant / short term/likely. Mitigation is needed in the form of a pre-construction survey and control of light spill.

Aquatic Biodiversity

In the absence of any mitigation on site, due to the proximity of the site to the River Tolka (100m) and the potential for contaminated surface water runoff during site clearance, reprofiling, the removal of material off site and the potential for pumping of unmitigated surface/ground water from excavations, there is potential for downstream impacts on biodiversity from contaminated runoff, silt and petrochemicals. There is potential for contaminated surface water and pollution to directly impact on aquatic flora and fauna within the River Tolka, through the deposition of silt and pollution including hydrocarbons into the aquatic environment which would potentially impact directly and indirectly on species and habitats within the River Tolka and downstream within the estuarine and marine environments.

Potential Effects: Moderate adverse / national / Negative Impact / short term/likely/not significant. Mitigation is needed in the form of control of silt and petrochemical and dust during construction.

Bird Fauna

No birds of conservation importance were nesting on site. Herring gull were not nesting on site but, there is potential that herring gull could potentially nest on site. During construction buildings will be created with increased heights and cranes will be present on site. Based on the wintering bird assessments that were carried out over 2.5 years the proposed development site is not an important ex-situ site for qualifying interests of proximate SPA’s and is not associated with important flightlines of these species. With regards to the height and location of the buildings, the site is not an important area for breeding birds. The site does possess low numbers of common passerine species. It is not located along an important migratory route for bird species, and the proposed development does not pose a significant collision risk for bird species. Bird collision with buildings is generally associated with reflective material (primarily glass) and potential fly through situations. The design of the proposed buildings includes portions of glazing and with additional materials including concrete. The design includes landscaped areas that may be proximate to the glazed areas. This may result in a low level of mortality at a local level but, this is not deemed to be of significance. The removal of scrub and trees on site will result in the removal of nesting and foraging habitat for birds. The landscape plan has been designed in consultation with the ecologists to provide additional nesting and foraging resources for birds on site. Swift boxes have been included into the building design where feasible on site.

Potential Effects: Slight effects / site / Negative effect / Not significant / short term/likely. Mitigation is needed in the form of a pre-construction survey in relation to nesting birds if constructed during nesting season.

7.5.2 Operational Phase

Once constructed, the site would be seen as a stable ecological environment. However, in the absence of mitigation, appropriate measures should be taken to prevent surface water run-off into adjacent habitats and in particular the River Tolka. Numerous discussions took place within the project team, including specific meetings between Altemar, the landscape architect and the architect, to discuss methods to improve biodiversity on site. Biodiversity enhancement measures will be included across the site. This includes areas of native planting, meadows, swift boxes and additional bird boxes, bat boxes and a sensitive lighting strategy.

Designated Conservation sites

There is potential for silt laden surface water to exit the site and enter surface water networks and the River Tolka. It is considered that there is an indirect hydrological pathway to downstream designated conservation sites. In the absence of standard mitigation, there is potential for slight adverse effects on downstream designated conservation sites as a result of the operational phase of development.

The duration of the construction phase has been estimated to approximately 48 months from commencement of development. On the basis of a grant of planning the estimated completion of Phase 1 is Q2 2026; and the estimated completion of Phase 2 is Q1

2028. As outlined by Uisce Éireann[2] in relation to Ringsend Wastewater Treatment Plant '*The major upgrade that is now underway will allow the Ringsend WwTP to treat the increasing volumes of wastewater arriving at the plant to the required standard, enabling future housing and commercial development. The project will deliver, on a phased basis, the capacity to treat the wastewater for a population equivalent of 2.4 million while achieving the standards of the Urban Wastewater Treatment Directive.*

Uisce Éireann is working to provide infrastructure to achieve compliance with the Urban Wastewater Treatment Directive for a population equivalent of 2.1 million in the second half of 2023. When all the proposed works are complete in 2025, the Ringsend Wastewater Treatment Plant will be able to treat wastewater for up to 2.4 million population equivalent while meeting the required standards.'

Potential Effects: Slight effects / site / Negative effect / Not significant / long term/likely. Standard mitigation is required in relation to discharges off site.

Terrestrial mammalian species

No protected terrestrial mammals were noted on site. The landscape plan has been developed in consultation with the ecologist and biodiversity enhancement measures will potentially improve biodiversity on site which would generate additional foraging resources and habitats for common mammal species.

Potential Effects: Neutral / site / Not significant / long term/likely.

Flora

No rare plant species, or plant species of conservation value were noted during the field assessment. Records of rare and threatened species from NBDC and NPWS were examined. No rare or threatened plant species were recorded on the proposed site. A single plant of Giant Hogweed was noted in 2021 and was treated. No other invasive plant species that could hinder removal of soil from the site during groundworks, such as Japanese knotweed, giant rhubarb or Himalayan balsam were noted on site. The enhancement measures will potentially improve biodiversity on site and in particular the diversity of plant species on site.

Potential Effects: Neutral-slight positive / site / Not significant / long term/likely.

Bat Fauna

The proposed development will change the local environment as new structures are to be erected and some of the existing vegetation will be removed. No bat roosts will be lost due to this development. The proposed development is within a dense urban area and is not proximate to an important bat area. No significant bat activity was noted on site. The buildings would not be seen to cause a negative impact on the flightlines of bats given the low activity of bats on site. Additional landscaping measures will be in place to improve insect activity on site. A sensitive lighting strategy has been developed. Bat roosting opportunities will be included within the proposed development in the darker areas of the site.

Potential Effects: Neutral-slight positive / site / Not significant / long term/likely.

[2] https://www.water.ie/projects/local-projects/ringsend/

Aquatic Biodiversity

Due to the proximity to the River Tolka (100m), there is potential for downstream impacts on biodiversity from silt in the absence of standard mitigation.

Effects: Slight effects / site / Negative/ Not significant / long term/likely. Standard mitigation is required in relation to discharges off site.

Bird Fauna

Results seen in Appendix 7.2 confirm that the site is not significant ex-situ foraging or roosting site for species of qualifying interest from nearby Special protection areas (SPA's). As outlined in the assessment "*It was apparent that the preferred flightline routes for species such as Brent Geese and Curlew were to the south (birds likely following the River Tolka being a natural landmark) and to the north of the Hospital structure complex itself, although occasional flocks were recorded passing close and over the Hospital*." The presence of the buildings on site would not be considered to have a significant effect on flightlines or wintering birds. It would be expected that the buildings on site, which are within a dense urban environment will be clearly visible to birds and that as outlined in the wintering bird assessment the preferred flightlines are to the south and north of the proposed development. No significant impact on flightlines would be foreseen as a result of building heights on site.

Potential Impacts: Low adverse / site / Negative Impact / Not significant / long term.

7.6 MITIGATION MEASURES

7.6.1 Construction Phase

- A project ecologist will be appointed and consulted in relation to all onsite mitigation and drainage during works. Mitigation measures outlined in the Biodiversity, Chapter 5, (Land, Soils, Geology & Hydrogeology), Chapter 6 (Hydrology), Chapter 8 (Air Quality), Chapter 10 (Noise and Vibration) and Chapter 15 (Material Assets) of the EIA Report will be carried out.
- All site clearance works methodologies will have prior approval of a project ecologist.
- Staging of project will be carried out to reduce risks of onsite drainage to the River Tolka and subject to the approval of a project ecologist. A drainage strategy has been outlined for the construction stage. This will be followed and monitored by the project ecologist.
- Local drainage connections, gullies and watercourses will be protected from dust, silt and surface water throughout the works.
- In order to prevent the accidental release of hazardous materials (fuels, paints, cleaning agents, etc.) during site activity, all hazardous materials should be stored within secondary containment designed to retain at least 110% of the storage contents. Temporary bunds for oil/diesel storage tanks should be used on the site during the construction phase of the project. Safe materials handling of all potentially hazardous materials should be emphasised to all construction personnel employed during this phase of the project.
- All onsite drainage network connections will be blanked off and sealed at the first phase of the construction works.
- There will be no entry of solids or petrochemicals to the drainage network or groundwater during the works.

- The Site Manager will be responsible for the pollution prevention programme and will ensure that at least daily checks are carried out to ensure compliance. A record of these checks will be maintained.
- Spill containment equipment shall be available for use in the event of an emergency. The spill containment equipment shall be replenished if used and shall be checked on a scheduled basis.
- No bats were found roosting on site during on site surveys. However, bats may roost on site between the initial surveys and the commencement of the project. A pre-construction inspection for bats will be carried out on buildings to be demolished or existing buildings that are to be upgraded. If bats are found roosting on site during the pre-construction inspection a derogation licence will be required from the NPWS.
- In order to reduce the potential for light spill from construction works impacting on bat foraging on site, lighting on site during construction will be subject to approval of the project ecologist.
- No mammals of conservation importance were noted on site. However, mammals of conservation importance may begin utilising the site between the initial surveys and the commencement of the project. A pre-construction inspection for mammals of conservation importance will be carried out on site and consultation carried out with NPWS if mammals of conservation importance are noted on site.
- Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will need be followed e.g. do not remove trees or shrubs during the nesting season (1st March to 31st August). This includes mitigation included building roofs for potential nesting herring gulls.
- Trees to be retained. Retained trees will be protected from root damage by machinery by an exclusion zone as outlined in the arborist tree protection drawing.
- A total of 35 bird boxes (including swift boxes) and 10 bat boxes will be placed on site as an enhancement measure. The position of these boxes will be carried out in consultation with an ecologist and where indicated in the landscape strategy.
- A pre construction inspection for invasive species will be carried out.

7.6.2 Operational Phase

- Standard operational mitigation measures as outlined in the engineering report will be in place to protect surface water networks from pollution.
- Operational Mitigation measures outlined in the Biodiversity, Chapter 5, (Land, Soils, Geology & Hydrogeology), Chapter 6 (Hydrology) and Chapter 15 (Material Assets) of the EIA Report will be carried out.
- The ecologist will inspect the onsite petrochemical interception measures once completed.
- The landscaping will be carried out as per landscaping plan and will be maintained to maintained to maintain biodiversity enhancement measures on site.
- A maintenance program will be put in place to monitor and maintain petrochemical interceptors on site.
- A post construction bat survey will be carried out and lighting on site will be assessed by an ecologist post construction.

7.7 MONITORING MEASURES

7.7.1 Construction Phase

A project ecologist will be appointed to oversee construction works on site.

7.7.2 Operational Phase

No operational monitoring/reinstatement is required.

7.8 RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT

7.8.1 Construction Phase

Based on the successful implementation of the construction phase controls outlined in Section 7.6.1 and the works to be carried out in accordance with this EIAR, the CEMP and the accompanying Natura Impact Statement there will be no likely significant effects resulting from the proposed development arising from construction works proposed for the proposed project. Designated conservation sites will not be impacted by the proposed development during construction, following the mitigation measures which are proposed.

A robust series of standard construction phase control measures have been outlined to ensure that the proposed project does not impact on species or habitats of conservation importance, conservation areas or watercourses during construction. It is essential that these measures are complied with to ensure that the proposed works do not have downstream environmental impacts. These measures will protect the River Tolka, which is potentially the primary vector of impacts from the site.

No significant environmental impacts are likely in relation to the construction of the proposed development following the implementation of mitigation measures.

Residual Effects: Slight effects / site / Negative effect / Not significant /short term/likely. Standard mitigation will be in place on site.

7.8.2 Operational Phase

After the successful implementation of the operational phase controls outlined in Section 7.6.2 and the works to be carried out in accordance with this EIAR and the accompanying Natura Impact Statement there will be no likely significant effects resulting from the proposed development. Designated conservation sites will not be impacted by the proposed development.

Standard operational phase control measures have been outlined to ensure that the proposed project does not impact on species or habitats of conservation importance, conservation areas or watercourses. It is essential that these measures are complied with, to ensure that the proposed works do not have downstream environmental impacts. These measures are to protect the River Tolka, which is potentially the primary vector of impacts from the site, is not impacted during operational phases of the proposed development.

No significant environmental impacts are likely in relation to the operation of the proposed development following the implementation of mitigation measures.

Residual Effects: Slight effects / site / Negative effect / Not significant / long term/likely. Standard mitigation will be in place on site.

7.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

The cumulative impact of the proposed development with any/all relevant other planned or permitted developments are discussed below. A review of developments and proposed developments was completed as part of this assessment. For details on the developments considered refer to Chapter 2, Section 2.8 of this EIA Report.

Existing developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

As part of the assessment of the impact of the proposed development, account has also been taken of cumulative projects, i.e. developments that are currently permitted or under construction within the surrounding area, but whose environmental impact are not yet fully realised within the existing environmental baseline. Following a review of projects located in proximity to the proposed development it was determined that no significant projects are proposed or currently under construction that could potentially cause in combination effects on designated conservation sites. Given this, it is considered that in combination effects on biodiversity, with other existing and proposed developments in proximity to the application area, would be unlikely, neutral, not significant and localised. It is concluded that no significant effects on designated conservation sites will be seen as a result of the proposed development alone or in combination with other projects.

7.10 REFERENCES

1. Marnell, F., Kelleher, C. & Mullen, E. (2022) Bat mitigation guidelines for Ireland v2. *Irish Wildlife Manuals*, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland
2. Environmental Protection Agency (May 2022): Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. EPA, Wexford
3. Environmental Protection Agency (August 2017): Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. EPA, Wexford
4. Environmental Protection Agency (September 2015): Draft - Advice Notes on Current
5. Practice (in the preparation on Environmental Impact Statements). EPA, Wexford
6. Environmental Protection Agency 1997 Draft guidelines on the information to be contained in Environmental Impact Statements. EPA, Wexford, Ireland.
7. CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland, Terrestrial, Freshwater and Coastal. Chartered Institute of Ecology and Environmental Management.
8. DoEHLG (2013) Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment. Department of the Environment, Community and Local Government.
9. Environmental Protection Agency 2002 Guidelines on the information to be contained in Environmental Impact Statements. EPA, Wexford, Ireland.
10. Hayden, T. & Harrington, R. 2000 Exploring Irish mammals. Duchas. Town House, Dublin.
11. Institute of Environmental Assessment. 1995 Guidelines for Baseline Ecological Assessment. E&FN Spon, London.

12. Lawrence, M.J. & Brown, R.W. 1973 Mammals of Britain: their tracks, trails and signs. Blandford Press, Dorset, UK.
13. Lysaght, L. & Marnell, F (eds.) 2016 Atlas of Mammals in Ireland 2010-2015. National Biodiversity Centre, Waterford.
14. NPWS 2013 The status of protected EU habitats and species in Ireland. DoEHLG, Dublin, Ireland.
15. Assessment of Plans and Projects Significantly Affecting NATURA 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC; http://ec.europa.eu/environment/nature/Natura2000management/docs/art6/Natura_2000_assess_en.pdf
16. Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission; http://ec.europa.eu/environment/nature/Natura2000/management/docs/art6/guidance_art6_4_en.pdf
17. Guidance document on the implementation of the birds and habitats directive in estuaries and coastal zones with particular attention to port development and dredging; http://ec.europa.eu/environment/nature/Natura2000/management/docs/guidance_doc.pdf
18. The Status of EU Protected Habitats and Species in Ireland.
19. Fossitt. (2000) A Guide to Habitats in Ireland. The Heritage Council
20. IFI (2016) Guidelines on the Protection of Fisheries During Construction Works in and Adjacent to Waters. Inland Fisheries Ireland
21. Jackson, M. W., et al. (2016) Ireland Red Lists No. 10 Vascular Plants. The IUCN Red List of Vascular Plants.
22. King, J.L., Marnell, F., Kingston, N., Rosell, R., Boylan, P., Caffrey, J.M., FitzPatrick, Ú., Gargan, P.G., Kelly, F.L., O'Grady, M.F., Poole, R., Roche, W.K. & Cassidy, D. (2011) Ireland Red List No. 5: Amphibians, Reptiles & Freshwater Fish. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.
23. NPWS (2013) Conservation Objectives: South Dublin Bay SAC 000210. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
24. NPWS (2013) Conservation Objectives: North Dublin Bay SAC 000206. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
25. NPWS (2012) Conservation Objectives: Baldoyle Bay SAC 000199. Version 1.0. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
26. NPWS (2013) Conservation Objectives: Malahide Estuary SAC 000205. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
27. NPWS (2016) Conservation Objectives: Howth Head SAC 000202. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
28. NPWS (2013) Conservation Objectives: Rockabill to Dalkey Island SAC 003000. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
29. NPWS (2021) Conservation Objectives: Glenasmole Valley SAC 001209. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
30. NPWS (2017) Conservation Objectives: Wicklow Mountains SAC 002122. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs
31. NPWS (2021) Conservation Objectives: Rye Water Valley/Carton SAC 001398. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage

32. NPWS (2021) Conservation Objectives: Knocksink Wood SAC 000725. Version 1. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage
33. NPWS (2015) Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
34. NPWS (2015) Conservation Objectives: North Bull Island SPA 004006. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
35. NPWS (2013) Conservation Objectives: Baldoyle Bay SPA 004016. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
36. NPWS (2013) Conservation Objectives: Malahide Estuary SPA 004025. Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
37. NPWS (2022) Conservation objectives for Wicklow Mountains SPA [004040]. Generic Version 9.0. Department of Housing, Local Government and Heritage
38. NPWS (2022) Conservation objectives for Dalkey Islands SPA [004172]. Generic Version 9.0. Department of Housing, Local Government and Heritage

CHAPTER 8

AIR QUALITY

awnconsulting
A Trinity Consultants Company

CHAPTER 8 CONTENTS

8.0 AIR QUALITY

8.1 INTRODUCTION

This chapter assesses the likely significant air quality impacts associated with the proposed development at St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3.

This chapter will provide an overview of the existing air quality conditions in the proposed development site, identify the relevant air quality standards and guidelines, describe the sources of air pollution associated and potential impacts of the proposed development, define mitigation measures that will be implemented to minimise the potential air quality impacts, and define the residual effects of the proposed development after the implementation of mitigation measures.

8.2 METHODOLOGY

8.2.1 Criteria for Rating of Impacts

8.2.1.1 Ambient Air Quality Standards

In order to reduce the risk to health from poor air quality, National and European statutory bodies have set limit values in ambient air for a range of air pollutants. These limit values or "Air Quality Standards" are health or environmental-based levels for which additional factors may be considered. For example, natural background levels, environmental conditions and socio-economic factors may all play a part in the limit value which is set.

Air quality significance criteria are assessed on the basis of compliance with the appropriate standards or limit values. The applicable standards in Ireland include the Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022), which incorporate European Commission Directive 2008/50/EC which has set limit values for a number of pollutants with the limit values for NO_2, PM_{10} and $PM_{2.5}$ being relevant to this assessment (see Table 8.1). Council Directive 2008/50/EC combines the previous Air Quality Framework Directive (96/62/EC) and its subsequent daughter directives (including 1999/30/EC and 2000/69/EC).

Table 8.1 *Ambient Air Quality Standards & TA Luft*

Pollutant	Regulation Note 1	Limit Type	Value
Dust Deposition	TA Luft (German VDI 2002)	Annual average limit for nuisance dust	350 mg/m^2/day
Nitrogen Dioxide (NO_2)	2008/50/EC	Hourly limit for protection of human health - not to be exceeded more than 18 times/year	200 µg/m^3
		Annual limit for protection of human health	40 µg/m^3
Particulate Matter (as PM_{10})	2008/50/EC	24-hour limit for protection of human health - not to be exceeded more than 35 times/year	50 µg/m^3 PM_{10}

Pollutant	Regulation Note 1	Limit Type	Value
		Annual limit for protection of human health	40 µg/m^3 PM_{10}
Particulate Matter (as $PM_{2.5}$) Stage 1	2008/50/EC	Annual limit for protection of human health	25 µg/m^3 $PM_{2.5}$
Particulate Matter (as $PM_{2.5}$) Stage 2 Note 2	2008/50/EC	Annual limit for protection of human health	20 µg/m^3 $PM_{2.5}$

Note 1 EU 2008/50/EC – Clean Air For Europe (CAFÉ) Directive replaces the previous Air Framework Directive (1996/30/EC) and daughter directives 1999/30/EC and 2000/69/EC

Note 2 Stage 2 indicative limit value for $PM_{2.5}$ to be applied from 1 January 2020 after review by the European Commission

8.2.1.2 Dust Deposition Guidelines

The concern from a health perspective is focused on particles of dust which are less than 10 microns and the EU ambient air quality standards outlined in Section 8.2.1.1 have set ambient air quality limit values for PM_{10} and $PM_{2.5}$ for protection of human health.

Larger dust particles can give rise to dust that causes a nuisance, in Ireland there are no statutory guidelines regarding the maximum dust deposition levels that may be generated during the construction phase of a development.

However, guidelines for dust deposition, the German TA-Luft standard for dust deposition (non-hazardous dust) (German VDI, 2002) sets a maximum permissible emission level for dust deposition of 350 mg/m^2/day averaged over a one year period at any receptors outside the site boundary. The TA-Luft standard has been applied for the purpose of this assessment based on recommendations from the EPA in Ireland in the document titled 'Environmental Management Guidelines - Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA, 2006). The document recommends that the Bergerhoff limit of 350 mg/m^2/day be applied to the site boundary of quarries. This limit value can be implemented with regard to dust impacts from construction of the proposed development.

8.2.2 Construction Phase

The Institute of Air Quality Management in the UK (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction*' (2014) outlines an assessment method for predicting the impact of dust emissions from demolition, earthworks, construction and haulage activities based on the scale and nature of the works and the sensitivity of the area to dust impacts. The IAQM methodology has been applied to the construction phase of this development in order to predict the likely risk of dust impacts in the absence of mitigation measures and to determine the level of site specific mitigation required. Transport Infrastructure Ireland (TII) recommends the use of the IAQM guidance (2014) in the TII guidance document *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022a).

The major dust generating activities are divided into four types within the IAQM guidance (2014) to reflect their different potential impacts. These are: -

- Demolition.

- Earthworks.
- Construction.
- Trackout (movement of heavy vehicles).

The magnitude of each of the four categories is divided into Large, Medium or Small scale depending on the nature of the activities involved. The magnitude of each activity is combined with the overall sensitivity of the area to determine the risk of dust impacts from site activities. This allows the level of site-specific mitigation to be determined.

Construction phase traffic also has the potential to impact air quality. The TII guidance *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022a), states that road links meeting one or more of the following criteria can be defined as being ‘affected’ by a proposed development and should be included in the local air quality assessment. While the guidance is specific to infrastructure projects the approach can be applied to any development that causes a change in traffic.

- Annual average daily traffic (AADT) changes by 1,000 or more;
- Heavy duty vehicle (HDV) AADT changes by 200 or more;
- Daily average speed change by 10 kph or more;
- Peak hour speed change by 20 kph or more;
- A change in road alignment by 5m or greater.

OCSC Consulting Engineers have prepared a Traffic Impact Assessment for the proposed development and Chapter 14 of this EIAR, it has been determined by OCSC that the construction stage traffic will not increase by 1,000 AADT, or 200 HDV AADT, the development will not result in speed changes or changes in road alignment, therefore the traffic does not meet the above scoping criteria. As a result, a detailed air quality assessment of construction stage traffic emissions has been scoped out from any further assessment as there is no potential for significant impacts to air quality.

8.2.3 Operational Phase

Operational phase traffic has the potential to impact local air quality as a result of increased vehicle movements associated with the proposed development. The TII scoping criteria detailed in Section 8.2.2 were used to determine if any road links are affected by the proposed development and require inclusion in a detailed air dispersion modelling assessment. OCSC Consulting Engineers have prepared a Traffic Impact Assessment for the proposed development and Chapter 14 of this EIAR, it has been determined by OCSC that the proposed development will result in the operational phase traffic increasing by more than 1,000 AADT on a small number of road links. Therefore, in accordance with the TII scoping criteria a detailed air dispersion modelling assessment of operational phase traffic emissions was conducted.

The impact to air quality as a result of changes in traffic is assessed at sensitive receptors in the vicinity of affected roads. The TII guidance (2022a) states a proportionate number of representative receptors which are located in areas which will experience the highest concentrations or greatest improvements as a result of the proposed development are to be included in the modelling. The TII criteria state that receptors within 200m of impacted road links should be assessed; roads which are more than 200m from a receptor will not impact pollutant concentrations at that receptor. The TII guidance (2022a) defines sensitive receptor locations as: residential housing, schools, hospitals, places of worship, sports centres and shopping areas, i.e. locations where members of the public are likely to be regularly presentf. A total of 4 no. high sensitivity residential receptors (R1 – R4) were included in the modelling assessment (see Figure 8.1).

The TII guidance (2022a) states that modelling should be conducted for NO_2 and PM_{10} for the base, opening and design years for both the do minimum (do nothing) and do something scenarios. The modelling of PM_{10} can be used to show that the project does not impact on the $PM_{2.5}$ limit value as if compliance with the PM_{10} limit is achieved then compliance with the $PM_{2.5}$ limit will also be achieved. Modelling of operational NO_2 and PM_{10} concentrations has been conducted for the do nothing and do something scenarios using the TII Road Emissions Model (REM) online calculator tool (TII, 2022b).

The following inputs are required for the REM tool: receptor locations, light duty vehicle (LDV) annual average daily traffic movements (AADT), annual average daily heavy duty vehicles (HDV AADT), annual average traffic speeds, road link lengths, road type, project county location and pollutant background concentrations. The *Default* fleet mix option was selected along with the *Intermediate Case* fleet data base selection, as per TII Guidance (TII, 2022b). The *Intermediate Case* assumes a linear interpolation between the *Business as Usual* case – where current trends in vehicle ownership continue and the *Climate Action Plan (CAP)* case – where adoption of low emission light duty vehicles occurs.

Using this input data the model predicts the road traffic contribution to ambient ground level concentrations at the identified sensitive receptors using generic meteorological data. The TII REM uses county-based Irish fleet composition for different road types, for different European emission standards from pre-Euro to Euro 6/VI with scaling factors to reflect improvements in fuel quality, retrofitting, and technology conversions. The TII REM also includes emission factors for PM_{10} emissions associated with brake and tyre wear (TII, 2022b). The predicted road contributions are then added to the existing background concentrations to give the predicted ambient concentrations. The ambient concentrations are then compared with the relevant ambient air quality standards to assess the compliance of the proposed development with these ambient air quality standards.

The TII document *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022a) details a methodology for determining air quality impact significance criteria for road schemes which can be applied to any project that causes a change in traffic. The degree of impact is determined based on the percentage change in pollutant concentrations relative to the do nothing scenario. The TII significance criteria are outlined in Table 4.9 of *Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106* (TII, 2022a) and reproduced in Table 8.2 below. These criteria have been adopted for the proposed development to predict the impact of NO_2 and PM_{10} emissions as a result of the proposed development.

Table 8.2 *Air Quality Significance Criteria*

Long term average concentration at receptor in assessment year	% Change in concentration relative to Air Quality Standard Value (AQLV)			
	1%	2-5%	6-10%	>10%
75% or less of AQLV	Neutral	Neutral	Slight	Moderate
76 – 94% of AQLV	Neutral	Slight	Moderate	Moderate
95 – 102% of AQLV	Slight	Moderate	Moderate	Substantial
103 – 109% of AQLV	Moderate	Moderate	Substantial	Substantial
110% or more of AQLV	Moderate	Substantial	Substantial	Substantial

Source: TII (2022a) Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106

Traffic Data Used in Modelling Assessment

Traffic flow information detailed in Table 8.3 was obtained from OCSC Consulting Engineers for the purposes of this assessment. Data for the Base Year 2022 and the Do Nothing and Do Something scenarios for the opening year 2026 and design year 2041 were provided. A conservative growth factor has been applied to the traffic data to allow for cumulative development within the area. Specific cumulative developments were also investigated but it was found that there were no specific permitted developments that would lead to cumulative traffic impacts due to their increased distance from the site (see Traffic Impact Assessment and Chapter 14 for further details).

The modelling assessment has been undertaken for road links Richmond Road (E), Richmond Road (W), the Crannóg access road and Clontarf Road as these met the TII scoping criteria and that were within 200m of receptors . Background concentrations have been included as per Section 8.3.2 of this chapter based on available EPA background monitoring data (EPA, 2022).

Table 8.3 *Traffic Data used in Air Modelling Assessment*

Road Name	Speed (kph)	Base Year 2022	Opening Year 2026		Design Year 2041	
			Do Nothing	Do Something	Do Nothing	Do Something
		LDV AADT (HDV AADT)	LDV AADT (HDV AADT)	LDV AADT (HDV AADT)	LDV AADT (HDV AADT)	LDV AADT (HDV AADT)
Crannóg Access Link	30	51 (0)	54 (0)	1,431 (0)	60 (0)	1,438 (0)
Richmond Road (E)	40	9,609 (1,188)	10,255 (1,268)	11,178 (1,381)	11,569 (1,430)	12,551 (1,551)
Richmond Road (W)	40	9,269 (1,509)	9,893 (1,610)	10,796 (1,757)	11,178 (1,820)	12,118 (1,973)
Clontarf Road	50	15,693 (3,681)	15,865 (3,722)	16,884 (3,961)	18,063 (4,237)	19,177 (4,498)

Figure 8.1 *Sensitive Receptors included in Operational Phase Air Quality Modelling Assessment*

8.2.4 Difficulties in Compiling the Assessment

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

8.3 RECEIVING ENVIRONMENT

8.3.1 Meteorological Data

A key factor in assessing temporal and spatial variations in air quality is the prevailing meteorological conditions. Depending on wind speed and direction, individual receptors may experience very significant variations in pollutant levels under the same source strength (i.e. traffic levels) (WHO, 2006). Wind is of key importance in dispersing air pollutants and for ground level sources, such as traffic emissions, pollutant concentrations are generally inversely related to wind speed. Thus, concentrations of pollutants derived from traffic sources will generally be greatest under very calm conditions and low wind speeds when the movement of air is restricted. In relation to PM_{10}, the situation is more complex due to the range of sources of this pollutant. Smaller particles (less than $PM_{2.5}$) from traffic sources will be dispersed more rapidly at higher wind speeds. However, fugitive emissions of coarse particles ($PM_{2.5}$ - PM_{10}) will actually increase at higher wind speeds. Thus, measured levels of PM_{10} will be a non-linear function of wind speed.

The nearest representative weather station collating detailed weather records is Dublin Airport meteorological station, which is located approximately 6 km north of the site. Dublin Airport met data has been examined to identify the prevailing wind direction and average wind speeds over a five-year period (see Figure 8.2). For data collated during five representative years (2017 - 2021), the predominant wind direction is westerly to south-westerly; the mean wind speed over the long term 30 year averaging period 1981 - 2010 is 5.5 m/s (Met Eireann, 2023).

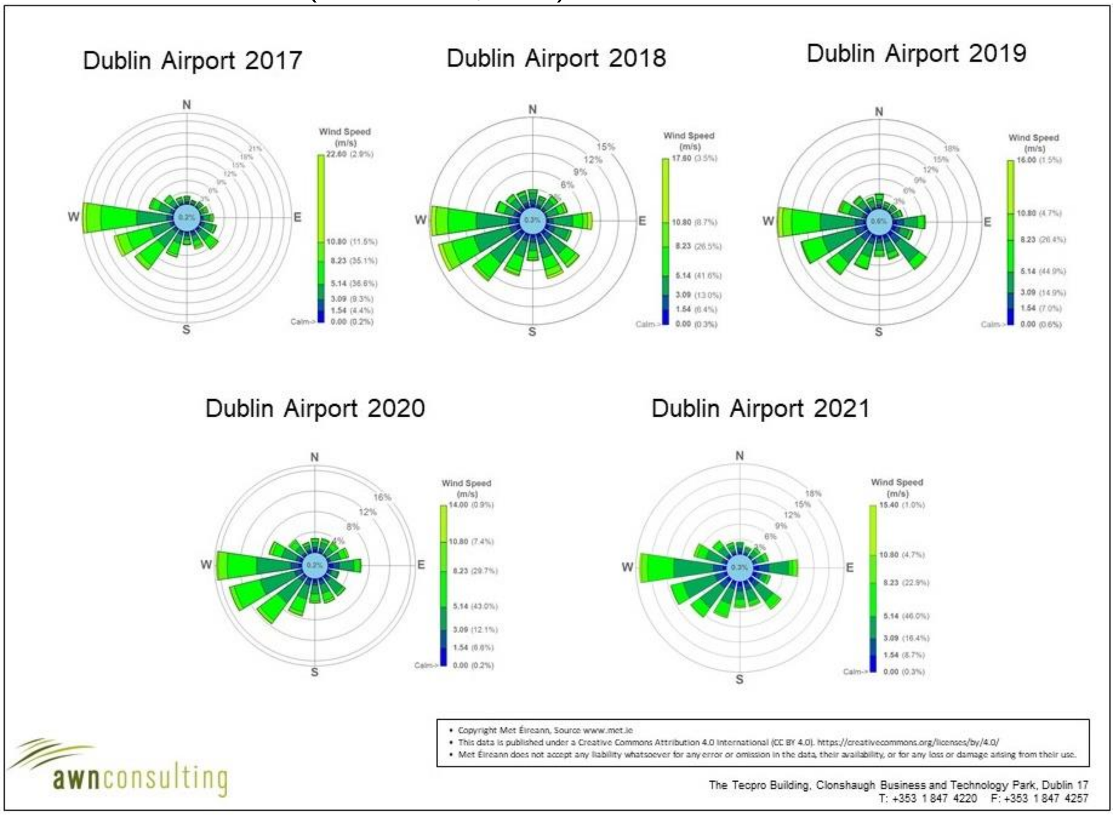


Figure 8.2 *Dublin Airport Windrose 2017 – 2021 (Met Eireann, 2023)*

8.3.2 Baseline Air Quality

Air quality monitoring programs have been undertaken in recent years by the EPA and Local Authorities. The most recent EPA published annual report on air quality "*Air Quality In Ireland 2021*" (EPA 2022) details the range and scope of monitoring undertaken throughout Ireland.

As part of the implementation of the Framework Directive on Air Quality (1996/62/EC), four air quality zones have been defined in Ireland for air quality management and assessment purposes as outlined within the EPA document titled 'Air Quality In Ireland 2021' (EPA 2022). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000 is defined as Zone D. In terms of air monitoring, the area of the proposed development is categorised as Zone A.

In 2020 the EPA reported (EPA, 2021) that Ireland was compliant with EU legal air quality limits at all locations, however this was largely due to the reduction in traffic due to Covid-19 restrictions. The EPA *Air Quality in Ireland 2020* report details the effect that the Covid-19 restrictions had on air monitoring stations, which included reductions of up to 50% at some monitoring stations which have traffic as a dominant source. For this reason, data from 2020 have been included in the baseline section for representative purposes only and previous long-term data has been used to determine baseline levels of pollutants in the vicinity of the proposed development.

NO_2

Long-term NO_2 monitoring was carried out at the Zone A suburban locations of Rathmines, Ballyfermot, Dun Laoghaire and Swords for the period 2017 - 2021 (EPA, 2022). Long term average concentrations are significantly below the annual average limit of 40 µg/m^3 for the suburban locations. Average results range from 11 – 22 µg/m^3 (Table 8.4). The NO_2 concentrations in Rathmines for this five year period suggests an overall average of 17 µg/m^3 as a background concentration. Based on the above information a conservative estimate of the current background NO_2 concentration for the region of the proposed development is 17 µg/m^3.

Table 8.4 *Background NO_2 Concentrations In Zone A Locations (µg/m^3)*

Station	Station Classification	Averaging Period Note 1	Year				
			2017	2018	2019	2020	2021
Rathmines	Suburban Background	Annual Mean NO_2 (µg/m^3)	17	20	22	13	14
		99.8th%ile 1-hr NO_2 (µg/m^3)	86	87	102	81	69
Ballyfermot	Suburban Background	Annual Mean NO_2 (µg/m^3)	17	17	20	12	13
		99.8th%ile 1-hr NO_2 (µg/m^3)	112	101	101	83	73
Dun Laoghaire	Suburban Background	Annual Mean NO_2 (µg/m^3)	17	19	15	14	16
		99.8th%ile 1-hr NO_2 (µg/m^3)	101	91	91	78	73
Swords	Suburban Background	Annual Mean NO_2 (µg/m^3)	14	16	15	11	11
		99.8th%ile 1-hr NO_2 (µg/m^3)	79	85	80	65	63

Note 1 Annual average limit value of 40 µg/m^3 and hourly limit value of 200 µg/m^3 (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022).

PM_{10}

Continuous PM_{10} monitoring was carried out at the Zone A locations of Rathmines, Dun Laoghaire, Ballyfermot and Phoenix Park from 2017 - 2021. These showed an upper average limit of no more than 16 µg/m^3 (Table 8.5). Levels range from 9 – 16 µg/m^3 over the five year period with at most 9 exceedances of the 24-hour limit value of 50 µg/m^3 in Rathmines in 2019 (35 exceedances are permitted per year) (EPA, 2022). Sufficient data is available for the urban background location in the Phoenix Park to observe long-term trends in the data. Data from 2017 – 2021 suggests an upper average annual mean value of at most 10 µg/m^3 as a background concentration at the Phoenix Park location. Based on the EPA data, a conservative estimate of the current background PM_{10} concentration in the region of the proposed development is 12 µg/m^3.

Table 8.5 *Background PM_{10} Concentrations In Zone A Locations ($\mu g/m^3$)*

Station	Station Classification	Averaging Period	Year				
			2017	2018	2019	2020	2021
Ballyfermot	Suburban Background	Annual Mean PM_{10} ($\mu g/m^3$)	12	16	14	12	12
		24-hr Mean > 50 $\mu g/m^3$ (days)	1	0	7	2	0
Dún Laoghaire	Suburban Background	Annual Mean PM_{10} ($\mu g/m^3$)	12	13	12	12	11
		24-hr Mean > 50 $\mu g/m^3$ (days)	2	0	2	0	0
Rathmines	Suburban Background	Annual Mean PM_{10} ($\mu g/m^3$)	13	15	15	11	12
		24-hr Mean > 50 $\mu g/m^3$ (days)	5	2	9	2	0
Phoenix Park	Urban Background	Annual Mean PM_{10} ($\mu g/m^3$)	9	11	11	10	10
		24-hr Mean > 50 $\mu g/m^3$ (days)	1	0	2	0	0

Note 1 Annual average limit value of 40 $\mu g/m^3$ and 24-hour limit value of 50 $\mu g/m^3$ (EU Council Directive 2008/50/EC & S.I. No. 739 of 2022).

$PM_{2.5}$

Monitoring of both PM_{10} and $PM_{2.5}$ takes place at the station in Rathmines which allows for the $PM_{2.5}/PM_{10}$ ratio to be calculated. Average $PM_{2.5}$ levels in Rathmines over the period 2017 – 2021 ranged from 9 – 10 $\mu g/m^3$, with a $PM_{2.5}/PM_{10}$ ratio ranging from 0.60 – 0.75 (EPA, 2022). Based on this information, a conservative ratio of 0.8 was used to generate an existing $PM_{2.5}$ concentration in the region of the development of 9.6 $\mu g/m^3$.

Based on the above information the air quality in the suburban Dublin area is generally good, with concentrations of the key pollutants generally well below the relevant limit values. However, the EPA have indicated that road transport emissions are contributing to increased levels of NO_2 with the potential for breaches in the annual NO_2 limit value in future years at locations within urban centres and roadside locations. In addition, burning of solid fuels for home heating is contributing to increased levels of particulate matter (PM_{10} and $PM_{2.5}$). The EPA predict that exceedances in the particulate matter limit values are likely in future years if burning of solid fuels for residential heating continues (EPA, 2022).

The current background concentrations have been used in the operational phase air quality assessment for both the opening and design year as a conservative approach in order to predict pollutant concentrations in future years. This is in line with the TII methodology (TII, 2022a).

8.3.3 Sensitivity of the Receiving Environment

In line with the UK Institute of Air Quality Management (IAQM) guidance document '*Guidance on the Assessment of Dust from Demolition and Construction'* (2014) prior to assessing the impact of dust from a proposed development the sensitivity of the area must first be assessed as outlined below. Both receptor sensitivity and proximity to proposed works areas are taken into consideration. For the purposes of this assessment, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time. Commercial properties and places of work are regarded as medium sensitivity while low sensitivity receptors are areas where people are present for short periods or where the public would not expect a high level of amenity.

In terms of receptor sensitivity to dust soiling, there are over 100 no. high sensitivity residential properties within 20 m of the proposed development site boundary (see Figure 8.3). Therefore, the overall sensitivity of the area to dust soiling impacts is considered high based on the IAQM criteria outlined in Table 8.6.

Table 8.6 *Sensitivity of the Area to Dust Soiling Effects on People and Property*

Receptor Sensitivity	Number Of Receptors	Distance from source (m)			
		<20	<50	<100	<350
High	>100	**High**	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

In addition to sensitivity to dust soiling, the IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to human health impacts. The criteria take into consideration the current annual mean PM_{10} concentration, receptor sensitivity based on type (residential receptors are classified as high sensitivity) and the number of receptors affected within various distance bands from the construction works. A conservative estimate of the current annual mean PM_{10} concentration in the vicinity of the proposed development is 12 µg/m^3 and are over 100 no. residential properties within 20 m of the proposed development boundary (see Figure 8.3). Based on the IAQM criteria outlined in Table 8.7, the worst-case sensitivity of the area to human health is considered medium.

Table 8.7 *Sensitivity of the Area to Dust Related Human Health Impacts*

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number Of Receptors	Distance from source (m)				
			<20	<50	<100	<200	<350
High	< 24 µg/m^3	>100	**Medium**	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	< 24 µg/m^3	>10	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Low	< 24 µg/m^3	>1	Low	Low	Low	Low	Low

The IAQM guidelines also outline the assessment criteria for determining the sensitivity of the area to dust-related ecological impacts. Dust emissions can coat vegetation leading to a reduction in the photosynthesising ability of the plant as well as other effects. The guidance states that dust impacts to vegetation can occur up to 50 m from the site and 50 m from site access roads, up to 500m for the site entrance. There are no designated ecological sites within 50 m of the site or 500 m of the site entrance therefore there is no potential for impacts.

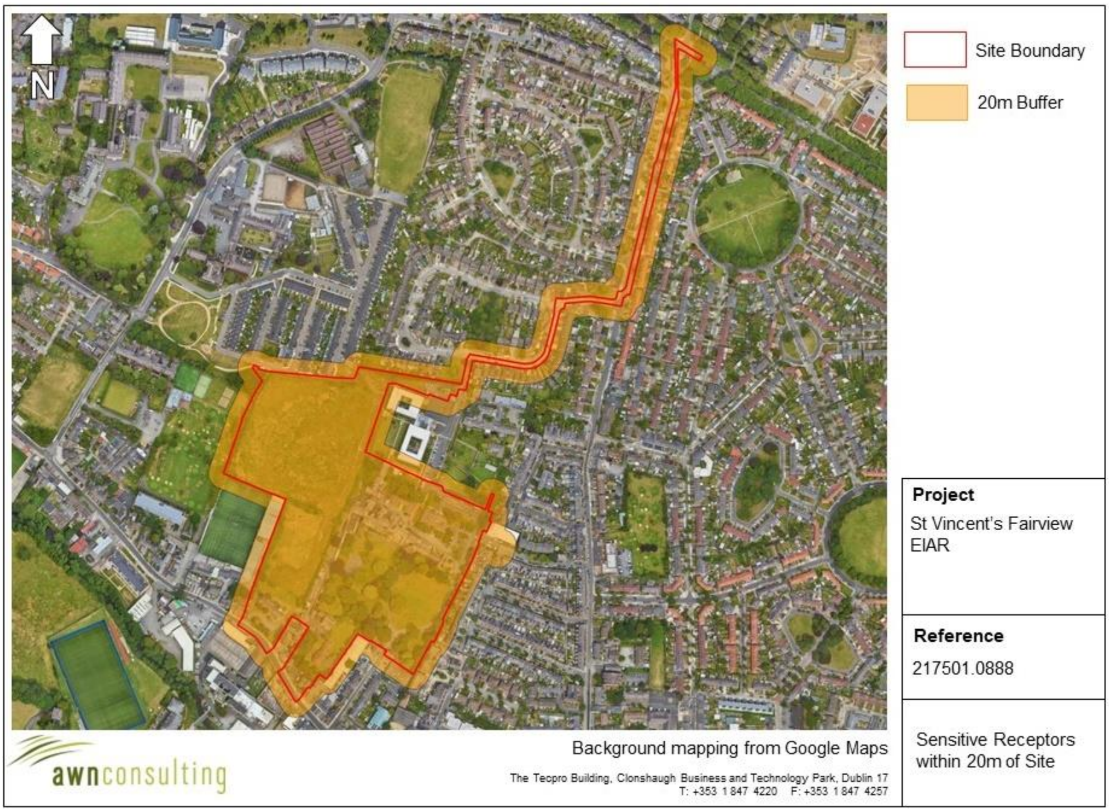


Figure 8.3 *Sensitive Receptors within 20m of Site Boundary*

8.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

A full description of the development is available in Chapter 2 (Description of the Proposed Development). The sections below outline the characteristics of the proposed development as they relate to air quality. The following describes the primary sources of potential air and the primary sources of potential air quality impacts during the construction and operational phase.

8.4.1 Construction Phase

During the construction stage the main source of air quality impacts will be as a result of fugitive dust emissions from site activities. Dust emissions will primarily occur as a result of demolition works, site preparation works, earthworks and the movement of trucks on site and exiting the site.

Construction stage traffic also has the potential to impact air quality through vehicle exhaust emissions. OCSC Consulting Engineers have prepared a Traffic Impact Assessment for the proposed development and Chapter 14 of this EIAR. The construction stage traffic has been reviewed in line with the TII screening criteria (Section 9.2.2) and it was determined that a detailed air quality modelling assessment of construction stage traffic was not required due to the low level changes in traffic.

8.4.2 Operational Phase

The primary sources of air emissions in the operational context are deemed long term and will involve the change in traffic flows in the local areas which are associated with the development. There are small number of road links in close proximity to the proposed development that will experience a change in traffic volumes that meet the TII screening criteria (Section 9.2.2). Therefore, a detailed air quality modelling assessment of operational phase traffic emissions was conducted.

8.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

8.5.1 Do Nothing Scenario

Under the Do Nothing Scenario no construction works will take place and the identified impacts of fugitive dust and particulate matter emissions will not occur. Impacts from increased traffic volumes and associated air emissions will also not occur. The ambient air quality at the site will remain as per the baseline and will change in accordance with trends within the wider area (including influences from new developments in the surrounding area, changes in road traffic, etc.). The Do Nothing scenario for the operational phase is assessed within Section 8.5.3 and was assessed to be neutral. Therefore, overall the Do Nothing scenario can be considered neutral in terms of air quality.

8.5.2 Construction Phase

The greatest potential impact on air quality during the construction phase of the proposed development is from construction dust emissions and the potential for nuisance dust. While construction dust tends to be deposited within 350 m of a construction site, the majority of the deposition occurs within the first 50 m. The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction. A review of Dublin Airport meteorological data (see Section 8.3.1) indicates that the prevailing wind direction is westerly to south-westerly and wind speeds are generally moderate in nature. In addition, dust generation is considered negligible on days where rainfall is greater than 0.2 mm. A review of historical 30 year average data for Dublin Airport indicates that on average 191 days per year have rainfall over 0.2 mm (Met Eireann, 2023) and therefore it can be determined that over 50% of the time dust generation will be reduced.

In order to determine the level of dust mitigation required during the proposed works, the potential dust emission magnitude for each dust generating activity needs to be taken into account, in conjunction with the previously established sensitivity of the area (see Section 8.3.3). As per Section 8.2.2 the major dust generating activities are divided into four types within the IAQM guidance to reflect their different potential impacts. These are:

- Demolition;
- Earthworks;
- Construction; and
- Trackout (movement of heavy vehicles).

Demolition

Demolition will primarily involve the removal of buildings or structures currently on the site in a potentially dusty manner. This may also involve dust generation at heights. Dust emission magnitude from demolition can be classified as small, medium and large and are described below.

Large: Total building volume >50,000 m^3, potentially dusty construction material (e.g. concrete), on-site crushing and screening, demolition activities >20 m above ground level;

Medium: Total building volume 20,000 m^3 – 50,000 m^3, potentially dusty construction material, demolition activities 10-20 m above ground level; and

Small: Total building volume less than 20,000 m^3.

There is a large amount of demolition involved as part of the proposed development with a number of structures to be removed. The total building volume involved is estimated to be greater than 50,000 m^3. Therefore, the demolition works can be classified as large. As the overall sensitivity of the area to dust soiling impacts is high (see section 8.3.3) when combined with the large magnitude for demolition works this results in an overall high risk of dust nuisance impacts as per Table 8.8. As the overall sensitivity of the area to dust related human health impacts is medium (see section 8.3.3), this results in a high risk of human health impacts from dust emissions during demolition (Table 8.8).

Table 8.8 *Risk of Dust Impacts – Demolition*

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Source (IAQM, 2014) Guidance on the Assessment of Dust from Demolition and Construction

Earthworks

Earthworks primarily involve excavating material, loading and unloading of materials, tipping and stockpiling activities. Activities such as levelling the site and landscaping works are also considered under this category. The dust emission magnitude from earthworks can be classified as small, medium or large based on the definitions from the IAQM guidance as transcribed below:

Large: Total site area > 10,000 m^2, potentially dusty soil type (e.g. clay which will be prone to suspension when dry due to small particle size), >10 heavy earth moving vehicles active at any one time, formation of bunds > 8 m in height, total material moved >100,000 tonnes;

Medium: Total site area 2,500 m^2 – 10,000 m^2, moderately dusty soil type (e.g. silt), 5 – 10 heavy earth moving vehicles active at any one time, formation of bunds 4 – 8 m in height, total material moved 20,000 – 100,000 tonnes;

Small: Total site area < 2,500 m^2, soil type with large grain size (e.g. sand), < 5 heavy earth moving vehicles active at any one time, formation of bunds < 4 m in height, total material moved < 20,000 tonnes, earthworks during wetter months.

The site area is greater than 10,000 m^2 and there will be over 100,000 tonnes of material involved in excavation works. Therefore, the dust emission magnitude for the proposed earthwork activities can be classified as large. As outlined in Table 8.9 and combined with the sensitivity from Section 8.3.3, this results in an overall high risk of dust soiling impacts and a medium risk of human health impacts as a result of the proposed earthworks activities.

Table 8.9 *Risk of Dust Impacts – Earthworks*

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Source (IAQM, 2014) Guidance on the Assessment of Dust from Demolition and Construction

Construction

Dust emission magnitude from construction can be classified as small, medium or large based on the definitions from the IAQM guidance as transcribed below:

Large: Total building volume > 100,000 m^3, on-site concrete batching, sandblasting;

Medium: Total building volume 25,000 m^3 – 100,000 m^3, potentially dusty construction material (e.g. concrete), on-site concrete batching;

Small: Total building volume < 25,000 m^3, construction material with low potential for dust release (e.g. metal cladding or timber).

The dust emission magnitude for the proposed construction activities can be classified as large as a worst-case as the total building volume will be in the region of 100,000 m^3. As outlined in Table 8.10 and combined with the sensitivity from Section 8.3.3, this results in an overall high risk of dust soiling impacts and a medium risk of human health impacts as a result of the proposed construction activities.

Table 8.10 *Risk of Dust Impacts – Construction*

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Source (IAQM, 2014) Guidance on the Assessment of Dust from Demolition and Construction

Trackout

Factors which determine the dust emission magnitude are vehicle size, vehicle speed, number of vehicles, road surface material and duration of movement. Dust emission magnitude from trackout can be classified as small, medium or large based on the definitions from the IAQM guidance as transcribed below:

Large: > 50 HGV (> 3.5 t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length > 100 m;

Medium: 10 - 50 HGV (> 3.5 t) outward movements in any one day, moderately dusty surface material (e.g. high clay content), unpaved road length 50 - 100 m;

Small: < 10 HGV (> 3.5 t) outward movements in any one day, surface material with low potential for dust release, unpaved road length < 50 m.

During the peak excavation phase there will be a maximum of 100 outward HGV movements per day. During typical site operations this will reduce to 40 outward HGV movements per day. Therefore, the dust emission magnitude for the proposed trackout can be classified as large as a conservative approach. As outlined in Table 8.11 and combined with the sensitivity from Section 8.3.3, this results in an overall high risk of dust soiling impacts and a medium risk of human health impacts as a result of the proposed trackout activities.

Table 8.11 *Risk of Dust Impacts – Trackout*

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Source (IAQM, 2014) Guidance on the Assessment of Dust from Demolition and Construction

Summary of Dust Emission Risk

The risk of dust impacts as a result of the proposed development are summarised in Table 8.12 for each activity. The magnitude of risk determined is used to prescribe the level of site specific mitigation required for each activity in order to prevent significant impacts occurring.

There is at most a high risk of dust soiling impacts and a medium risk of human health impacts associated with the proposed works therefore dust mitigation measures associated with high risk sites will be implemented to ensure there are no significant impacts at nearby sensitive receptors. In the absence of mitigation, dust impacts are predicted to be ***short-term, direct, negative*** and ***moderate***.

Table 8.12 *Summary of Dust Impact Risk used to Define Site-Specific Mitigation*

Potential Impact	Dust Emission Risk			
	Demolition	Earthworks	Construction	Trackout
Dust Emission Magnitude	Large	Large	Large	Large
Dust Soiling Risk	High Risk	High Risk	High Risk	High Risk
Human Health Risk	Medium Risk	Medium Risk	Medium Risk	Medium Risk

There is also the potential for traffic emissions to impact air quality in the short-term over the construction phase. Particularly due to the increase in HGVs accessing the site. The construction stage traffic was reviewed in line with the TII assessment criteria in Section 8.2.2 to determine whether a detailed air quality assessment of traffic emissions was required. As the construction stage traffic did not meet the screening criteria, a detailed air quality assessment of construction stage traffic emissions was screened out. It can be concluded that construction phase traffic emissions will have a ***short-term, localised, neutral*** and ***non-significant*** impact on air quality.

8.5.3 Operational Phase

The potential impact of the proposed development has been assessed by modelling emissions from the traffic generated as a result of the development. The traffic data includes the Do Nothing and Do Something scenarios (see Section 8.2.3). The impact of NO_2 and PM_{10} emissions for the opening and design years was predicted at the nearest sensitive receptors to the development. This assessment allows the significance of the development, with respect to both relative and absolute impacts, to be determined.

The TII guidance PE-ENV-01106 (TII, 2022a) details a methodology for determining air quality impact significance criteria for TII road schemes and infrastructure projects however, this significance criteria can be applied to any development that causes a change in traffic. The degree of impact is determined based on both the absolute and relative impact of the proposed development. Results are compared against the 'Do-Nothing' scenario, which assumes that the proposed development is not in place in future years, in order to determine the degree of impact.

The results of the assessment of the impact of the proposed development on NO_2 in the opening year 2026 and design year 2041 are shown in Table 8.13. The annual average concentration is in compliance with the limit value at the worst-case receptors in 2026 and 2041. Concentrations of NO_2 are at most 54% of the annual limit value in 2026 and 48% of the annual limit value in 2041. There are predicted to be some increases in traffic between the opening and design years therefore, any decrease in concentration is due to increased uptake in electric vehicles and lower vehicle exhaust emissions. In addition, the TII guidance (2022a) states that the hourly limit value for NO_2 of 200 $\mu g/m^3$ is unlikely to be exceeded at roadside locations unless the annual mean is above 60 $\mu g/m^3$. As predicted NO_2 concentrations are significantly below 60 $\mu g/m^3$ (Table 8.13) it can be concluded that the short-term NO_2 limit value will be complied with at all receptor locations.

The impact of the proposed development on annual mean NO_2 concentrations can be assessed relative to "Do Nothing (DN)" levels. NO_2 concentrations at the receptors assessed will increase as a result of the proposed development when compared with the Do-Nothing scenario. There will be at most an increase of 0.49 µg/m^3 at receptor R1, this is a 3% change from baseline conditions. Where the predicted annual mean concentrations are less than 75% of the air quality standard (see Table 8.1) and there is a less than 5% change in concentrations compared with the Do-Nothing scenario then the impact is considered neutral as per the TII significance criteria (see Table 8.2). Therefore, the impact of the proposed development on NO_2 concentrations is neutral.

In relation to changes in PM_{10} concentrations as a result of the proposed development, the results of the assessment can be seen in Table 8.14 for the opening year 2026 and design year 2041. The annual average concentration is in compliance with the limit value at the worst-case receptors in 2026 and 2041. Concentrations of PM_{10} are at most 43% of the annual limit value in 2026 and 44% of the annual limit value in 2041. In addition, the proposed development will not result in any exceedances of the daily PM_{10} limit value of 50 µg/m^3. The impact of the proposed development on annual mean PM_{10} concentrations can be assessed relative to “Do Nothing (DN)” levels. PM_{10} concentrations at the receptors assessed will increase as a result of the proposed development when compared with the Do-Nothing scenario. There will be at most an increase of 0.35 µg/m^3 at receptor R2, this is a 2% change from baseline conditions. As with NO_2, where the predicted annual mean concentrations are less than 75% of the air quality standard (see Table 8.1) and there is a less than 5% change in concentrations compared with the Do-Nothing scenario then the impact is considered neutral as per the TII significance criteria (see Table 8.2). Therefore, the impact of the proposed development on PM_{10} concentrations is neutral.

Overall, the potential impact of the proposed development on ambient air quality in the operational stage is considered ***long-term, localised, neutral, imperceptible*** and ***non-significant***.

Table 8.13 *Annual Mean NO_2 Concentrations (µg/m^3)*

Receptor	Impact Opening Year				Impact Design Year			
	DN	DS	DS-DN	Description	DN	DS	DS-DN	Description
R1	17.0	17.5	0.49	Neutral	17.0	17.2	0.19	Neutral
R2	21.1	21.5	0.37	Neutral	18.9	19.0	0.15	Neutral
R3	20.8	21.1	0.34	Neutral	18.8	18.9	0.14	Neutral
R4	20.0	20.0	0.07	Neutral	18.3	18.3	0.03	Neutral

Table 8.14 *Annual Mean PM_{10} Concentrations (µg/m³)*

Receptor	Impact Opening Year				Impact Design Year			
	DN	DS	DS-DN	Description	DN	DS	DS-DN	Description
R1	13.0	13.4	0.34	Neutral	13.0	13.3	0.33	Neutral
R2	16.7	17.1	0.33	Neutral	17.1	17.4	0.35	Neutral
R3	16.5	16.9	0.32	Neutral	16.9	17.2	0.32	Neutral
R4	16.3	16.3	0.08	Neutral	16.3	16.4	0.08	Neutral

8.6 REMEDIAL AND MITIGATION MEASURES

8.6.1 Construction Phase

The proposed development has been assessed as having a high risk of dust soiling impacts and a medium risk of dust related human health impacts during the construction phase as a result of demolition, earthworks, construction and trackout activities (see Section 8.5.2). Therefore, the following dust mitigation measures shall be implemented during the demolition and construction phases of the proposed development. These measures are appropriate for sites with a high risk of dust impacts and aim to ensure that no significant nuisance occurs at nearby sensitive receptors. The mitigation measures draw on best practice guidance from Ireland (DCC, 2018), the UK (IAQM (2014), BRE (2003), The Scottish Office (1996), UK ODPM (2002)) and the USA (USEPA, 1997). Specific attention has been given to the measures required by Dublin City Council in their document *Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition* (DCC, 2018). These measures will be incorporated into the overall Construction Environmental Management Plan (CEMP) prepared for the site. The measures are divided into different categories for different activities.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement includes explaining the nature and duration of the works to local residents and businesses.
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details.

Site Management

- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. Dry and windy conditions are favourable to dust suspension therefore mitigations must be implemented if undertaking dust generating activities during these weather conditions.
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out

Preparing and Maintaining the Site

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

Operating Vehicles / Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 kph haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Measures Specific to Demolition

- Prior to demolition blocks should be soft striped inside buildings (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
- During the demolition process, water suppression should be used, preferably with a hand-held spray. Only the use of cutting, grinding or sawing equipment fitted or used in conjunction with a suitable dust suppression technique such as water sprays/local extraction should be used.
- Drop heights from conveyors, loading shovels, hoppers and other loading equipment should be minimised, if necessary fine water sprays should be employed.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.

Measures Specific to Earthworks

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

Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

Measures Specific to Trackout

- A speed restriction of 15 kph will be applied as an effective control measure for dust for on-site vehicles.
- Street and footpath cleaning must be undertaken during the demolition and ground works phase to minimise dust emissions. This can be carried out using water-assisted dust sweeper(s). If sweeping using a road sweeper is not possible due to the nature of the surrounding area then a suitable smaller scale street cleaning vacuum will be used.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.

- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

Monitoring

- Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the demolition and ground works phases of the proposed development is required to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m^2/day during the monitoring period of 30 days (+/- 2 days).

8.6.2 Operational Phase

No mitigation is proposed for the operational phase of the proposed development as impacts to air quality will be neutral and non-significant.

8.7 MONITORING

8.7.1 Construction Phase

During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. The Principal Contractor or equivalent must monitor the contractors' performance to ensure that the proposed mitigation measures are implemented and that dust impacts and nuisance are minimised.

Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the demolition and ground works phases of the proposed development is required to ensure mitigation measures are working satisfactorily. This can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/m^2/day during the monitoring period of 30 days (+/- 2 days).

8.7.2 Operational Phase

There is no monitoring recommended for the operational phase of the development as impacts to air quality is predicted to be imperceptible.

8.8 RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT

8.8.1 Construction Phase

8.8.1.1 Air Quality

When the dust mitigation measures detailed in the mitigation section of this report (Section 8.6.1) are implemented, the residual effect of fugitive emissions of dust and particulate matter from the site will be ***short term, direct, negative*** and ***slight*** in nature, posing no nuisance at nearby receptors.

8.8.1.2 Human Health

Best practice mitigation measures are proposed for the construction phase of the proposed development which will focus on the pro-active control of dust and other air pollutants to minimise generation of emissions at source. The mitigation measures that will be put in place during construction of the proposed development will ensure that the impact of the development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the residual effect of construction of the proposed development will be ***short term, direct, negative*** and ***imperceptible*** with respect to human health.

8.8.2 Operational Phase

8.8.2.1 Air Quality

Air dispersion modelling of operational traffic emissions associated with the proposed development was carried out using the TII REM tool. The modelling assessment determined that the change in emissions of NO_2 and PM_{10} at nearby sensitive receptors as a result of the proposed development will be neutral. Therefore, the operational phase impact to air quality is ***long-term, localised, neutral, imperceptible*** and ***non-significant***.

8.8.2.2 Human Health

Emissions of air pollutants are predicted to be significantly below the ambient air quality standards which are based on the protection of human health. Therefore, impacts to human health are ***long-term, direct, neutral***, ***imperceptible*** and ***non-significant***.

8.9 CUMULATIVE IMPACTS

A full list of developments that are currently permitted or under construction within the surrounding area are identified and described in Chapter 2 (Description of the Proposed Development), Section 2.8.

8.9.1 Construction Phase

According to the IAQM guidance (2014) should the construction phase of the proposed development coincide with the construction phase of any other development within 350 m then there is the potential for cumulative construction dust impacts to nearby sensitive receptors. A review of recent planning permissions for the area was conducted and it was found that there were 3 no. relevant sites for which cumulative impacts may occur should their construction phase and that of the proposed development overlap; these include: Reg. Ref.: 2991/15 & ABP Ref.: PL29N.245745, SHD ABP Ref.: 312352-21, Reg. Ref.: 2991/15 & ABP Ref.: PL29N.245745.

There is the potential for cumulative construction dust impacts should the construction phases overlap with that of the proposed development. However, the dust mitigation measures outlined in Section 8.6.1 will be applied throughout the construction phase of the proposed development which will avoid significant cumulative impacts on air quality. With appropriate mitigation measures in place, the predicted cumulative impacts on air quality associated with the construction phase of the proposed development are deemed short-term, direct, localised, negative and slight.

8.9.2 Operational Phase

There is the potential for cumulative impacts to air quality during the operational phase due to traffic associated with other existing and permitted developments within the area. The traffic data provided for the operational stage air quality assessment included cumulative traffic. A conservative growth factor was applied to the traffic data to allow for cumulative development within the area in the wider context. In addition, specific cumulative developments were also investigated as part of the traffic assessment, but it was found that there were no specific permitted developments that would lead to cumulative traffic impacts due to their increased distance from the site (see Traffic Impact Assessment and Chapter 14 for further details). Therefore, the cumulative operational phase impact is assessed within Section 8.5.3 and was found to have a neutral impact on air quality. The cumulative operational stage impact is long-term, localised, direct, neutral, imperceptible and non-significant.

8.10 REFERENCES

BRE (2003) Controlling Particles, Vapours & Noise Pollution from Construction Sites

Department of the Environment Heritage and Local Government (DEHLG) (2004) Quarries and Ancillary Activities, Guidelines for Planning Authorities

Dublin City Council (2018) Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition

Environmental Protection Agency (2015) Advice Notes for Preparing Environmental Impact Statements – Draft

Environmental Protection Agency (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports

Environmental Protection Agency (2022) Air Quality Monitoring Report 2021 (& previous annual reports)

German VDI (2002) Technical Guidelines on Air Quality Control – TA Luft

Institute of Air Quality Management (IAQM) (2014) Guidance on the Assessment of Dust from Demolition and Construction Version 1.1

Met Éireann (2023) Met Eireann website: https://www.met.ie/

The Scottish Office (1996) Planning Advice Note PAN50 Annex B: Controlling The Environmental Effects Of Surface Mineral Workings Annex B: The Control of Dust at Surface Mineral Workings

Transport Infrastructure Ireland (2022a) Air Quality Assessment of Specified Infrastructure Projects – PE-ENV-01106

Transport Infrastructure Ireland (2022b) TII Road Emissions Model (REM): Model Development Report – GE-ENV-01107

UK Office of Deputy Prime Minister (2002) Controlling the Environmental Effects of Recycled and Secondary Aggregates Production Good Practice Guidance

USEPA (1997) Fugitive Dust Technical Information Document for the Best Available Control Measures

World Health Organisation (2006) Air Quality Guidelines - Global Update 2005 (and previous Air Quality Guideline Reports 1999 & 2000)

CHAPTER 9

CLIMATE

awnconsulting
A Trinity Consultants Company

CHAPTER 9 CONTENTS

9.0 CLIMATE

9.1 INTRODUCTION

This chapter assesses the likely significant climate related impacts associated with the proposed development at St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. A full description of the development is available in Chapter 2.

9.2 METHODOLOGY

9.2.1 Criteria for Rating of Impacts

9.2.1.1 Climate Agreements and Policies

In 2015, the Climate Action and Low Carbon Development Act 2015 (No. 46 of 2015) (Government of Ireland, 2015) was enacted (the Act). The purpose of the Act was to enable Ireland '*to pursue, and achieve, the transition to a low carbon, climate resilient and environmentally sustainable economy by the end of the year 2050'* (3.(1) of No. 46 of 2015). This is referred to in the Act as the 'national transition objective'. The Act made provision for a national mitigation plan, and a national adaptation framework. In addition, the Act provided for the establishment of the Climate Change Advisory Council with the function to advise and make recommendations on the preparation of the national mitigation and adaptation plans and compliance with existing climate obligations.

The first Climate Action Plan (CAP) was published by the Irish Government in June 2019 (Government of Ireland, 2019). The Climate Action Plan 2019 outlined the current status across key sectors including Electricity, Transport, Built Environment, Industry and Agriculture and outlined the various broadscale measures required for each sector to achieve ambitious decarbonisation targets. The 2019 CAP also detailed the required governance arrangements for implementation including carbon-proofing of policies, establishment of carbon budgets, a strengthened Climate Change Advisory Council and greater accountability to the Oireachtas. The Government published the second Climate Action Plan in November 2021 (Government of Ireland, 2021a) and a third update in December 2022 (Government of Ireland, 2022) with an Annex of Action published in March 2023.

Following on from Ireland declaring a climate and biodiversity emergency in May 2019, and the European Parliament approving a resolution declaring a climate and environment emergency in Europe in November 2019, the Government approved the publication of the General Scheme in December 2019, followed by the publication of the Climate Action and Low Carbon Development (Amendment) Bill 2021 (hereafter referred to as the 2021 Climate Bill) in March 2021. The Climate Act was signed into Law on the 23rd July 2021, giving statutory effect to the core objectives stated within the CAP.

The purpose of the 2021 Climate Act (Government of Ireland, 2021b) is to provide for the approval of plans "for the purpose of pursuing the transition to a climate resilient, biodiversity rich and climate neutral economy by no later than the end of the year 2050". The 2021 Climate Act will also "provide for carbon budgets and a decarbonisation target range for certain sectors of the economy". The 2021 Climate

Act defines the carbon budget as "the total amount of greenhouse gas emissions that are permitted during the budget period".

In relation to carbon budgets, the 2021 Climate Action and Low Carbon Development (Amendment) Act states '*A carbon budget, consistent with furthering the achievement of the national climate objective, shall be proposed by the Climate Change Advisory Council, finalised by the Minister and approved by the Government for the period of 5 years commencing on the 1 January 2021 and ending on 31 December 2025 and for each subsequent period of 5 years (in this Act referred to as a 'budget period')*'. The carbon budget is to be produced for 3 sequential budget periods, as shown in Table 9.1. The carbon budget can be revised where new obligations are imposed under the law of the European Union or international agreements or where there are significant developments in scientific knowledge in relation to climate change. In relation to the sectoral emissions ceiling, the Minister for the Environment, Climate and Communications (the Minister for the Environment) shall prepare and submit to government the maximum amount of Greenhouse Gas (GHG) emissions that are permitted in different sectors of the economy during a budget period and different ceilings may apply to different sectors. The sectorial emission ceilings for 2030 were published in July 2022 and are shown in Table 9.2. Buildings (Commercial and Public) have a 45% reduction requirement and a 2030 emission ceiling of 1 $MtCO_{2eq}$[1]. Buildings (Residential) have a 40% reduction requirement and a 2030 emission ceiling of 4 $MtCO_{2eq}$.

Table 9.1 *5-Year Carbon Budgets 2021-2025, 2026-2030 and 2031-2025*

Sector	Reduction Required	2018 Emissions ($MtCO_2eq$)
2021-2025	295 Mt CO_{2eq}	Reduction in emissions of 4.8% per annum for the first budget period.
2026-2030	200 Mt CO_{2eq}	Reduction in emissions of 8.3% per annum for the second budget period.
2031-2035	151 Mt CO_{2eq}	Reduction in emissions of 3.5% per annum for the third provisional budget.

Table 9.2 *Sectoral Emission Ceilings 2030*

Sector	Reduction Required	2018 Emissions ($MtCO_{2eq}$)	2030 Emission Ceiling ($MtCO_{2eq}$)
Electricity	75%	10.5	3
Transport	50%	12	6
Buildings (Commercial and Public)	45%	2	1
Buildings (Residential)	40%	7	4
Industry	35%	7	4
Agriculture	25%	23	17.25
Other (F-Gases, Waste and Petroleum refining)	50%	2	1

In December 2022, CAP23 was published (Government of Ireland 2022). This is the first CAP since the publication of the carbon budgets and sectoral emissions ceilings, and it aims to implement the required changes to achieve a 51% reduction in carbon emissions by 2030. The CAP has six vital high impact sectors where the biggest

[1] Mt CO_{2eq} denotes million tonnes carbon dioxide equivalent.

savings can be made: renewable energy, energy efficiency of buildings, transport, sustainable farming, sustainable business and change of land-use. CAP23 states that the decarbonisation of Ireland's manufacturing industry is key for Ireland's economy and future competitiveness. There is a target to reduce the embodied carbon in construction materials by 10% for materials produced and used in Ireland by 2025 and by at least 30% for materials produced and used in Ireland by 2030. CAP23 states that these reductions can be brought about by product substitution for construction materials and reduction of clinker content in cement. Cement and other high embodied carbon construction elements can be reduced by the adoption of the methods set out in the Construction Industry Federation 2021 report Modern Methods of Construction. In order to ensure economic growth can continue alongside a reduction in emissions, the IDA Ireland will also seek to attract businesses to invest in decarbonisation technologies.

The Dublin City Council Climate Change Action Plan published in 2019 (Dublin City Council and Codema, 2019) outlines a number of goals and plans to prepare for and adapt to climate change. There are five key action areas within the plan: energy and buildings, transport, flood resilience, nature-based solutions and resource management. Some of the measures promoted within the Action Plan under the 5 key areas involve building retrofits, energy master-planning, development of segregated cycle routes, the promotion of bike share schemes, development of flood resilient designs, promotion of the use of green infrastructure and water conservation initiatives. The implementation of these measures will enable the Dublin City Council area to adapt to climate change and will assist in bringing Ireland closer to achieving its climate related targets in future years. New developments need to be cognisant of the Action Plan and incorporate climate friendly designs and measures where possible.

9.2.1.2 Climate Assessment Significance Criteria

The climate assessment is divided into two distinct sections – a greenhouse gas assessment (GHGA) and a climate change risk assessment (CCRA).

- Greenhouse Gas Emissions Assessment (GHGA) – Quantifies the GHG emissions from a project over its lifetime. The assessment compares these emissions to relevant carbon budgets, targets and policy to contextualise magnitude.
- Climate Change Risk Assessment (CCRA) – Identifies the impact of a changing climate on a project and receiving environment. The assessment considers a projects vulnerability to climate change and identifies adaptation measures to increase project resilience.

The significance criteria for each assessment are described below.

Significance Criteria for GHGA

The Transport Infrastructure Ireland (TII) guidance document entitled *PE-ENV-01104 Climate Guidance for National Rods, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document* (TII 2022a) outlines a recommended approach for determining the significance of both the construction and operational phases of a development. The approach is based on comparing the '*Do Something*' scenario and the net project GHG emissions (i.e. *Do Something – Do Minimum*) to the relevant carbon budgets (Department of the Taoiseach 2022). With the publication of the Climate Action Act in 2021, sectoral carbon budgets have been published for comparison with the Net CO_2 project GHG emissions from the proposed development.

The Residential Buildings sector emitted approximately 7 $MtCO_{2eq}$ in 2018 and has a ceiling of 4 $MtCO_{2eq}$ in 2030 which is a 45% reduction over this period (see Table 9.2).

The significance of GHG effects set out in PE-ENV-01104 (TII, 2022a) is based on IEMA guidance (IEMA, 2022) which is consistent with the terminology contained within Figure 3.4 of the EPA's (2022) 'Guidelines on the information to be contained in Environmental Impact Assessment Reports'.

The 2022 IEMA Guidance (IEMA, 2022) sets out the following principles for significance:

- When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible;
- Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages; and
- Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered.

TII (TII 2022a) states that professional judgement must be taken into account when contextualising and assessing the significance of a project's GHG impact. In line with IEMA Guidance (IEMA, 2022), TII state that the crux of assessing significance is "*not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050*".

Significance is determined using the criteria outlined in Table 9.3 (derived from Table 6.7 of PE-ENV-01104 (TII 2022a)) along with consideration of the following two factors:

- The extent to which the trajectory of GHG emissions from the project aligns with Ireland's GHG trajectory to net zero by 2050; and
- The level of mitigation taking place.

Table 9.3 *GHGA Significance Criteria*

Effects	Significance level Description	Description
Significant adverse	Major adverse	• The project's GHG impacts are not mitigated. • The project has not complied with do-minimum standards set through regulation, nor provided reductions required by local or national policies; and • No meaningful absolute contribution to Ireland's trajectory towards net zero.
	Moderate adverse	• The project's GHG impacts are partially mitigated. • The project has partially complied with do-minimum standards set through regulation, and have not fully complied with local or national policies; and • Falls short of full contribution to Ireland's trajectory towards net zero.

Effects	Significance level Description	Description
Not significant	Minor adverse	• The project's GHG impacts are mitigated through 'good practice' measures. • The project has complied with existing and emerging policy requirements; and • Fully in line to achieve Ireland's trajectory towards net zero.
	Negligible	• The project's GHG impacts are mitigated beyond design standards. • The project has gone well beyond existing and emerging policy requirements; and • Well 'ahead of the curve' for Ireland's trajectory towards net zero.
Beneficial	Beneficial	• The project's net GHG impacts are below zero and it causes a reduction in atmosphere GHG concentration. • The project has gone well beyond existing and emerging policy requirements; and • Well 'ahead of the curve' for Ireland's trajectory towards net zero, provides a positive climate impact.

Significance Criteria for CCRA

The CCRA involves an initial screening assessment to determine the vulnerability of the proposed development to various climate hazards. The vulnerability is determined by combining the sensitivity and the exposure of the proposed development to various climate hazards.

Vulnerability = Sensitivity x Exposure

The vulnerability assessment takes any proposed mitigation into account. Table 9.4 details the vulnerability matrix; vulnerabilities are scored on a high, medium and low scale. Where residual medium or high vulnerabilities exist the assessment may need to be progressed to a detailed climate change risk assessment and further mitigation implemented to reduce risks.

Table 9.4 *Vulnerability Matrix*

		Exposure		
		High (3)	Medium (2)	Low (1)
Sensitivity	High (3)	9 - High	6 – High	3 - Medium
	Medium (2)	6 - High	4 - Medium	2 - Low
	Low (1)	3 - Medium	2 – Low	1 - Low

9.2.2 Construction Phase

As per the EU guidance document *Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment* (European Commission, 2013) the climate baseline is first established with reference to EPA data on annual GHG emissions (see Section 9.3). The impact of the proposed development on climate is determined in relation to this baseline. As per the IEMA guidance (2022) where expected emissions will not increase by over 1% compared with the baseline scenario then no further assessment is required as there is no potential for significant impacts to climate. The construction stage activities and potential for GHG emissions have been reviewed as part of the construction stage climate assessment and a qualitative assessment conducted.

9.2.3 Operational Phase

9.2.3.1 Climate Change Vulnerability Assessment

The operational phase assessment involves determining the vulnerability of the proposed development to climate change. This involves an analysis of the sensitivity and exposure of the development to climate hazards which together provide a measure of vulnerability.

PE-ENV-01104 (TII, 2022a) states that the CCRA is guided by the principles set out in the overarching best practice guidance documents:

- EU (2021) Technical guidance on the climate proofing of Infrastructure in the Period 2021-2027 (European Commission, 2021); and

- The Institute of Environmental Management and Assessment, Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (2nd Edition) (IEMA, 2020).

The baseline environment information provided in Section 9.3, future climate change modelling and input from other experts working on the proposed development (i.e. hydrologists) should be used in order to assess the likelihood of a climate risk.

The initial stage of an assessment is to establish a scope and boundary for the assessment taking into account the following criteria:

- Spatial boundary: As per PE-ENV-01104 (TII, 2022a), the study area with respect to the GHGA is Ireland's Climate budget. The study area with respect to the CCRA can be considered the project boundary and its assets. The study area will be influenced by current and future baselines (Section 9.3). This study area is influenced by the input of other experts within the EIAR team;

- Climate hazards: The outcomes of the climate screening i.e. vulnerability assessment and baseline assessment; and

- Project receptors: TII state that the project receptors are the asset categories considered in the climate screening. In addition, any critical connecting infrastructure and significant parts of the surrounding environment e.g. water bodies that should be considered as a part of the indirect, cumulative and in combination impact assessment should also be considered project receptors.

Technical guidance on the climate proofing of infrastructure in the period 2021-2027 (European Commission, 2021a) outlines an approach for undertaking a climate change risk assessment where there is a potentially significant impact on the proposed development due to climate change. The risk assessment assesses the likelihood and consequence of the impact occurring, leading to the evaluation of the significance of the impact. The role of the climate consultant in assessing the likelihood and impact is often to facilitate the climate change risk assessment process with input from the design team or specific specialists such as hydrology.

The climate screening risk assessment or vulnerability assessment is carried out by determining the sensitivity and exposure of the project to climate change. Firstly the project asset categories must be assigned a level of sensitivity to climate hazards irrespective of the project location (example: Sea level rise will affect seaport projects regardless of specific location). PE-ENV-01104 (TII, 2022a) provide the below list of asset categories and climate hazards to be considered. The asset categories will vary for project type and need to be determined on a project by project basis.

- **Asset categories** - Pavements; drainage; structures; utilities; landscaping; signs, light posts, buildings, and fences.
- **Climate hazards** - Flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; wildfire; drought; extreme wind; lightning and hail; landslides; fog.

The sensitivity is based on a High, Medium or Low rating with a score of 1 to 3 assigned as per the criteria below.

- **High sensitivity:** The climate hazard will or is likely to have a major impact on the asset category. This is a sensitivity score of 3.
- **Medium sensitivity:** It is possible or likely the climate hazard will have a moderate impact on the asset category. This is a sensitivity score of 2.
- **Low sensitivity:** It is possible the climate hazard will have a low or negligible impact on the asset category. This is a sensitivity score of 1.

Once the sensitivities have been identified the exposure analysis is undertaken. The exposure analysis involves determining the level of exposure of each climate hazard at the project location irrespective of the project type for example: flooding could be a risk if the project location is next to a river in a floodplain. Exposure is assigned a level of High, Medium or Low as per the below criteria.

- **High exposure:** It is almost certain or likely this climate hazard will occur at the project location i.e. might arise once to several times per year. This is an exposure score of 3.
- **Medium exposure:** It is possible this climate hazard will occur at the project location i.e. might arise a number of times in a decade. This is an exposure score of 2.
- **Low exposure:** It is unlikely or rare this climate hazard will occur at the project location i.e. might arise a number of times in a generation or in a lifetime. This is an exposure score of 1.

Once the sensitivity and exposure are categorised, a vulnerability analysis is conducted by multiplying the sensitivity and exposure to calculate the vulnerability, as shown in Table 9.4.

9.2.3.2 Climate and Traffic Emissions

Emissions from road traffic associated with the proposed development have the potential to emit carbon dioxide (CO_2) which will impact climate.

The UK Highways Agency DMRB guidance document in relation to climate impact assessments *LA 114 Climate* (UK Highways Agency, 2019) contains the following scoping criteria to determine whether a detailed climate assessment is required for a proposed project during the operational stage. If any of the road links impacted by the proposed development meet or exceed the below criteria, then further assessment is required.

- A change of more than 10% in AADT;
- A change of more than 10% to the number of heavy duty vehicles; and
- A change in daily average speed of more than 20 km/hr.

There are a small number of road links that will experience a change of over 10% in the AADT during the operational phase as a result of the proposed development. As a result a detailed assessment of traffic related carbon dioxide (CO_2) emissions was conducted.

PE-ENV-01104 (TII, 2022a) states that road traffic related emissions information should be obtained from an Air Quality Practitioner to show future user emissions during operation without the development in place. The Air Quality Practitioner calculated the traffic related emissions through the use of the TII REM tool (TII, 2022b) which includes detailed fleet predictions for age, fuel technology, engine size and weight based on available national forecasts. The output is provided in terms of CO_2eq for the base year 2022, opening year 2026 and design year 2041. Both the Do Nothing and Do Something scenarios are quantified in order to determine the degree of change in emissions as a result of the proposed development. Traffic data was obtained from OCSC Consulting Engineers for the purpose of this assessment. Inputs include light duty vehicle (LDV) annual average daily traffic movements (AADT), annual average daily heavy duty vehicles (HDV AADT), annual average traffic speeds, road link lengths, road type and project county location. Further details are provided in Chapter 8 (Air Quality). The traffic data used in the operational phase modelling assessment is detailed in Table 9.5.

Table 9.5 *Traffic Data used in Operational Phase Modelling Assessment*

Road Name	Speed (kph)	Base Year 2022	Opening Year 2026		Design Year 2041	
			Do Nothing	Do Something	Do Nothing	Do Something
		LDV AADT (HDV AADT)	LDV AADT (HDV AADT)	LDV AADT (HDV AADT)	LDV AADT (HDV AADT)	LDV AADT (HDV AADT)
Crannóg Access Link	30	51 (0)	54 (0)	1,431 (0)	60 (0)	1,438 (0)
Richmond Road (E)	40	9,609 (1,188)	10,255 (1,268)	11,178 (1,381)	11,569 (1,430)	12,551 (1,551)
Richmond Road (W)	40	9,269 (1,509)	9,893 (1,610)	10,796 (1,757)	11,178 (1,820)	12,118 (1,973)
Clontarf Road	50	15,693 (3,681)	15,865 (3,722)	16,884 (3,961)	18,063 (4,237)	19,177 (4,498)

9.2.4 Difficulties in Compiling the Assessment

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

9.3 RECEIVING ENVIRONMENT

PE-ENV-01104 (TII, 2022a) states that a baseline climate scenario should identify, consistent with the study area for the project, GHG emissions without the project for both the current and future baseline.

Ireland declared a climate and biodiversity emergency in May 2019 and in November 2019 there was European Parliament approval of a resolution declaring a climate and environment emergency in Europe. This, in addition to Ireland's current failure to meet its EU binding targets under Regulation 2018/842 (European Union 2018) results in changes in GHG emissions either beneficial or adverse being of more significance than previously considered prior to these declarations.

Data published in 2022 (EPA, 2022b) predicts that Ireland exceeded (without the use of flexibilities) its 2021 annual limit set under EU's Effort Sharing Decision (ESD) (EU 2018/842) by 2.71 Mt CO_{2eq} as shown in Table 9.6. The sector with the highest emissions in 2021 was agriculture at 35.3% of the total, followed by transport at 20.3%. Ireland's greenhouse gas emissions increased by 4.7% in 2021 compared to 2020. For 2021 total national emissions (excluding LULUCF) were estimated to be 61,528 kt CO_{2eq} as shown in Table 9.6 (EPA, 2022b).

The future baseline with respect to the GHGA can be considered in relation to the future climate targets which the assessment results will be compared against. In line with TII (TII, 2022a) and IEMA Guidance (IEMA, 2022) the future baseline is a trajectory towards net zero by 2050, "*whether it* [the project] *contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050*".

The future baseline will be determined by Ireland meeting its targets set out in the CAP23, and future CAPs, alongside binding 2030 EU targets. In order to meet the commitments under the Paris Agreement, the European Union (EU) enacted '*Regulation (EU) 2018/842 on binding annual GHG emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No. 525/2013'* (hereafter referred to as the Regulation) (European Union, 2018). The Regulation aims to deliver, collectively by the EU in the most cost-effective manner possible, reductions in GHG emissions from the Emission Trading Scheme (ETS) and non-ETS sectors amounting to 43% and 30%, respectively, by 2030 compared to 2005. The ETS is an EU-wide scheme which regulates the GHG emissions of larger industrial emitters including electricity generation, cement manufacturing and heavy industry. The non-ETS sector includes all domestic GHG emitters which do not fall under the ETS scheme and thus includes GHG emissions from transport, residential and commercial buildings and agriculture.

Table 9.6 *Total National GHG Emissions in 2021*

Category	2021 Kilotonnes CO_{2eq}	% of Total GHG emissions
Waste	937	1.5%
Energy Industries	10,272	16.7%
Residential	7,040	11.4%
Manufacturing Combustion	4,593	7.5%
Commercial Services	817	1.3%
Public Services	663	1.1%

Category	2021 Kilotonnes CO_{2eq}	% of Total GHG emissions
Transport	10,912	17.7%
Industrial Processes	2,460	4.0%
F-gases	738	1.2%
Agriculture	23,097	37.5%
Total	**61,528**	**100%**

Impacts as a result of climate change will evolve with a changing future baseline, changes have the potential to include increases in global temperatures and increases in the number of rainfall days per year. Therefore, it is expected that the baseline climate will evolve over time and consideration is needed with respect to this within the design of the proposed development.

Ireland has seen increases in the annual rainfall in the north and west of the country, with small increases or decreases in the south and east including in the region where the proposed development will be located (EPA, 2021b). The EPA have compiled a list of potential adverse impacts as a result of climate change including the following which may be of relevance to the proposed development (EPA, 2021b):

- More intense storms and rainfall events;
- Increased likelihood and magnitude of river and coastal flooding;
- Water shortages in summer in the east;
- Adverse impacts on water quality; and
- Changes in distribution of plant and animal species.

The EPA's State of the Irish Environment Report (Chapter 2: Climate Change) (EPA, 2020c) notes that projections show that full implementation of additional policies and measures, outlined in the 2019 Climate Action Plan, will result in a reduction in Ireland's total GHG emissions by up to 25 per cent by 2030 compared with 2020 levels. Climate change is not only a future issue in Ireland, as a warming of approximately 0.8°C since 1900 has already occurred. The EPA state that it is critically important for the public sector to show leadership and decarbonise all public transport across bus and rail networks to the lowest carbon alternatives. The report (EPA, 2020c) underlines that the next decade needs to be one of major developments and advances in relation to Ireland's response to climate change in order to achieve these targets and that Ireland must accelerate the rate at which it implements GHG emission reductions. The report states that mid-century mean annual temperatures in Ireland are projected to increase by between 1.0°C and 1.6°C (subject to the emissions trajectory). In addition, heat events are expected to increase by mid-century (EPA, 2020c). While individual storms are predicted to have more severe winds, the average wind speed has the potential to decrease (EPA, 2020c).

TII's Guidance document PE-ENV-01104 (TII 2022a) states that for future climate change a moderate to high Representative Concentration Pathways (RCP) should be adopted. RPC4.5 is considered moderate while RPC8.5 is considered high. Representative Concentration Pathways (RCPs) describe different 21st century pathways of GHG emissions depending on the level of climate mitigation action undertaken.

Future climate predictions undertaken by the EPA have been published in 'Research 339: High-resolution Climate Projections for Ireland – A Multi-model Ensemble Approach (EPA 2020d). The future climate was simulated under both Representative

Concentration Pathway 4.5 (RCP4.5) (medium-low) and RCP8.5 (high) scenarios. This study indicates that by the middle of this century (2041–2060). Mid-century mean annual temperatures are projected to increase by 1 to 1.2°C and 1.3 to 1.6°C for the RCP4.5 and RCP8.5 scenarios, respectively, with the largest increases in the east. Warming will be enhanced at the extremes (i.e. hot days and cold nights), with summer daytime and winter night-time temperatures projected to increase by 1 to 2.4°C. There will be a substantial decrease of approximately 50% which is projected for the number of frost and ice days. Summer heatwave events are expected to occur more frequently, with the largest increases in the south. In addition, precipitation is expected to become more variable, with substantial projected increases in the occurrence of both dry periods and heavy precipitation events. Climate change also has the potential to impact future energy supply which will rely on renewables such as wind and hydroelectric power. Wind turbines need a specific range of wind speeds to operate within and droughts or low ground water levels may impact hydroelectric energy generating sites. More frequent storms have the potential to damage the communication networks requiring additional investment to create resilience within the network.

The EPA's Critical Infrastructure Vulnerability to Climate Change report (EPA, 2021b) assesses the future performance of Irelands critical infrastructure when climate is considered. With respect to road infrastructure, fluvial flooding and coastal inundation/coastal flooding are considered the key climate change risks with snowstorm and landslides being medium risks. Extreme winds and heatwaves/droughts are considered low risk to road infrastructure. One of the key outputs of the research was a framework that will provide quantitative risk-based decision support for climate change impacts and climate change adaptation analysis for infrastructure.

9.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

The full description of the development is available in Chapter 2 (Description of the Proposed Development) of this EIAR. Impacts to climate can occur during both the construction and operational stages. The following describes the primary sources of potential climate impacts which have been assessed as part of this EIAR.

9.4.1 Construction Phase

During the construction stage the main source of climate impacts will be as a result of GHG emissions and embodied carbon associated with the proposed demolition of existing buildings and construction materials and activities for the proposed refurbishment and new buildings.

9.4.2 Operational Phase

During the operational phase vehicle emissions from traffic accessing the site has the potential to release CO_2 and other GHGs which will impact climate. In addition, the vulnerability of the proposed development in relation to future climate change must be considered during the operational phase.

9.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

9.5.1 Do Nothing Scenario

Under the Do Nothing Scenario no demolition or construction works will take place and the site will remain as it currently is. The climate baseline will continue to develop in line with the identified trends (see Section 9.3). This scenario is considered neutral in relation to climate.

9.5.2 Construction Phase

There is the potential for a number of greenhouse gas emissions to atmosphere during the construction of the development. As per the IEMA guidance (2022) where expected emissions will not increase by over 1% compared with the baseline scenario then no further assessment is required as there is no potential for significant impacts to climate. The baseline scenario has been determined in Section 9.4 by reference to Ireland's national GHG emissions for 2021. Total national GHG emissions (excluding LULUCF) were estimated to be 61,528 kt CO_{2eq} in 2021 (EPA, 2022b).

There are some demolition works proposed as part of the proposed development. A total of c. 5,872 m^2 of buildings are proposed for demolition which include buildings from the 19th and 20th centuries and some buildings from the 1980s. The primary focus of the proposal is to repurpose and refurbish buildings where possible which is preferable from a sustainability standpoint. Demolition is only proposed where the buildings are unsuitable for refurbishment. The remaining existing buildings on site (c.4,600m^2) which are not designated for demolition will be refurbished and incorporated into the new development. A *Demolition Justification Report* has been completed by Passive Dynamics and accompanies this planning application. The report details the justification for demolishing a number of buildings on site. Embodied carbon is a key feature of the report. Embodied carbon is carbon within building materials associated with their manufacture and end-of-life in this context. Depending on the final end-use of the demolition wastes, the associated embodied carbon has the potential to impact climate. This has been considered as part of the demolition proposed. Mitigation will be required as part of the demolition works to reduce the embodied carbon impact. Where possible demolished materials should be re-used on site or sent to a suitably licenced waste facility for re-use on other sites. Brickwork, concrete, steel and glazing are materials which have the potential for very high embodied carbon but also have to potential for recovery or recycling. Specific items have been identified within the Demolition Justification Report and it has been detailed whether these can be salvaged and re-used on site or if they are suitable for salvage and re-use off site by providing them to a salvage merchant. Section 6 of the Demolition Justification Report details the embodied carbon mitigation measures required for the demolition phase of the development.

In order to assess the potential embodied carbon associated with the proposed development, in the absence of available site-specific material quantities, a review of embodied carbon associated with residential buildings within Ireland and the UK was undertaken. A study published in Architecture Ireland entitled '*Embodied CO_2 of construction housing in Ireland*' found that a typical 2-bed apartment had an embodied carbon footprint of 22.4 tCO_2eq. Applying this figure to the proposed development estimates that there will be approximately 18,166 tCO_2eq associated with the proposed development. The predicted embodied carbon of 18,166 tCO_2eq for the proposed development is approximately 0.029% of Ireland's total national CO_2 emissions in 2021 (see Table 9.6). Therefore, the potential impact on climate from embodied carbon is considered insignificant, negative and long-term.

9.5.3 Operational Phase

9.5.3.1 Climate and Traffic Emissions

There is the potential for increased traffic volumes to impact climate. The change in traffic was reviewed against the DMRB screening criteria outlined in Section 9.2.3 (UK Highways Agency, 2019) and a detailed climate assessment of traffic emissions was conducted.

The predicted concentrations of CO_2 for the future years of 2026 and 2041 are detailed in Table 9.7. These are significantly less than the 2026 and 2030 targets set out under EU legislation (targets beyond 2030 are not available). It is predicted that in 2026 the proposed development will increase CO_2 emissions by 0.00006% of the EU 2026 target. Similarly low increases in CO_2 emissions are predicted to occur in 2041 with emissions increasing by 0.00006% of the EU 2030 target.

The proposed development is located in an area with several sustainable modes of transport including bus services and train services. While there will be some vehicular emissions associated with the proposed development overall, the development has been designed to encourage more sustainable travel methods. By developing in an area with strong alternative travel links the reliance on private vehicles is reduced thereby reducing traffic related GHG emissions. The Mobility Management Plan prepared by OCSC accompanying this planning application provides further details on integrated initiatives to promote and encourage sustainable travel methods. The potential climate impact of the proposed development is considered neutral, long-term and imperceptible in relation to traffic emissions.

Table 9.7 *Climate Traffic Impact Assessment*

Year	Scenario	CO_{2eq} (tonnes/annum)
2026	Do Nothing	190
	Do Something	212
2041	Do Nothing	187
	Do Something	206
Increment in 2026		22
Increment in 2041		19
Emission Ceiling (Tonnes) 2026		37,869,352
Emission Ceiling (Tonnes) 2030		33,381,312
Impact in 2026 (%)		0.00006%
Impact in 2041 (%)		0.00006%

Note 1 Target under *Regulation (EU) 2018/842 of the European Parliament and of the Council of 30 May 2018 on binding annual greenhouse gas emission reductions by Member States from 2021 to 2030 contributing to climate action to meet commitments under the Paris Agreement and amending Regulation (EU) No 525/2013*

9.5.3.2 Climate Change Vulnerability Assessment

In order to determine the vulnerability of the proposed development to climate change the sensitivity and exposure of the development to various climate hazards must first be determined. The following climate hazards have been considered in the context of the proposed development: flooding (coastal, pluvial, fluvial); extreme heat; extreme cold; wildfire; drought; extreme wind; lightning, hail, landslides and fog. Wildfire and landslides were not considered relevant to the proposed development due to the project location and have been screened out of the assessment.

The sensitivity of the proposed development to the above climate hazards is assessed irrespective of the project location. Table 9.8 details the sensitivity of the proposed development on a scale of high (3), medium (2) and low (1). Once the sensitivity has been established the exposure of the proposed development to each of the climate hazards is determined, this is the likelihood of the climate hazard occurring at the project location and is also scored on a scale of high (3), medium (2) and low (1). The product of the sensitivity and exposure is then used to determine the overall vulnerability of the proposed development to each of the climate hazards as per Table 9.4. The results of the vulnerability assessment are detailed in Table 9.8 below.

Table 9.8 *Climate Change Vulnerability Assessment*

Climate Hazard	Sensitivity	Exposure	Vulnerability
Flooding (coastal, pluvial, fluvial)	3 (High)	1 (Low)	3 (Medium)
Extreme Heat	3 (High)	1 (Low)	3 (Medium)
Extreme Cold	3 (High)	1 (Low)	3 (Medium)
Drought	2 (Medium)	1 (Low)	2 (Low)
Extreme Wind	2 (Medium)	1 (Low)	2 (Low)
Lightning & Hail	1 (Low)	1 (Low)	1 (Low)
Fog	1 (Low)	1 (Low)	1 (Low)

The proposed development has a worst-case medium vulnerability to flooding, extreme heat and extreme cold. The Site Specific Flood Risk Assessment (SSFRA) carried out by OCSC and submitted with this planning application states that the site is located in Flood Zone C with an annual probability of flooding (fluvial) of less than 0.1%. The Site Specific Flood Risk Assessment (SSFRA) prepared by OCSC notes that a portion of the site lies within the 10% AEP pluvial flood extent. However, the proposed development includes a new surface water network which will manage the surface water onsite, and therefore mitigate the risk of pluvial flooding onsite. The new infrastructure is designed to accommodate rainfall runoff/ flows up to 1% AEP event. In addition, the surface water network has been designed to include an additional allowance of 20% in rainfall intensities due to climate change. Further details are provided in the SSFRA and Chapter 6 (Hydrology). Therefore, flooding on site is not a significant risk.

In relation to extreme temperatures, both extreme heat and extreme cold, these have the potential to impact the building materials and some related infrastructure. However, high quality, durable building materials will be selected for the proposed development. Therefore, extreme temperatures are not considered a significant risk.

9.6 REMEDIAL AND MITIGATION MEASURES

9.6.1 Construction Phase

Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. Section 6 of the Demolition Justification Report prepared by Passive Dynamics which accompanies this planning application details a number of measures to reduce the embodied carbon of the demolition works. These include:

- Creating a demolition and construction program which allows for sufficient time to determine reuse and recycling opportunities for demolition wastes.
- Appointing a suitably competent demolition contractor who will undertake a pre-demolition audit detailing resource recovery best practice and identify materials/building components that can be reused/recycled.
- Materials will be reused on site within the new build areas where possible.
- The project has committed to complying with the requirements set out in the EU taxonomy in relation to circular economy (see Table 9.10). This is specific to reuse, recycling and material recovery of demolition and construction wastes.

During the construction phase the following best practice measures shall be implemented on site to prevent significant GHG emissions and reduce impacts to climate:

- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.
- Sourcing materials locally where possible to reduce transport related CO_2 emissions.

9.6.2 Operational Phase

A number of measures have been incorporated into the design of the development in order to mitigate against the impacts of future climate change. For example, adequate attenuation and drainage have been incorporated into the design of the development to avoid potential flooding impacts as a result of increased rainfall events in future years. These measures have been considered when assessing the vulnerability of the proposed development to climate change (see Section 9.5.3.2).

The proposed development has been designed to reduce the impact on climate as a result of energy usage during operation. The Climate Action Energy Report prepared by IN2 and submitted under separate cover with this planning application details a number of incorporated design mitigation measures that have been incorporated into the design of the development to reduce the impact on climate wherever possible. Such measures included in the proposed development to reduce the impact to climate from energy usage are:

- The development will be in compliance with the requirements of the Near Zero Energy Building (NZEB) Standards.
- EU Taxonomy alignment with 10% lower than NZEB.
- A renewable energy rating (RER) of 20% will be achieved to comply with Part L (2021) of the NZEB regulations.
- A Building Energy Rating (BER) of A2/A3 is being targeted.
- Improved building thermal transmittance (U-Values), air permeability and thermal bridging.
- Use of air source heat pumps.

In relation to the EU Taxonomy alignment the EU taxonomy is a classification system establishing a list of environmentally sustainable economic activities. This classification system consists of six environmental objectives:

1) Climate Change Mitigation
2) Climate Adaptation
3) Water
4) Circular Economy
5) Pollution Prevention
6) Biodiversity

For an activity to be aligned with EU Taxonomy the activity must contribute to at least one of the six environmental objectives listed in the Taxonomy and do no significant harm to any of the other objectives, while respecting basic human rights and labour standards.

In the context of the St Vincent's development the residential scheme = will do no significant harm in terms of Climate Adaptation, Water, Circular Economy, Pollution Prevention and Biodiversity. Residential buildings are not subject to the water requirements under EU Taxonomy however where technically possible it is the design intent to comply with the requirements where possible for this project.

Benefits of EU Taxonomy Alignment for St Vincent's

Table 9.9 *Significant Contribution to Climate Mitigation*

EU Taxonomy Objective	Environmental Benefits
Primary Energy Demand	This development will be designed to a specification that achieves a 10% improvement factor compared to the current TGD Part L (NZEB) of the Building Regulations. By opting to achieve this higher standard will ensure a significantly better energy performance which will result in lower carbon emissions.
Building Envelope Specification	EU Taxonomy enforces a more stringent level of building fabric performance and on-site workmanship. This includes robust and traceable quality control measures such as air tightness and thermal integrity.
Global Warming Potential	EU Taxonomy requires that a Whole Building Lifecycle analysis is carried out for the development to quantify the embodied carbon. This will help to ensure that the most sustainable materials are selected during the design process. Where opportunities exist to specify materials with lower embodied carbon these will be considered by the team in order to achieve the best practice results.

Table 9.10 *Do No Significant Harm Criteria*

EU Taxonomy Objective	Environmental Benefits
Climate Adaptation	A climate and vulnerability will be carried to stress test the performance of the buildings using future projected weather data for the next 10-30 years. This will ensure that the design of these buildings are adaptable for a warming climate.
Water Consumption	Does not apply to residential buildings however where possible opportunities to conserve potable water will be prioritised as part of the detailed design as this is also as requirement of TGD Part L (NZEB) and the Home Performance Index Green Building Certification.
Circular Economy	At least 70 % (by weight) of the non-hazardous construction and demolition waste (excluding naturally occurring material referred to in category 17 05 04 in the European List of Waste established by Decision 2000/532/EC) generated on the construction site is prepared for reuse, recycling and other material recovery, including backfilling operations using waste to substitute other materials, in accordance with the waste hierarchy and the EU Construction and Demolition Waste Management Protocol.
Pollution Prevention	The diligent selection of materials that will come in contact the building users will ensure that occupants are not exposed to excessive levels of formaldehyde or volatile organic compounds. This will lead to healthier occupied spaces.
Biodiversity	This DNSH criterion is achieved as the site is not considered fertile arable or cropland and would be considered environmentally sustainable in terms of the EU Taxonomy alignment.

These above identified measures will aid in reducing the impact to climate during the operational phase of the proposed development in line with the goals of the Dublin City Development Plan 2022 – 2028 and Climate Change Action Plan and EU Taxonomy.

9.7 RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT

The proposed development will result in some impacts to climate through the release of GHGs. TII state that the crux of assessing significance is "*not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050*". The proposed development has proposed some best practice mitigation measures and is committing to reducing climate impacts where feasible, the development will comply with the do-minimum standards set through regulation (NZEB and Part L 2021). As per the assessment criteria in Table 9.3 the impact of the proposed development in relation to GHG emissions is considered ***long-term, minor adverse*** and ***not significant***.

In relation to climate change vulnerability, it has been assessed that there are no significant risks to the proposed development as a result of climate change.

9.8 CUMULATIVE IMPACTS

With respect to the requirement for a cumulative assessment PE-ENV-01104 (TII, 2022a) states that *"for GHG Assessment is the global climate and impacts on the receptor from a project* are not geographically constrained, the normal approach for cumulative assessment in EIA is not considered applicable."

However, by presenting the GHG impact of a project in the context of its alignment to Ireland's trajectory of net zero and any sectoral carbon budgets, this assessment will demonstrate the potential for the project to affect Ireland's ability to meet its national carbon reduction target. Therefore, the assessment approach is considered to be inherently cumulative.

9.9 REFERENCES

BSI (2016) Publicly Available Specification (PAS) 2080:2016 on Carbon Management in Infrastructure

Civil Engineering Standard Method of Measurement (CESSM) (2013) Carbon and Price Book database.

Department of the Taoiseach (2022) Carbon Budgets Available at https://www.gov.ie/en/publication/9af1b-carbon-budgets/

Environmental Protection Agency (2015) Advice Notes for Preparing Environmental Impact Statements – Draft

Environmental Protection Agency (EPA) (2020a) Research 339: High-resolution Climate Projections for Ireland – A Multi-model Ensemble Approach.

Environmental Protection Agency (2020b) State of the Irish Environment Report (chapter 2: climate change)

Environmental Protection Agency (EPA) (2021a) What impact will climate change have for Ireland? [Online] Available at https://www.epa.ie/environment-and-you/climate-change/what-impact-will-climate-change-have-for-ireland/

Environmental Protection Agency (EPA) (2021b) Critical Infrastructure Vulnerability to Climate Change Report no. 369

Environmental Protection Agency (2022a) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports

Environmental Protection Agency (EPA) (2022b) Ireland's National Inventory Report 2021 - Greenhouse Gas Emissions 1990 – 2020

Environmental Protection Agency (2023) EPA website Available at: http://www.epa.ie/whatwedo/monitoring/air/

European Commission (2013) Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment

European Commission (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report

European Commission (2021a) Technical guidance on the climate proofing of infrastructure in the period 2021-2027.

European Commission (2021b) Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate Change.

Government of Ireland (2015) Climate Action and Low Carbon Development Act

Government of Ireland (2019) Climate Action Plan 2019

Government of Ireland (2020) Draft General Scheme of the Climate Action (Amendment) Bill 2019

Government of Ireland (2021a) Climate Action Plan 2021

Government of Ireland (2021b) Climate Action and Low Carbon Development (Amendment) Act 2021 (No. 32 of 2021)

Government of Ireland (2022) Climate Action Plan 2023

Institute of Environmental Management & Assessment (IEMA) (2017) Assessing Greenhouse Gas Emissions and Evaluating their Significance

Institute of Environmental Management & Assessment (IEMA) (2020a) EIA Guide to: Climate Change Resilience and Adaptation.

Institute of Environmental Management & Assessment (IEMA) (2020b) GHG Management Hierarchy. Assessing Greenhouse Gas Emissions and Evaluating their Significance

Institute of Environmental Management & Assessment (IEMA) (2022) Assessing Greenhouse Gas Emissions and Evaluating their Significance

O'Loughlin, N. 'Embodied CO_2 of housing construction in Ireland', Architecture Ireland, **247**, pp.70-71. (https://www.ecocem.ie/wp-content/uploads/2016/08/ECE008-Environmental-CO2-and-other-Polluntants-Embodied_CO2_of_housing_construction_in_Ireland.pdf)

Transport Infrastructure Ireland (TII) (2022a) PE-ENV-01104: Climate Guidance for National Rods, Light Rail and Rural Cycleways (Offline & Greenways) – Overarching Technical Document

Transport Infrastructure Ireland (TII) (2022b) TII Roads Emissions Model (REM) Online Tool

Transport Infrastructure Ireland (TII) (TII 2021) Sustainability Implementation Plan – Our Future

UK Highways Agency (2019) UK Design Manual for Roads and Bridges (DMRB) Volume 11 Environmental Assessment, Section 3 Environmental Assessment Techniques, Part 14 LA 114 Climate

CHAPTER 10

NOISE AND VIBRATION

CHAPTER 10 CONTENTS

10.0 NOISE AND VIBRATION

10.1 INTRODUCTION

This EIAR Chapter has been prepared by AWN Consulting Ltd (AWN) to assess the potential noise and vibration effects of the proposed development in the context of current relevant standards and guidance as detailed in relevant sections below.

This chapter includes a description of the receiving ambient noise climate in the vicinity of the subject site and an assessment of the potential noise and vibration impact associated with the proposed development, during both the short-term construction phase and the long-term operational phase. The assessment of direct, indirect and cumulative noise and vibration effects on the surrounding environment have been considered in this chapter.

Mitigation and monitoring measures are included, where relevant, to ensure the proposed development is constructed and operated in an environmentally sustainable manner in order to ensure minimal impact on the receiving environment.

The assessment has been undertaken with reference to the most appropriate guidance documents relating to environmental noise and vibration which are set out in the following sections. In addition to specific noise and vibration guidance documents, the following Environmental Protection Agency (EPA) *Guidelines the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2022) were considered and consulted in the preparation of this Chapter.

10.2 METHODOLOGY

10.2.1 Assessment Overview

The following methodology has been prepared based on the requirements of the EPA *Guidelines the Information to be Contained in Environmental Impact Assessment Reports* (EPA 2022) and on AWN's experience of preparing the noise and vibration chapters for similar developments. The following approach has been used for this assessment:

- Baseline noise monitoring has been undertaken at the development site in order to characterise the existing noise environment;
- A review of the most applicable standards and guidelines has been reviewed in order to set a range of acceptable noise and vibration criteria for the construction and operational phases of the proposed development;
- A schedule of mitigation measures has been proposed for both the construction and operational phases to reduce, where necessary, the outward noise and vibration effects from the development.

10.2.2 Criteria for Rating of Impacts

The significance of noise and vibration effects has been assessed in accordance with the EPA 2022 Guidelines. As these guidelines do not quantify the effects in decibel terms, further reference has been made to the draft 'Guidelines for Noise Impact Assessment' produced by the Institute of Acoustics/Institute of Environmental Management and Assessment Working Party.

With regard to the quality of the effect, ratings may have positive, neutral or negative applications. The full description of effects can be found within Section 1.5 of Chapter 1 (Introduction) of this EIAR.

10.2.3 Construction Noise Criteria

There is no published statutory Irish guidance relating to the maximum permissible noise and vibration levels that may be generated during the construction phase of a project. It is common practice to use BS 5228:2009+A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites.* Part 1- *Noise* (Hereafter referred to as BS 5228-1) with respect to the controlling noise and vibration impacts. In this instance, appropriate criteria relating to permissible construction noise levels are taken from BS 5228-1.

10.2.3.1 ABC Method

The approach adopted here calls for the designation of a noise sensitive location into a specific category (A, B or C) based on exiting ambient noise levels in the absence of construction noise. This then sets a threshold noise value that, if exceeded at this location, indicates a significant noise effect is associated with the construction activities. Note that, in accordance with the BS5228-1 guidance, this assessment criterion is only applicable to residential receptors.

BS 5228-1 sets out guidance on permissible noise levels relative to the existing noise environment. Table 10-1 sets out the values which, when exceeded, signify a significant effect at the facades of residential receptors.

Table 10-1 *Threshold of Potential Significant Effect at Dwellings*

Assessment category and threshold value period (L_{Aeq})	Threshold value, in decibels (dB)		
	Category A [A]	Category B [B]	Category C [C]
Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)	65	70	75
Evenings and weekends [D]	55	60	65
Night-time (23:00 to 07:00hrs)	45	50	55

Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

For the appropriate assessment period (i.e. daytime in this instance) the ambient noise level is determined and rounded to the nearest 5 dB. Baseline monitoring carried out as part of this assessment would indicate that noise sensitive receptors surrounding the development all lie within either Category A or Category B. If the construction noise exceeds the appropriate category value, then a significant effect is deemed to occur.

The closest neighbouring noise sensitive properties to the proposed development are the residential dwellings at Grace Park Wood to the northwest of the site; Griffith Court, the ‘Fairview Community Unit’, Fairview Day Centre and Gheel Autism Services to the north; residential properties on Inverness Road to the east; existing residential and commercial properties on Richmond Road and Convent Avenue to the south and

Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC, and Ierne Sports and Social Club to the west of the site. Other noise sensitive locations include the existing St Vincent's Hospital which will remain operational during the earlier stages of construction.

10.2.3.2 Proposed Threshold Noise Levels

Taking into account the proposed documents outlined above and making reference to the baseline noise environment monitored around the development site (see Section 10.3), BS 5228-1 has been used to inform the assessment approach for construction noise.

The following Construction Noise Threshold (CNT) levels are proposed for the construction stage of this development:

- For residential NSLs in proximity to the main site development works, Category A values are deemed appropriate using the ABC method.
- For residential NSLs in proximity to the water main works, Category B values are deemed appropriate using the ABC method.

10.2.3.3 Interpretation of the CNT

In order to assist with interpretation of significance relating to the CNTs, Table 10-2 includes guidance as to the likely magnitude of impact associated with construction noise, relative to the CNT. This guidance is derived from Table 3.16 of the Design Manual for Roads and Bridges (DMRB) LA 111 *Sustainability and Environmental Appraisal* LA 111 *Noise and Vibration* Revision 2 (hereafter referred to as DMRB Noise and Vibration) (UKHA 2020) and adapted to include the relevant significance effects from the EPA 2022 Guidelines.

Table 10-2 *Construction Noise Significance Ratings*

Guidelines for Noise Impact Assessment Significance (DMRB)	Construction Noise Level per Period	EPA EIAR Significance Effects	Determination
Negligible	Below or equal to baseline noise level	Not Significant	Depending on CNT, duration & baseline noise level
Minor	Above baseline noise level and below or equal to CNT	Slight to Moderate	
Moderate	Above CNT and below or equal to CNT +5 dB	Moderate to Significant	
Major	Above CNT +5 to +15 dB	Significant, to Very Significant	

The adapted DMRB guidance outlined will be used to assess the predicted construction noise levels at NSLs and comment on the likely effects during the construction stage.

10.2.4 Construction Vibration Criteria

10.2.4.1 Building Response

Peak particle velocity (PPV) is commonly used to assess the structural response of buildings to vibration. Reference to the following documents has been made for the purposes of this assessment in order to discuss appropriate PPV limit values.

- British Standard BS 7385: 1993: *Evaluation and measurement for vibration in buildings* Part 2: *Guide to damage levels from ground borne vibration* (BS7385-2), and;
- British Standard BS 5228: 2009 + A1: 2014: *Code of practice for noise and vibration control on construction and open sites* – Part 2: *Vibration* (7385-2).

BS 5228-2 and BS 7385-2 advise that, for soundly constructed residential properties and similar structures that are generally in good repair, a threshold for minor or cosmetic (i.e. non-structural) damage should be taken as a peak component particle velocity (in frequency range of predominant pulse) of 15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz and 50 mm/s at 40 Hz and above. The standard also notes that below 12.5 mm/s PPV the risk of damage tends to zero.

The recommended vibration limits in order to avoid cosmetic damage to buildings, as set out in both documents referred to above, are reproduced in Table 10-3. The documents note that minor structural damage can occur at vibration magnitudes which are greater than twice those presented in Table 10-3. Major damage to a building structure is possible at vibration magnitudes greater than four times the values set out in the Table. It should be noted that these values refer to the vibration at the base of the building.

Table 10-3 *Recommended Construction Vibration Threshold for Control of Building Damage*

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of:-		
Less than 15Hz	15 to 40Hz	40Hz and above
15mm/s	20mm/s	50mm/s

10.2.4.2 Human Perception

Human response to vibration stimuli occurs at orders of magnitude below those associated with any form of building damage, hence vibration levels lower than those indicated in Table 10-3 can lead to concern. BS 5228-2 also provides a useful guide relating to the assessment of human response to vibration in terms of PPV. Whilst the guide values are commonly used to compare typical human response to construction works, they tend to relate closely to general levels of vibration perception from other general sources. Table 10-4 summarises the range of vibration values and the associated potential effects on humans.

Table 10-4 *Guidance on Effects of Human Response to PPV Magnitudes*

Vibration Level, PPV	Effect
0.14 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies. At lower frequencies people are less sensitive to vibration.

0.3 mm/s	Vibration might be just perceptible in residential environments.
1 mm/s	It is likely that a vibration level of this magnitude in residential environments will cause complaint.

The standard notes that single or infrequent occurrences of these levels do not necessarily correspond to the stated effect in every case. Where these values are routinely measured or expected then an assessment in accordance with BS 6472 2008 *Guide to evaluation of human exposure to vibration in buildings*, Part 1 *Vibration sources other than blasting* (BS 6472–1) might be more appropriate to determine whether time varying exposure is likely to give rise to any degree of adverse comment.

10.2.5 Construction Phase Traffic

Vehicular movement to and from the construction site for the proposed development will make use of the existing road network. In order to assess the potential impact of additional traffic on the human perception of noise, the following two guidelines are referenced: DMRB Noise and Vibration (UKHA 2020) and the EPA Guidelines (EPA, 2022). For construction traffic, due to the short-term period over which this impact occurs, the magnitude of impacts is assessed against the ‘short term’ period in accordance with the DMRB Noise and Vibration (UKHA 2020) document.

Table 10-6 sets out the classification of changes in noise level to impact on human perception based on the guidance contained in these documents

Table 10-5 *Classification of Magnitude of traffic noise changes for Construction Traffic*

Change in Sound Level (dB)	Subjective Reaction	DMRB Magnitude of Impact (Short-term)	EPA Significance of Effect
Less than 1 dB	Inaudible	Negligible	Imperceptible
1 – 2.9	Barely Perceptible	Minor	Not Significant
3 – 4.9	Perceptible	Moderate	Slight, Moderate
≥ 5	Up to a doubling of loudness	Major	Significant

10.2.6 Operational Phase – Additional Vehicular Traffic

Given that traffic from the development will make use of existing roads already carrying traffic volumes, it is appropriate to consider the increase in traffic noise level that arises as a result of vehicular movements associated with the development.

In order to assist with the interpretation of the noise associated with vehicular traffic on public roads, Table 10-6 offers guidance as to the likely effect associated with any particular change in traffic noise level using guidance from DMRB Noise and Vibration and EPA Guidelines 2022.

Table 10-6 *Likely Impact Associated with Change in Traffic Noise Level*

Change in Sound Level (dB)	Subjective Reaction	DMRB Magnitude of Impact (Long-term)	EPA Significance of Effect
0	Inaudible	No impact	Imperceptible
0.1 – 2.9	Barely Perceptible	Negligible	Not significant
3 – 4.9	Perceptible	Minor	Slight, Moderate

Change in Sound Level (dB)	Subjective Reaction	DMRB Magnitude of Impact (Long-term)	EPA Significance of Effect
5 – 9.9	Up to a doubling of loudness	Moderate	Significant
10+	Doubling of loudness and above	Major	Very significant

The criteria above reflect the key benchmarks that relate to human perception of sound. A change of 3 dB(A) is generally considered to be the smallest change in environmental noise that is perceptible to the human ear. A 10 dB(A) change in noise represents a doubling or halving of the noise level. The difference between the minimum perceptible change and the doubling or halving of the noise level is split to provide greater definition to the assessment of changes in noise level.

10.2.7 Operational Phase – Mechanical and Electrical Services Criteria

Once a development of this nature becomes fully operational, a variety of electrical and mechanical plant will be required to service the development. Most of this plant will be capable of generating noise to some degree. Some of this plant may operate 24 hours a day, and hence would be most noticeable during quiet periods (i.e. overnight). Noisy plant with a direct line-of-sight to noise sensitive properties would potentially have the greatest impact. Plant contained within plantrooms has the least potential for impact once consideration is given to appropriate design of the space.

Good practice guidance on noise emissions from mechanical plant items would typically make reference to the British Standard BS 4142: 2014 +A1 2019: *Method for Rating and Assessing Industrial and Commercial Sound*. This document is the industry standard method for analysing building services plant noise emissions to residential receptors and is the document used commonly by local authorities in their standard planning conditions and also in complaint investigations.

BS 4142 describes methods for rating and assessing sound of an industrial and/or commercial nature. The methods described in this British Standard use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident.

For an appropriate BS 4142 assessment, it is necessary to compare the measured external background noise level (i.e. the $L_{A90,T}$ level measured in the absence of plant items) to the rating level ($L_{Ar,T}$) of the various plant items, when operational. Where noise emissions are found to be tonal, impulsive in nature or irregular enough to attract attention, BS 4142 also advises that a penalty be applied to the specific level to arrive at the rating level.

The subjective method for applying a penalty for tonal noise characteristics outlined in BS 4142 recommends the application of a 2 dB penalty for a tone which is just perceptible at the noise receptor, 4 dB where it is clearly perceptible, and 6 dB where it is highly perceptible.

The following definitions are taken from BS 4142:

"ambient noise level, $L_{Aeq,T}$" is the noise level produced by all sources including the sources of concern, i.e. the residual noise level plus the specific noise of

	mechanical plant, in terms of the equivalent continuous A-weighted sound pressure level over the reference time interval [T].
"residual noise level, $L_{Aeq,T}$"	is the noise level produced by all sources excluding the sources of concern, in terms of the equivalent continuous A-weighted sound pressure level over the reference time interval [T].
"specific noise level, $L_{Aeq,\ T}$"	is the sound level associated with the sources of concern, i.e. noise emissions solely from the mechanical plant, in terms of the equivalent continuous A-weighted sound pressure level over the reference time interval [T].
"rating level, $L_{Ar,T}$"	is the specific sound level plus any adjustments for the characteristic features of the sound (e.g. tonal, impulsive or irregular components);
"background noise level, $L_{A90,T}$"	is the sound pressure level of the residual noise that is exceeded for 90% of the time period T.

If the rated plant noise level is +10 dB or more above the pre-existing background noise level, then this indicates that complaints are likely to occur and that there will be a significant adverse impact. A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact.

10.2.8 Operational Phase – Vibration Criteria

There are no expected sources of vibration associated with the operational phase, therefore, vibration criteria have not been specified for this phase.

10.2.9 Difficulties in Compiling the Assessment

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

10.3 RECEIVING ENVIRONMENT

The subject site is located at and surrounding St. Vincents Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The site is bound by the Grace Park Wood residential development to the northwest; Griffith Court, the 'Fairview Community Unit' nursing home, Fairview Day Centre, Gheel Autism Services and a graveyard to the north; the An Post Fairview Delivery Service Unit on Lomond Avenue and properties on Inverness Road, Foyle Road and Richmond Avenue to the east; existing residential and commercial properties on Richmond Road and Convent Avenue to the south and Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC, and Ierne Sports and Social Club to the west of the site. Figure 10.1 demonstrates the proposed site layout whilst Figure 10.2 outlines the route for the proposed water mains connection to the main site.

Figure 10.1 *Proposed Site Layout (Source STW Drawing No. SVRD-STW-ST-00-DR-A-022004)*

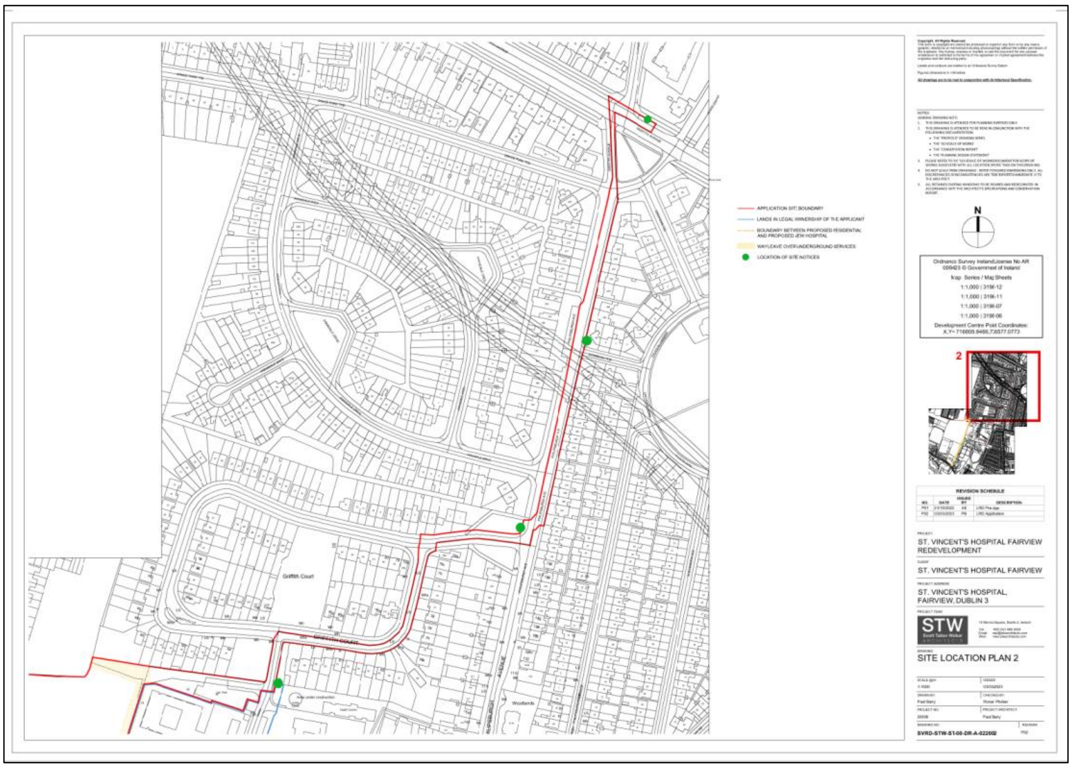


Figure 10.2 *Proposed Water Mains Connection (Source STW Drawing No SVRD-STW-ST-00-DR-A-022002)*

The prevailing noise environment has been characterised through baseline noise surveys and a desktop review of available published noise mapping. Both are discussed in the following sections.

10.3.1 Noise Survey

An environmental noise survey has been conducted at the site in order to quantify the existing noise environment. The survey was conducted in general accordance with *ISO 1996: 2017: Acoustics – Description, measurement and assessment of environmental noise*. Specific details are set out below.

10.3.2 Choice of Measurement Locations

The measurement locations were selected to represent the noise environment at noise-sensitive locations surrounding the proposed development and associated water mains works. The selected locations are shown in Figure 10.3 and described as follows:

AN1 Attended survey location intended to capture the daytime noise environment at the properties to the back of current hospital situated in the north of the proposed site.

AN2 Attended survey location intended to capture the daytime noise environment at the commercial premises situated towards the eastern boundary of the site on Inverness Road.

AN3 Attended survey location intended to capture the daytime noise environment at the commercial premises situated towards the southern site boundary off Richmond Road.

UN1 Unattended survey location intended to capture the daytime and night-time noise environment situated in the south-western field within the hospital grounds.

ANWM1 Attended survey location intended to capture the daytime noise environment at properties along the southern extent of the proposed water mains works.

ANWM2 Attended survey location intended to capture the daytime noise environment at properties along the middle section of the proposed water mains works.

ANWM3 Attended survey location intended to capture the daytime noise environment at properties along the northern section of the proposed water mains works.

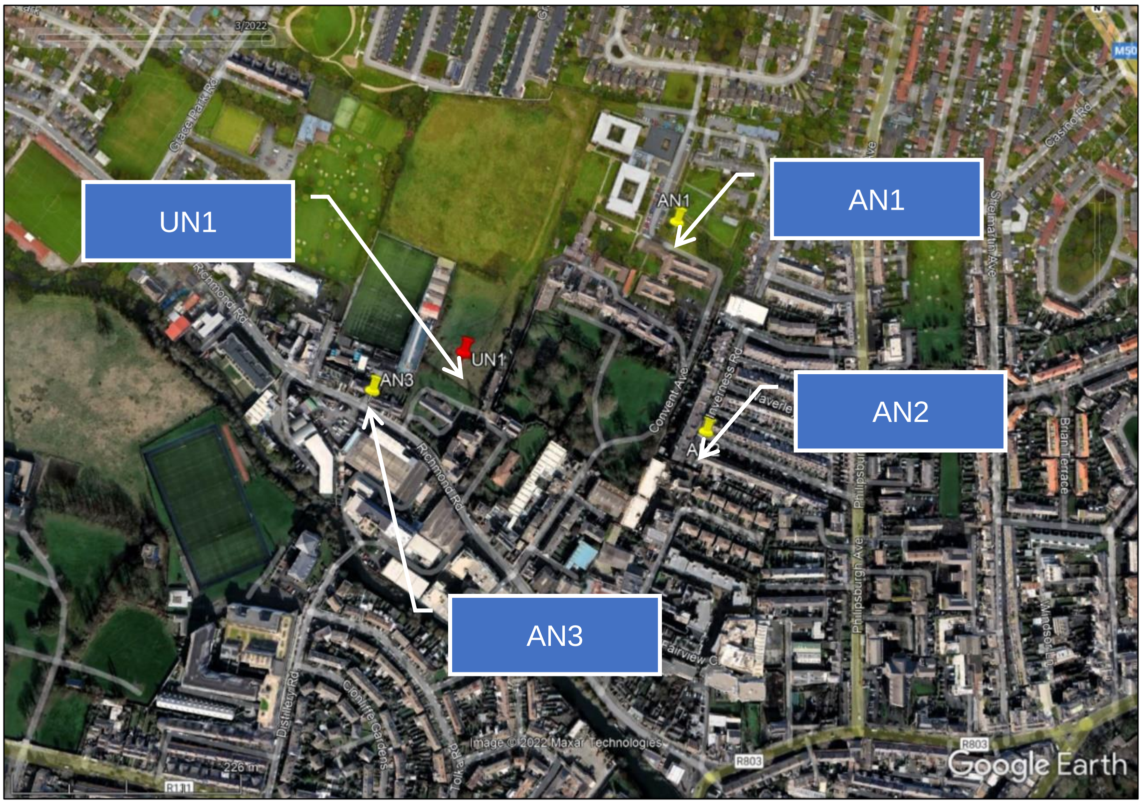


Figure 10.3 *Baseline Noise Survey locations Main Site*

Figure 10.4 *Baseline Noise Survey Locations Mains Water Works*

10.3.3 Survey Periods

Attended noise measurements at locations AN1 to AN3 surrounding the main development site were conducted between 11:30 to 14:25hrs on 10th November 2021.

Attended noise measurements at locations ANWM1 to ANWM3 were conducted to quantify the existing environment along the proposed water mains works, these were conducted between 10:55 and 14:11 on 9th February 2023.

Unattended noise measurements at location UN1 were conducted between 10th November and 15th November 2021.

Weather conditions during the attended survey periods were dry and clear with 60% cloud cover. Temperatures were between 8°C and 16°C. Wind speeds were below 5 m/s, the maximum wind speed at which the microphone windshield is effective.

10.3.4 Personnel and Instrumentation

AWN installed and collected the noise monitoring equipment. The following instrumentation was used in conducting the noise surveys:

Table 10-7 *Instrumentation details*

Equipment	Type	Serial Number	Calibration Date
Sound Level Meter	Brüel & Kjaer 2250L	3008402	04/11/2023
Sound Level Meter	Rion NL-52	186671	12/05/2024

10.3.5 Noise Measurement Parameters

The noise survey results are presented in terms of the following parameters:

L_{Aeq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.

L_{AFmax} is the instantaneous maximum sound level measured during the sample period using the ‘F’ time weighting.

L_{A90} is the sound level that is exceeded for 90% of the sample period. It is typically used as a descriptor for background noise.

The “A” suffix for the noise parameters denotes the fact that the sound levels have been “A-weighted” in order to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to 2 x 10^{-5} Pa.

10.3.6 Survey Results

The results of the attended daytime noise surveys at AN1, AN2 and AN3 are summarised in Table 10-8, Table 10-9 and Table 10-10 respectively. It should be noted that a logarithmic average is used for the L_{Aeq} parameter, while an arithmetic average is used for the L_{A90} parameter.

10.3.6.1 AN1

Table 10-8 *Summary of attended daytime noise measurements at AN1*

Time	Measured Level		
	$L_{Aeq,15min}$ dB(A)	$L_{Amax,15min}$ dB(A)	L_{A90}
12:40	44	66	34
13:00	42	61	35
13:20	53	70	38
Average	**49**	**-**	**36**

The noise environment at this location comprised of minor, distant road traffic noise from Richmond Road, birdsong and faint ground works around the hospital (e.g. leaf blower). Ambient noise levels were in the range 44 – 53 dB L_{Aeq} while background noise levels were in the range of 34 to 38 dB L_{A90}.

10.3.6.2 AN2

Table 10-9 *Summary of attended daytime noise measurements at AN2*

Time	Measured Level		
	$L_{Aeq,15min}$ dB(A)	$L_{Amax,15min}$ dB(A)	L_{A90}
11:30	50	67	39
11:54	69	107	42
12:15	51	74	39
Average	**51**	**-**	**40**

The noise environment at this location comprised intermittent construction noise from house in estate, cars passing in and out of estate and birdsong. A spike in middle measurement due to a loud bang from a dropped object adjacent position this measurement was subsequently removed from the L_{Aeq} average calculations. Ambient noise levels were in the range 50 – 69 dB L_{Aeq} while background noise levels were in the range 39 – 42 dB L_{A90}.

10.3.6.3 AN3

Table 10-10 *Summary of attended daytime noise measurements at AN3*

Time	Measured Level		
	$L_{Aeq,15min}$ dB(A)	$L_{Amax,15min}$ dB(A)	L_{A90}
13:43	64	80	49
14:05	64	82	50
14:25	64	80	51
Average	**64**	**-**	**50**

The noise environment at this location comprised road traffic noise on Richmond Road, cars entering and exiting business estate at the location of measurement and pedestrian activity. Ambient noise levels were of the order of 64 dB L_{Aeq} while background noise levels were in the range 49 – 51 dB L_{A90}.

10.3.6.4 UN1

Table 10-11 *Summary of Measured Noise Levels at UN1*

Date	Period	Measured Level		
		L_{Aeq} dB(A)	L_{Amax} dB(A)	L_{A90} dB(A)
10/11/21	Daytime	46	63	42
	Evening	43	57	39
	Night	41	53	37
11/11/21	Daytime	48	60	45
	Evening	45	56	43
	Night	45	56	42
12/11/21	Daytime	50	61	48
	Evening	48	59	46
	Night	43	53	40
13/11/21	Daytime	46	62	42
	Evening	42	53	38
	Night	38	52	34
14/11/21	Daytime	46	62	40
	Evening	44	54	41
	Night	44	56	41
15/11/21	Daytime	50	65	47
Average	Daytime	48	63	45
	Evening	45	56	42
	Night	43	54	40

The noise environment at this location comprised of distant road traffic noise, aircraft movements overhead, and birdsong. Ambient daytime noise levels were in the range 46 – 50 dB L_{Aeq} while background daytime noise levels were in the range 42 – 48 dB L_{A90}. Ambient night time noise levels were in the range 38 – 45 dB L_{Aeq} while background night time noise levels were in the range 34 – 42 dB L_{A90}.

Table 10-12 *Summary of unattended noise measurements at UN1*

Date	Period	Average Measured Level		
		L_{Aeq} dB(A)	L_{Amax} dB(A)	L_{A90} dB(A)
10/11/21 – 15/11/21	Daytime	48	63	45
	Evening	45	56	42
	Night	43	54	40

10.3.6.5 ANWM1

Table 10-13 *Summary of attended daytime noise measurements at ANWM1*

Time	Measured Level		
	$L_{Aeq,15min}$ dB(A)	L_{Amax} dB(A)	L_{A90}
10:55	50	73	43
12:03	57	67	55
13:10	56	73	43
Average	**55**	**-**	**43**

The noise environment at this location comprised of road traffic noise on Griffith Court and bird song. During the second measurement a pressure washer was being used for this reason the L_{A90} average has been averaged without the second measurement.

10.3.6.6 ANWM2

Table 10-14 *Summary of attended daytime noise measurements at ANWM2*

Time	Measured Level		
	$L_{Aeq,15min}$ dB(A)	L_{Amax} dB(A)	L_{A90}
11:15	64	79	49
12:24	65	80	49
13:30	69	76	46
Average	**67**	**-**	**48**

The noise environment at this location comprised of road traffic noise on Philipsburgh Avenue and bird song.

10.3.6.7 ANWM3

Table 10-15 *Summary of attended daytime noise measurements at ANWM3*

Time	Measured Level		
	$L_{Aeq,15min}$ dB(A)	L_{Amax} dB(A)	L_{A90}
11:38	65	78	55
12:46	69	81	55
13:54	69	80	56
Average	**68**	**-**	**55**

The noise environment at this location comprised of dominant road traffic noise on both Philipsburgh Avenue and Griffith Avenue. Other contributing noise sources were birdsong and pedestrian pass bys.

10.3.7 Desktop Review of Noise Mapping

A desktop review of publicly available data has been undertaken to further characterise the baseline noise environment in the study area. Reference has been made to the most recent Round 3 noise maps published by the Environmental Protection Agency (EPA) (http://gis.epa.ie) for road traffic noise within Dublin County Council. The published noise maps are provided for the overall day-evening-night period in terms of L_{den} and the L_{night} parameters, defined below.

L_{den} is the 24-hour noise rating level determined by the averaging of the L_{day} with the $L_{evening}$ (plus a 5 dB penalty) and the L_{night} (plus a 10 dB penalty). L_{den} is calculated using the following formula, as defined within the Noise Regulations:

Where:

$$L_{den} = 10log\left(\frac{1}{24}\right)\left(12*\left(10^{\frac{Lday}{10}}\right)+4*\left(10^{\frac{Levening+5}{10}}\right)+8*\left(10^{\frac{Lnight+10}{10}}\right)\right)$$

L_{day} is the A-weighted long-term average sound level as defined in ISO 1996-2, determined over all the day periods of a year. The 12 hour daytime period is between 07:00hrs and 19:00hrs.

$L_{evening}$ is the A-weighted long-term average sound level as defined in ISO 1996-2, determined over all the evening periods of a year. The four-hour evening period is between 19:00hrs and 23:00hrs.

L_{night} is the A-weighted long-term average sound level as defined in ISO 1996-2, determined over all the night periods of a year. The eight-hour night-time period is between 23:00hrs and 07:00hrs.

Figure 10.5 and Figure 10.6 present the mapped road traffic noise levels in the vicinity of the development site as reported in the Dublin County Council Noise Action Plan 2018-2023 in terms of the L_{den} and L_{night} parameters. The proposed site lies bounded by mapped roads to the East, West and South. However, the extent of the noise mapping shows that the site is not effected in relation to excessive noise relating to the local road networks.

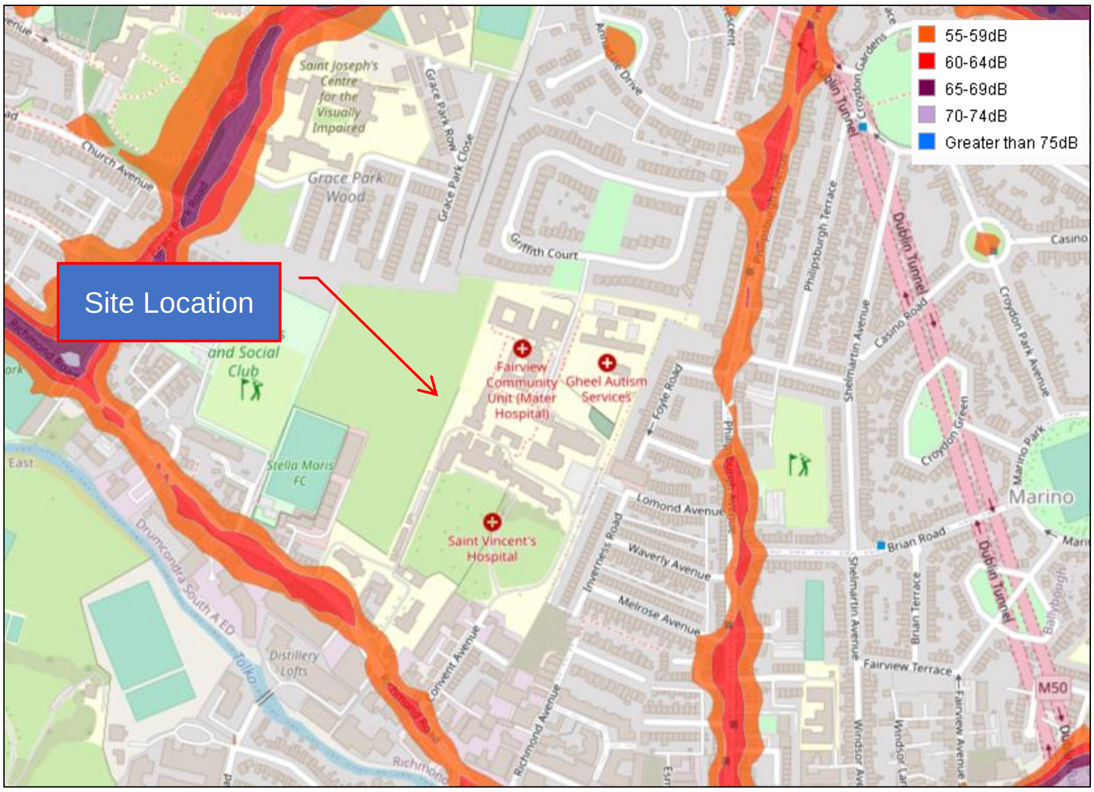


Figure 10.5 *Mapped dB Lden Traffic Noise Level within vicinity of proposed development (Source: http://gis.epa.ie)*

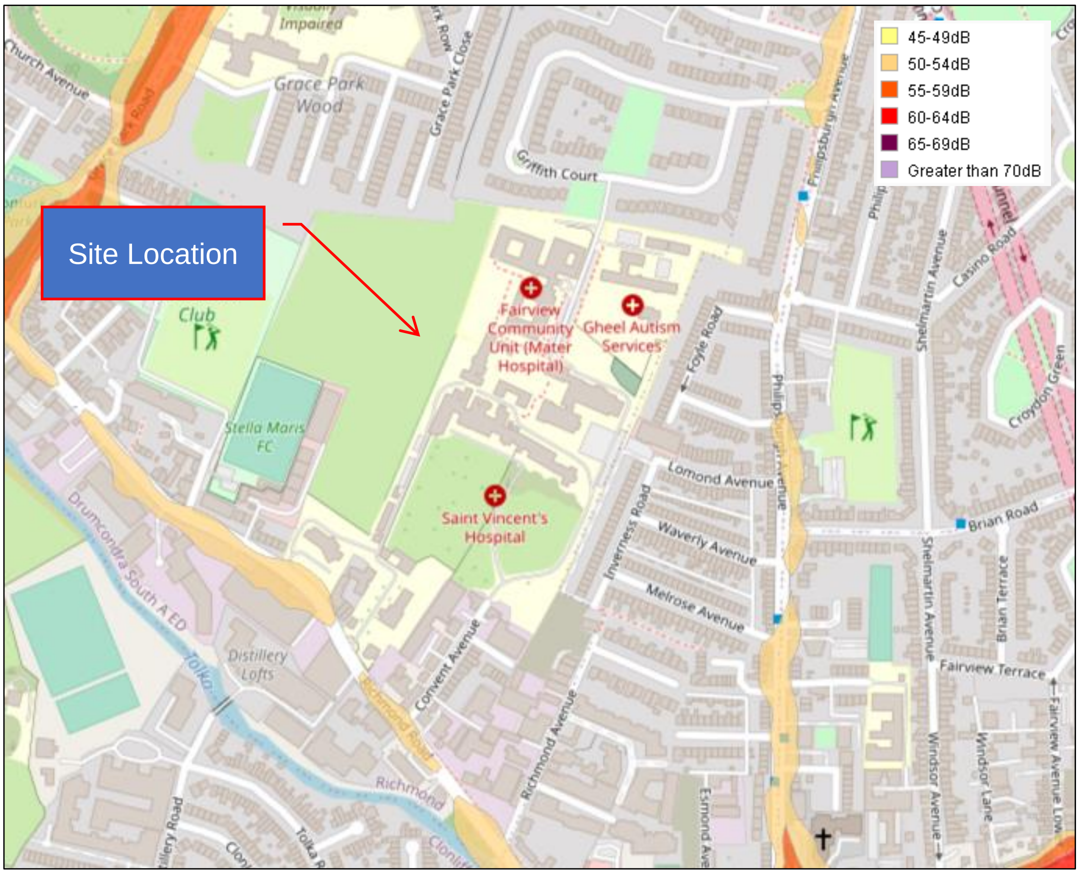


Figure 10.6 *Mapped dB L_{night} Traffic Noise Level within vicinity of proposed development (Source: http://gis.epa.ie)*

10.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

The full description of the development can be found in Chapter 2 (Description of the Proposed Development) of this EIAR.

When considering a development of this nature, the potential noise and vibration impact on the surroundings must be considered for each of two distinct stages:

- the construction and demolition phase, and;
- the operational phase.

During the construction phase the main site activities likely to generate noise will include site clearance, including building demolition and excavation as well as building construction and landscaping works.

During the operational phase of the development, the key sources of noise will relate to building services plant and additional vehicular traffic on public roads.

These issues are discussed in the following sections.

10.5 POTENTIAL IMPACT OF THE PROPOSED DEVELOPMENT

10.5.1 Construction Phase

10.5.1.1 Construction Phase – Noise

The highest potential noise and vibration impact of the proposed development will occur during the construction phase due to the demolition of various buildings, the operation of various plant machinery used to construct the various phases in addition to Heavy Goods Vehicles (HGVs) movement to, from and around the site. However, impacts during this phase are short-term in duration. In addition to the construction of the development there is provision for construction works in relation to the proposed water mains connection to the proposed development this has also been assessed within the following sections.

Main Development – Construction Noise

The construction of the proposed development will occur over a number of construction phases. The construction phasing program is highlighted below in Figure 10.7. Phase 1 is highlighted in orange, Phase 1A is highlighted in green, Phase 1B is highlighted in blue and Phase 2 is highlighted in Pink.

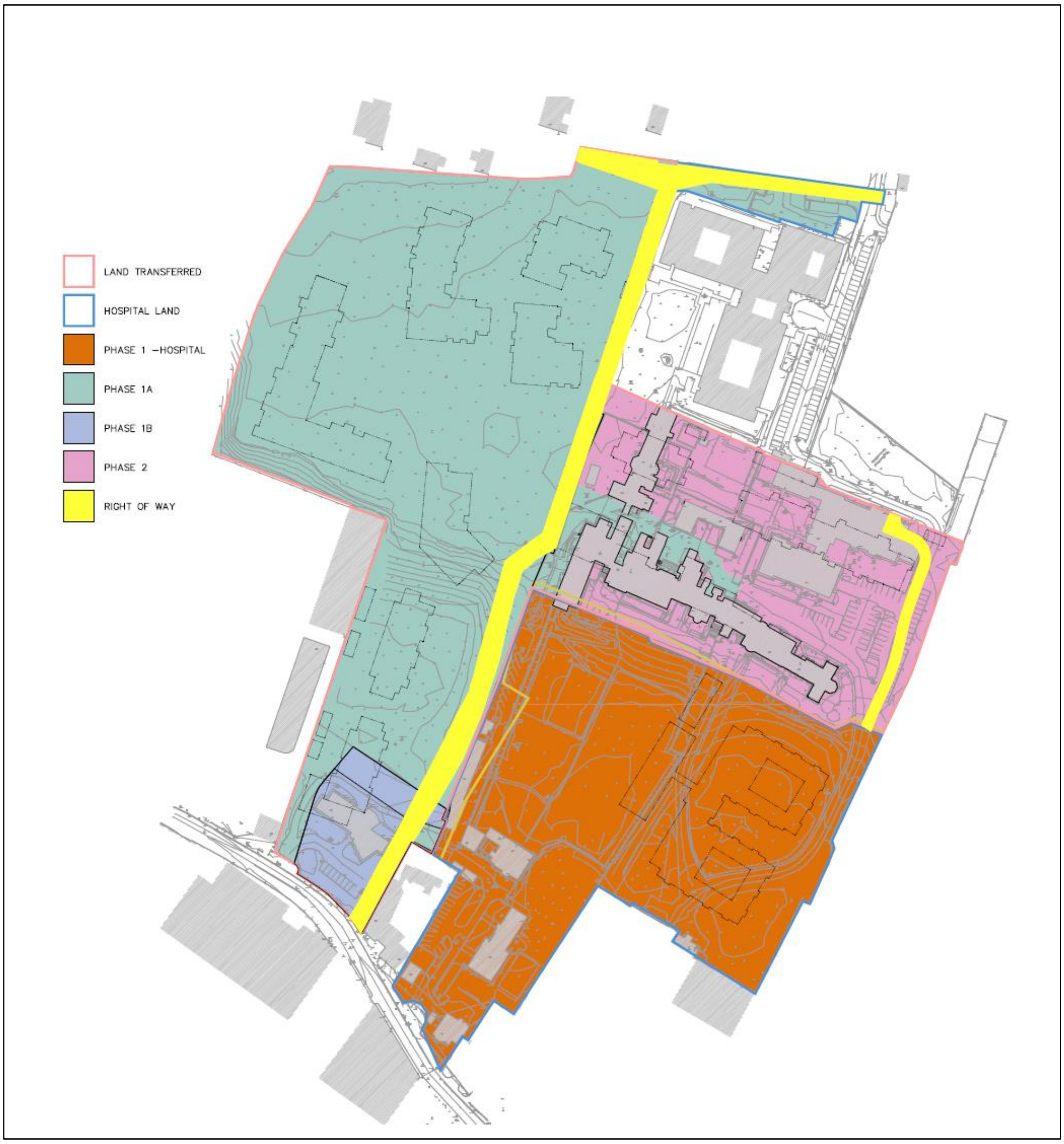


Figure 10.7 *Construction Phasing for Proposed Development*

During the construction of the proposed development, the closest noise sensitive locations are located on all boundaries at varying distances. To the east and south-eastern boundary of the site lie residential properties along Inverness Road. To the south, residential properties at Hogan View and Convent Avenue. To the south west, closest residential properties are along Richmond Road. To the west, recreational and amenity areas including a sports ground and pitch and putt and to the North, the closest residential properties are located at Grace Park Grove, Grace Park Crescent and Griffith Court. Other Noise Sensitive Locations during construction phases include the existing St Vincent's buildings within the redline boundary of the proposed development and the community unit of St Vincent's Hospital to the north east of the site which will be in operation during the construction of Phase 1, 1a and Phase 2. The proposed new hospital building within the Phase 1 site will become a noise sensitive location during the subsequent construction phases once operational. The identified NSLs surrounding the development site are shown in Figure 10.8.

Figure 10.8 *Identified NSL's Construction*

- NSL 1: Residential NSLs along Inverness Road.
- NSL 2a: Residential NSLs at Convent Avenue.
- NSL 2b: Residential NSLs at Hogan View.
- NSL 3: Residential NSLs along Richmond Road.
- NSL 4: Potential NSLs at amenity areas including sports ground and pitch and putt.
- NSL 5: Residential NSLs at Grace Park Grove, Grace Park Crescent, and Griffith Court and Gheel Autism Services.
- NSL 6: NSLs at Community Unit of St Vincent's Hospital
- NSL 7a: –NSLs within the red line boundary at St Vincent's Hospital
- NSL 7b: NSLs within the red line boundary at St Vincent's Hospital

Thresholds for significant noise from construction can be determined by referring to Table 10-1 (BS 5228-1) and the baseline ambient noise levels (10.3), as outlined in the assessment criteria section. Based on the prevailing noise environment measured, the construction noise thresholds are defined from Category A or B as appropriate and defined within Table 10-1. A night-time threshold is not included as construction work will not be taking place at night.

Due to the fact that the construction programme has been established in outline form, construction noise associated with activities on site during each construction phase are reviewed for the purposes of determining the likely significant effects. Indicative ranges of noise levels associated with construction may be calculated in accordance with the methodology set out in BS 5228-1. This standard sets out sound power and sound pressure levels for plant items normally encountered on construction sites, which in turn enables the prediction of noise levels.

Given that the construction stage is highly transient in nature and involves a number of various stages which will encompass a range of different activities on a day to day and week to week basis, it is not possible to calculate with a high degree of accuracy the specific levels of noise associated with each stage. The construction stage will be undertaken over a number of stages from site preparation through to building construction and internal fit out. In terms of the potential noise and vibration impacts, the key stages and activities are expected to involve:

- Demolition of existing structures;
- Site Strip/Excavation
- Substructure
- Superstructure
- Façade and internal fit out.

For the purposes of our assessment each construction activity has been assigned a sound power level which relates to the estimated activities taking place. A sound pressure level is then estimated at each noise sensitive location for the related construction activity. The following section discusses typical noise levels associated with the proposed development construction phase.

Intrusive Works and High Noise Activities: Demolition and Substructure Piling

Reference to BS 5288-1 indicates that highest noise levels on the site are associated with activities associated with demolition of existing structures, ground breaking associated with the initial demolition and ground clearance phase and during piling activities associated with precast driven piles for building foundations. Noise levels from these activity types are typically in the range of 80 to 90 dB L_{Aeq} at 10m.

For construction activities associated with demolition, surface ground breaking and foundation phase using precast piling, a total construction noise level of 92 dB L_{Aeq} at 10m has been used for the purposes of indicative calculations. This would involve for example, one item of plant at 90 dB L_{Aeq} and two items of plant at 85 dB L_{Aeq} and one item of plant at 80 dB L_{Aeq} operating simultaneously within one work area which is considered a highly worst-case scenario.

The buildings identified that will require demolition are illustrated in Figure 10.9.

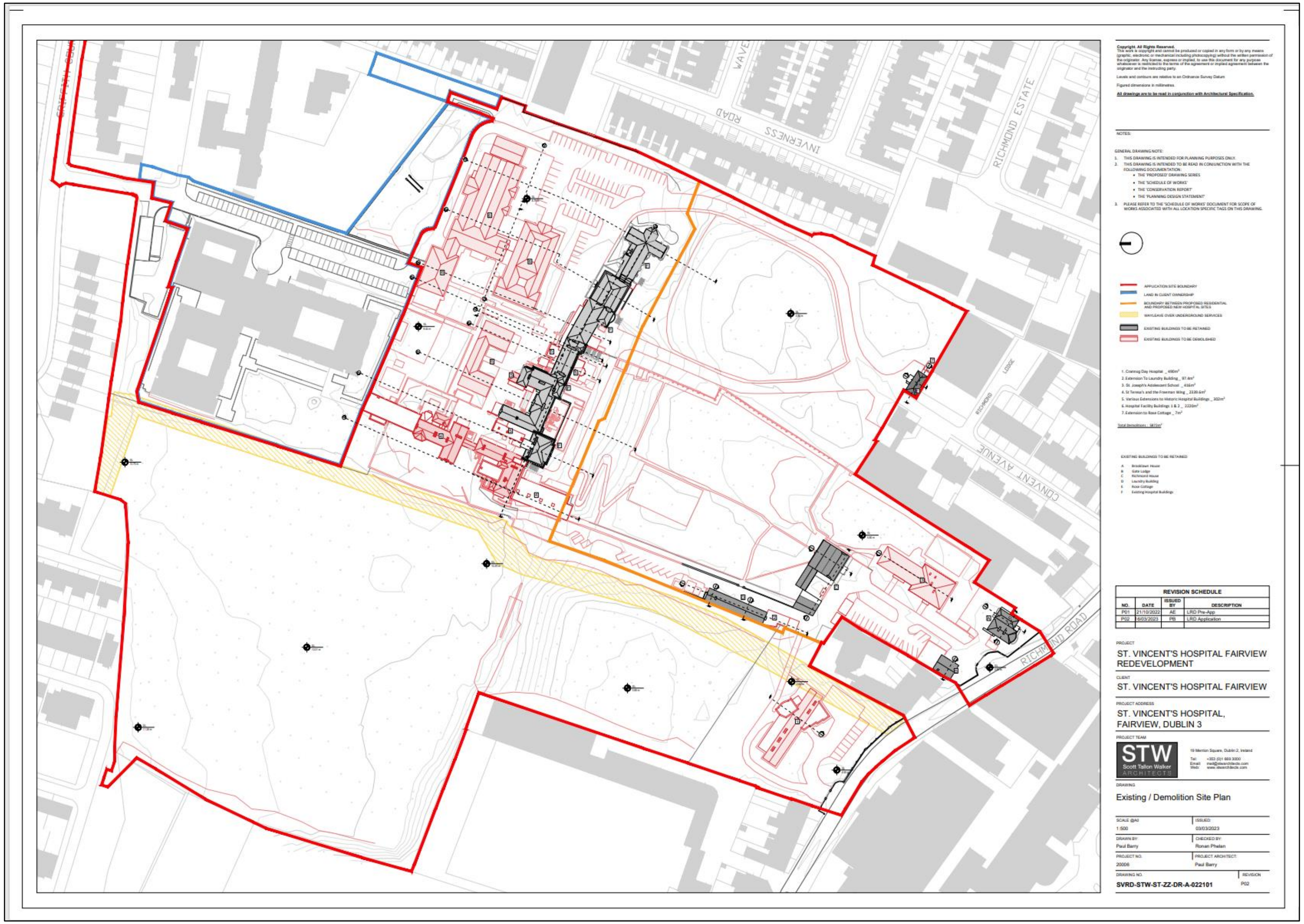


Figure 10.9 *Identified buildings for demolition (Source STW Drawing No. SVRD-STW-ST-00-DR-A-022101*

Structural Works Including, Excavation, Retaining Structures, Basement Foundation Slab Construction

For construction works associated with activities such as excavation, basement construction and structural works including excavators, loaders, dozers, cranes, generators and concreting works etc. noise levels are typically in the range of 70 to 80 dB L_{Aeq} at 10m.

The basement depth for all buildings are above the underlying bedrock level (Refer to Chapter 5 (Land, Soil Geology and Hydrogeology)) and hence the requirement for rock breaking, crushing or extraction is not envisioned at this site.

For ongoing construction activity associated with the above activities, a total construction noise level of 82 and 85 dB L_{Aeq} at 10m has been used for the purposes of indicative calculations for these activities representing a variety over this stage. This would include, for example two items of plant at 80 dB L_{Aeq} and three items of plant at 75 dB L_{Aeq} operating simultaneously within one work area resulting in a total noise level of 85 dB L_{Aeq} and up to six items of plant with a noise level of between 70 and 75 dB L_{Aeq} resulting in a total noise level of 82 dB L_{Aeq} at 10m

Superstructure and Fit Out Activities

For construction work areas with lower noise levels such as those associated with superstructure works including site compounds (for storage, offices and material handling, generators etc.), smaller items of mobile plant (excavators, cranes, dozers), landscaping and concreting works with lower noise emissions, a total construction noise level of 78 dB L_{Aeq} at 10m has been used for the purposes of indicative calculations. This would include, for example one item of plant at 75 dB L_{Aeq} and three items of plant at 70 dB L_{Aeq} operating simultaneously within a work area.

Phase 1 and 1a Construction Noise

Demolition Phase

The demolition works for both Phase 1 and Phase 1a of the proposed scheme are due to coincide with each other, with demolition and enabling works associated with Phase 1a expected to run for a period of 12 weeks compared to Phase 1 which is scheduled for a period of 6 weeks. A sound pressure level of 92 dB at 10m from each phase has been used to represent these activities.

During construction Phase 1 and 1a of the proposed development there are two structures due to be demolished; these buildings are the St Joseph's Adolescent School to the south of the site and the Crannog Day Hospital also to the south of the site. The noise sensitive locations most likely to be effected during the demolition and enabling works for Phase 1 and 1a are NSL's 2a, 2b and 3.

The calculated noise levels in Table 10-16 for each NSL take account of demolition works from Phase 1 and Phase 1a occurring at the same time taking account of the distance from the identified structures within each phase to the relevant NSL.

Site Strip, Excavation Works and Basement Concreting Works

The assessment has assumed site strip and excavation works will occur within Phase 1 and Phase 1a simultaneously. The calculations take account of the closest distance of excavation and basement works from each phase to each NSL. A sound pressure level of 85 dB at 10m from each phase has been used to represent these activities.

The calculated noise levels in Table 10-16. for each NSL take account of site strip, excavation and basement concreting works from Phase 1 and Phase 1a occurring at the same time taking account of the distance from the closest works within each phase to the relevant NSL.

Substructure Works

The assessment has assumed Substructure works involving precast driven piles works will occur within Phase 1 and Phase 1a simultaneously. The calculations take account of the closest distance of piling works from each phase to each NSL. A sound pressure level of 92 dB at 10m from each phase has been used to represent these activities.

The calculated noise levels in Table 10-16 for each NSL take account of piling works and other high intrusive activities associated with sub structure works from Phase 1 and Phase 1a occurring at the same time taking account of the distance from the closest works within each phase to the relevant NSL.

Superstructure and Fit out Works

The assessment has assumed Superstructure and fit out works associated with the development buildings within Phase 1 and Phase 1a will be constructed simultaneously. The calculations take account of the closest distance of building works from each phase to each NSL. A sound pressure level of 78 dB at 10m from each phase has been used to represent these activities.

Calculation Assumptions

For the purpose of the assessment, a standard site hoarding of 2.4m high has been included in the calculations for noise sensitive boundaries. Screening from existing buildings have not been included in the calculations. It must be stated that for most of the time, plant and equipment will be a greater distance from the nearest NSLs than those used within the calculations and the “on-time” of plant and equipment will be less than those assumed over a normal working day (i.e. the use of breakers or piling rigs will be in use for shorter periods than those assumed over a normal working day) and consequently will have lower noise levels. The assessment presented is therefore representative of a best estimate conservative scenario representing construction activities.

Table 10-16 *Indicative construction noise levels during Phase 1 and Phase 1a Construction*

Construction Activity	Sound pressure at 10m, dB L_{Aeq}	Calculated noise levels at corresponding noise sensitive locations, dB $L_{Aeq,T}$								
		NSL1	NSL2a	NSL2b	NSL3	NSL4	NSL5	NSL6	NSL7a	NSL7b
Demolition/Enabling Works	92	54	67	82[1]	76	54	46	48	53	53

[1] Cumulative level from both bordering structures being demolished simultaneously.

Construction Activity	Sound pressure at 10m, dB L_{Aeq}	Calculated noise levels at corresponding noise sensitive locations, dB $L_{Aeq,T}$								
		NSL1	NSL2a	NSL2b	NSL3	NSL4	NSL5	NSL6	NSL7a	NSL7b
Site Strip/Excavation	85	69	65	69	64	54	64	66	64	66
	82	66	62	66	61	51	61	63	61	63
Substructure (precast driven piles)	92	71	62	66	66	56	64	66	76	71
Superstructure and Fit out works	78	57	48	52	52	42	50	52	54	52

During the demolition and enabling works relating to phase 1 and phase 1a of the development it is expected that the noise sensitive locations most likely to be affected will be to the south of the site at noise sensitive locations 2a, 2b and 3. This is due to the close proximity of the NSL's and the St Josephs Adolescent School Building and Crannog Day Hospital building due to be demolished close to these receptors. The construction noise threshold is anticipated to be exceeded at these three receptors however the most intrusive works relating to noise are likely to be temporary in nature. This is likely to result in a ***temporary***, ***negative*** and ***very significant effect*** in the absence of mitigation. At the receptors further from proposed demolition works the effect of the works is likely to be reduced and fall within the construction noise threshold. This is likely to result in a ***temporary***, ***negative*** and ***slight*** to ***moderate*** effect at the remainder of the noise sensitive locations.

During the site strip and excavation works relating to phase 1 and phase 1a of the development the noise sensitive locations most likely to be affected by the will vary throughout the site. The most affected will be the receptors closest to the site boundary namely NSL 1, 2b, 6 and 7b. The construction noise threshold is anticipated to be exceeded at these four receptors however due to the variable nature of this construction stage, levels are expected to vary with the most intrusive works likely to be temporary in nature. During the periods within this construction stage with the highest noise emissions the likely associated effect will be ***temporary***, ***negative*** and ***moderate*** to ***significant***.

During the Substructure works relating to phase 1 and phase 1a of the development most noise sensitive locations surrounding the site are likely to be affected. The intrusive nature of the works namely the precast driven piling proposed is likely to have a negative impact at surrounding receptors. However, some receptors are likely to experience higher levels of disturbance than others. The locations most affected by this period of construction will be the receptors closest to the construction of the new St Vincents Hospital building. The substructure and piling phase is likely to result in a ***temporary***, ***negative*** and ***very significant*** effect at noise sensitive locations 1 as well as noise sensitive locations 7a and 7b in the absence of mitigation. Noise sensitive locations 2b, 3 and 6 are likely to experience a ***temporary***, ***negative*** and ***moderate*** to ***significant*** effect whilst the remainder of locations will experience a ***temporary***, ***negative*** and ***slight*** to ***moderate*** effect.

During the Superstructure and Fit out works it is expected that whilst works will be audible above the measure baseline level works will fall within the adopted construction threshold. The likely associated effect during this construction period will be ***short term***, ***negative*** and ***slight*** to ***moderate*** .

Phase 2 Construction Noise Impacts

Once Phase 1 works are complete, construction of Phase 2 will commence which will involve demolition of the existing hospital buildings, excavation, foundation works and buildings works. The closest NSL to this Phase of works will be the new hospital building within Phase 1 which is assumed to be occupied during Phase 2 construction works. The same NSLs referred to in Figure 10.8 are assessed for this phase. NSLs 7a and 7b for this phase however, represent the north and west of the new hospital building within Phase 1.

Table 10-17 *Indicative construction noise levels during Phase 2 Construction.*

Construction Activity	Sound pressure at 10m, dB L_{Aeq}	Calculated noise levels at corresponding noise sensitive locations, dB $L_{Aeq,T}$								
		NSL1	NSL2 a	NSL2 b	NSL3	NSL4	NSL5	NSL6	NSL7 a	NSL7 b
Demolition/Enabling Works	92	69	51	54	51	49	53	76	76	75
Site Strip/Excavation	85	63	45	48	46	42	48	69	69	68
	82	60	42	45	43	39	45	66	66	65
Substructure (precast driven piles)	92	71	51	53	52	48	56	76	65	61
Superstructure and Fit out works	78	54	38	39	38	35	42	62	62	56

During the demolition and enabling works relating to phase 2 of the development it is expected that the noise sensitive locations most likely to be affected will be those closest to the buildings being demolished at the current existing St Vincents Hospital at noise sensitive locations 1, 6 and the new hospital building that will be operational during phase 2 (NSL's 7a and 7b). This is due to the proximity of the NSL's and the various extensions to historic hospital buildings and the separate hospital buildings from the 1980s that will be demolished close to these receptors. The construction noise threshold is anticipated to be exceeded at these four receptors however the most intrusive works relating to noise are likely to be temporary in nature. This is likely to result in a ***temporary***, ***negative*** and ***very significant*** effect in the absence of mitigation. At the receptors further from proposed demolition works during phase 2 the effect of the works is likely to be reduced and fall within the construction noise threshold. This is likely to result in a ***temporary***, ***negative*** and ***slight*** to ***moderate*** effect.

During the site strip and excavation works relating to phase 2 of the development the noise sensitive locations most likely to be affected by the will be those located close to the new apartment blocks being built (J, K, L and H). The most affected will be the receptors closest to the excavation works in relation to the construction of these blocks, namely NSL's 6, 7a and 7b. The construction noise threshold is anticipated to be exceeded at these three receptors, however due to the variable nature of this construction stage, levels are expected to vary, with the most intrusive works likely to be temporary in nature. During the periods within this construction stage with the highest noise emissions the likely associated effect will be ***temporary***, ***negative*** and ***moderate*** to ***significant***.

During the Substructure works relating to phase 2 of the development the noise sensitive locations effected will be those closest to the construction of blocks J,K,L and H. The intrusive nature of the works namely the precast driven piling proposed is likely to have a negative impact at surrounding receptors close to these works. However, some receptors are likely to experience higher levels of disturbance than others. The substructure and piling phase is likely to result in a ***temporary***, ***negative*** and ***very significant*** effect at noise sensitive locations 1 and 6 in the absence of mitigation. Other noise sensitive locations are likely to experience a ***temporary***, ***negative*** and ***moderate*** to ***significant*** effect, with the new hospital within phase 1 likely to benefit from additional screening due to the existing buildings between itself and the construction of blocks J,K,L and H.

During the Superstructure and Fit out works it is expected that whilst works will be audible above the measure baseline level works will fall within the adopted construction threshold. The likely associated effect during this construction period will be ***short term***, ***negative*** and ***slight*** to ***moderate***.

Water Main Construction Noise Impacts

Water main construction will require utility diversions, excavation of the trench, utility laying, backfilling and surface reinstatement. Construction plant typically associated with this activity include breakers, excavators, loaders, road pavers, and rollers, which will operate as required depending on the specific activity taking place at any one time. Noise levels associated with these activities are typically in the range of 64 to 82dB $L_{Aeq,T}$ at 10m taking account of their typical 'on-time' in a working area. Allowing for a working area of 50m in length for any one utility diversion activity, a total noise level of 6 items of plant with an average noise level of 76dB L_{Aeq} each at 10m has been used for purpose of calculation to account for the mobile nature of plant and equipment in any working area., outlines the typical CNL associated with the proposed works for this element of the Construction Phase at increasing distances from the works. Figure 10.2 illustrates the location of utility diversion works across the proposed Project.

Table 10-18 *Indicative Utility Diversion Construction Work Noise Calculations at Varying Distances*

Activity	Predicted CNL at Stated Distance from Edge of Works (dB $L_{Aeq,T}$)							
	10m	15m	20m	30m	50m	75m	100m	150m
Water Main Construction	84	81	78	74	70	66	64	60

During watermain construction works, the CNT value of 70dB L_{Aeq} (Category B), daytime is likely to be exceeded at distances of up to 50m from the works boundary in the absence of any noise mitigation. Noise mitigation will therefore be required where this activity is scheduled within 50m of NSLs along the proposed Project. Mitigation measures so as to minimise noise from construction are discussed within section 10.6.

10.5.1.2 Construction Phase – Vibration

The main potential source of vibration during the construction programme is associated with piling and any initial ground breaking or demolition activities.

The proposed building formation levels and basement levels will require made ground and overburden to be excavated from the main site level down to basement level. The basement depth is above the underlying bedrock level and hence the requirement for rock breaking or extraction is not envisioned at this site.

Precast driven piles will be used for apartment buildings foundations. For the purposes of this assessment, the expected vibration levels during piling, assuming driven piles, have been determined through reference to published empirical data.

The British Standard BS 5228-2 publishes the measured magnitude of vibration of rotary bored piling using a 275 mm pile diameter for driven precast concrete piles into mixed ground. Reference to Table C.1 within BS 5228 – *Part 2: Vibration* states vibration levels of between 10.16 to 11.4 PPV at 5m, 6.41 PPV at 10m and 4.32 to 5.6 PPV at 20m. With reference to Table 10-3 and Table 10-4 it is unlikely that planned piling operations within site will give rise to vibration levels that will negatively impact existing structures and cause building damage. However it is plausible that complaints may arise due to piling operations due to the proposed method of driven piling and the human response to estimated levels of vibration.

During intermittent breaking activity at ground level, there is also potential for vibration to be generated. Empirical data for this activity is not provided in the BS 5228- 2 standard, however the likely levels of vibration from this activity is expected to be significantly below the vibration criteria for building damage based on experience from other sites. AWN Consulting have previously conducted vibration measurements under controlled conditions, during trial construction works, on a sample site where concrete slab breaking was carried out. The trial construction works consisted of the use of the following plant and equipment when measured at various distances:

- 3 tonne hydraulic breaker on small CAT tracked excavator
- 6 tonne hydraulic breaker on large Liebherr tracked excavator

Vibration measurements were conducted during various staged activities and at various distances. Peak vibration levels during staged activities using the 3 Tonne Breaker ranged from 0.48 to 0.25 PPV (mm/s) at distances of 10 to 50m respectively from the breaking activities. Using a 6 Tonne Breaker, measured vibration levels ranged between 1.49 to 0.24 PPV (mm/s) at distances of 10 to 50m respectively. Whilst these measurements relate to a solid concrete slab, the range of values recorded provides some context in relation typical ranges of vibration generated by construction breaking activity.

Vibration magnitudes associated with this activity are well below those associated with any form of cosmetic damage to buildings. There is potential for a ***brief***, ***negative*** and ***moderate*** impact for building occupants within 20m of this activity using a 6 Tonne Breaker or equivalent. The impacts however, are significantly reduced in terms of human response once the source of vibration is known and good communications are in place.

During the construction phase it is expected that the potential effect due to vibration will be ***brief***, ***negative*** and ***moderate*** in the absence of mitigation at distances less than 20m, however at the majority of receptors the effect in relation to vibration in the absence of mitigation will be ***short term***, ***negative*** and ***not significant***.

10.5.1.3 Construction Phase – Traffic

During the demolition/construction phase, traffic associated with the proposed development would consist of a mix of Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs) travelling to and from the site. Chapter 14 (Traffic and Transportation) includes information relating to traffic generated and traffic management during this phase.

It is anticipated that during the construction phase additional traffic on the local road network will be increased by 400 extra vehicle movements during each day. With reference to the Traffic Impact Assessment report issued by O'Conner Sutton Cronin & Associates, it is predicted that these extra movements will be split between 200 extra movements from LGV's and private vehicles and 200 extra movements from HGV's. Below in Table 10-19 the additional movements in relation to construction traffic are assessed against the Do Nothing 2022 AADT traffic data.

Table 10-19 *Potential Impact in relation to Construction Phase Traffic*

Road Section	Total Vehicle AADT (2022 Do Nothing)	HGV% (2022 Do Nothing)	Total Vehicle AADT (2022 Do Nothing + Construction)	HGV % (2022 Do Nothing + Construction)	Calculated Change in Noise Levels, dB	Significance
Junction 4 (Grace Park Road)	13,593	2%	13,993	3%	1.4	Not Significant
Junction 5 (Crannog/ Development)	10,858	2%	11,258	4%	1.7	Not Significant
Junction 6 (Hospital Access)	10,816	10%	11,216	11%	0.6	Not Significant

With reference to Table 10-5 the resulting change in noise level due to construction traffic is likely to be ***short-term***, ***negative*** and ***not significant***.

10.5.2 Operational Phase

10.5.2.1 Mechanical Plant and Services

There will be a variety of mechanical and electrical (M&E) items required to serve the proposed development as well as the newly constructed hospital once it becomes operational. These are likely to include water pumps, air handling systems, condensers, etc. Depending on the operational hours and occupancy of the various spaces within the buildings, some of these will operate on a 24/7 basis depending on the specific use.

The M&E plant requirements for the building have not yet been progressed to detailed design stage at this stage of the development. However a list of indicative plant as well as their locations have been supplied and has been assessed accordingly within the context of the proposed development.

BS 4142 (BSI 2019) sets out a method for assessing the impact of a new continuous noise sources to a residential environment such as plant items used to service the hospital within the proposed development. BS 4142 (BSI 2019) states that if the rating level of the item exceeds the background noise level by 5 dB, an adverse impact is likely to occur, while an exceedance of 10 dB is likely to cause a significant adverse impact, depending on the context.

The lowest background noise level at the boundaries of the site were determined through baseline noise surveys. Average background noise levels during the day were in the range 45 dB $L_{A90,T}$ whilst average night time levels were 40 dB $L_{A90,T}$ at monitoring location UN1.

Based on the above, it is recommended that cumulative plant noise from associated with the development does not exceed 45 dB $_{LAeq,15min}$ during the daytime periods and 40 dB $_{LAeq,15min}$ during the night time periods it is also recommended that the proposed plant does not contain audible tones at NSLs outside of the site. This is set to ensure no significant increase in the prevailing background noise level occurs at existing NSL's.

To assess the impact of proposed plant a noise model has been prepared in accordance with *ISO-9613.* Below in Figure 10.10 a layout of the proposed mechanical plant serving the development is shown.

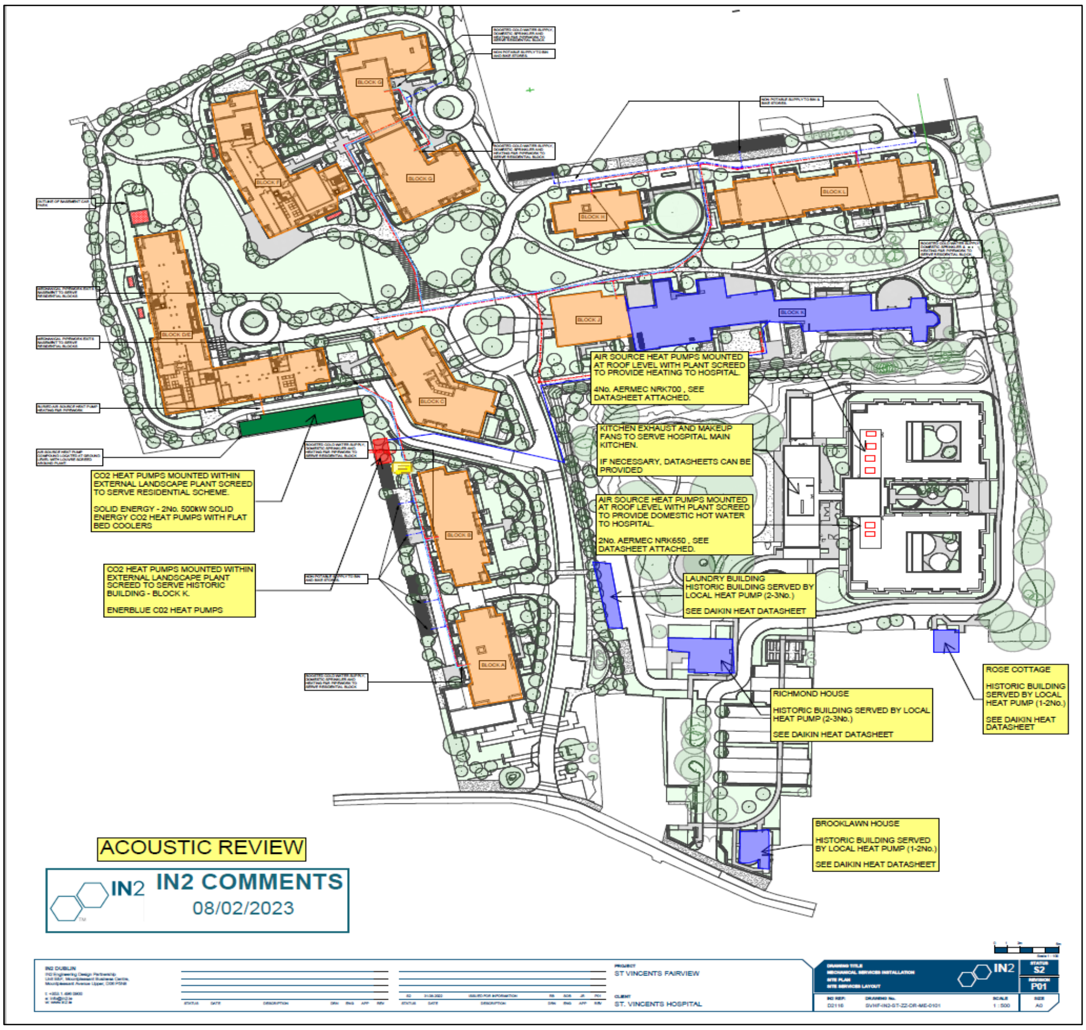


Figure 10.10 *Proposed Mechanical Plant within development*

The noise model prepared has taken into account the location of the proposed plant as well as their respective sound power levels, a number of mitigation measures have been assumed and will be discussed in full within section 10.6. Other assumptions include a 100% on time for all items of plant. Below is a visual representation of the predicted noise contours in relation to the proposed mechanical plant within the site. Areas in green and bright yellow fall within the measured night time background levels whilst areas in dark yellow and light orange fall within the measured day time background levels.

Figure 10.11 *Predicted mechanical plant noise contours (Source: Softnoise: Predictor V2022)*

As seen above, for the majority of the site the predicted noise levels in relation to mechanical plant are likely to fall within the adopted 40 dB $_{LAeq,15min.}$ At locations close to the new hospital along Inverness Road associated mechanical plant noise levels are expected to be within the region of 40-41 dB $_{LAeq,15min}$ this 1 dB deviance from the background level is unlikely to be of any significance and is expected to be negligible even in the absence of mitigation. Mitigation methods for mechanical plant and assumed attenuation are discussed within section 10.6.

As noted above, the key design criteria for the proposed development for operational plant noise relates to the achievement of acceptable noise levels external at NSLs adjacent to the site. As the final specifics in terms of plant selection has not yet been established, the choice, location and number of items during detailed design will be reviewed to control noise within the development. Once the operational design criterion is not exceeded, the operational noise impact from building services noise to the surrounding environment is therefore ***long-term***, ***negative*** and ***not significant***.

10.5.2.2 Additional Traffic on Public Roads

For the purposes of assessing the potential noise impact, it is appropriate to consider the relative increase in noise level associated with traffic movements on existing roads and junctions with and without the proposed development, given that traffic from the development will make use of the existing road network.

A traffic impact assessment relating to the proposed development has been prepared as part of this EIAR (refer to Chapter 14 (Traffic and Transportation)).

Traffic flows along the surrounding road network in terms of Annual Average Daily Traffic (AADT) for the Do Minimum and Do Something scenarios have been reviewed to calculate the change in traffic noise. The calculated change in noise levels during Do Something Year (2026) and the Do Something Year (2041) are summarised in Table 10-20 and Table 10-21.

Table 10-20 *Potential Impact in relation to Operational Phase traffic Do Nothing 2026 v Do Something 2026*

Road Section	Total Vehicle AADT (2026 Do Nothing)	HGV% (2026 Do Nothing)	Total Vehicle AADT (2026 Do Something)	HGV % (2026 Do Something)	Calculated Change in Noise Levels, dB	Significance
Junction 4 (Grace Park Road)	14,506	2%	15,140	2%	0.2	Not Significant
Junction 5 (Crannog/ Development)	11,588	2%	12,965	2%	0.5	Not Significant
Junction 6 (Hospital Access)	11,544	10%	12,913	10%	0.5	Not Significant

Table 10-21 *Potential Impact in relation to Operational Phase traffic Do Nothing 2041 v Do Something 2041*

Road Section	Total Vehicle AADT (2041 Do Nothing)	HGV% (2041 Do Nothing)	Total Vehicle AADT (2041 Do Something)	HGV % (2041 Do Something)	Calculated Change in Noise Levels, dB	Significance
Junction 4 (Grace Park Road)	16,386	2%	17,019	2%	0.2	Not Significant
Junction 5 (Crannog/ Development)	13,093	2%	14,471	2%	0.4	Not Significant
Junction 6 (Hospital Access)	13,045	10%	14,502	10%	0.5	Not Significant

The resultant change in noise level in relation to operational traffic of the development is likely to result in a subjectively inaudible impact. The resulting impact of operational traffic is likely to be ***long term***, ***negative*** and ***not significant*** .

10.6 MITIGATION MEASURES

10.6.1 Construction Phase

The appointed contractor will be required to take specific noise abatement measures to the extent required and comply with the recommendations of BS 5228–1 (BSI 2014a) and S.I. No. 241/2006 - European Communities (Noise Emissions by Equipment for Use Outdoors) (Amendment) Regulations 2006. In addition, the Dublin City Council's (DCC) *"Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition*" outlines a risk assessment methodology to be followed for construction activities which will be undertaken as part of the site control measures.

These measures will ensure that:

- During the Construction Phase, the appointed contractor will be required to manage the works to comply with the limits detailed in Section 11.2.1 using methods outlined in BS 5228–1 (BSI 2014a) and control measures outlined in the DCC *Air Quality Monitoring and Noise Control Unit's Good Practice Guide for Construction and Demolition* risk assessment document; and
- The best means practicable, including proper maintenance of plant and equipment, will be employed to minimise the noise produced by on-site operations.

BS 5228–1 includes guidance on several aspects of construction site practices, which include, but are not limited to:

- Selection of quiet plant;
- Control of noise sources;
- Screening;
- Hours of work;
- Liaison with the public; and
- Monitoring.

The contractor will put in place the most appropriate noise control measures depending on the level of noise reduction required during specific phases of work (i.e. based on the construction threshold values for noise and vibration set out in 10.5.1). Reference to Table 10-16, Table 10-17 and Table 10-18 indicates where intrusive works associated with construction occur. These areas will need specific noise control measures to reduce impacts.

Selection of Quiet Plant

The potential for any item of plant to result in exceedance of construction noise thresholds will be assessed prior to the item being brought onto the site. The least noisy item of plant will be selected wherever practicable (e.g. plant items with sound attenuation incorporated). Should a particular item of plant already on the site be found to exceed the construction noise thresholds, the first action will be to identify whether the item can be replaced with a quieter alternative.

The appointed contractor will evaluate the choice of excavation, breaking or other working method taking into account various ground conditions and site constraints. Where alternative lower noise generating equipment are available that will provide equivalent structural / excavation / breaking results, these will be selected to control noise within the relevant thresholds, where it is practicable to do so.

The decision regarding the type of excavation technique or other construction activity to be used on a site will normally be governed by a range of engineering and environmental constraints. In these instances, it may not be possible for technical reasons to replace an item of plant with a quieter alternative. In some instances, the adoption of a quieter method may prolong the overall process, with the net result being that the overall disturbance to the community will not necessarily be reduced.

Noise Control at Source

The following measures will be implemented, if required, by the appointed contractor to control noise at source. These measures relate to specific site considerations:

- For mobile plant items such as dump trucks, cranes, excavators and loaders, the installation of an acoustic exhaust, utilising an acoustic canopy to replace the normal engine cover and / or maintaining enclosure panels closed during operation can reduce noise levels by up to 10 dB;
- For percussive tools such as pneumatic concrete breakers and tools a number of noise control measures include fitting a muffler or sound reducing equipment to the breaker 'tool' and ensuring any leaks in the air lines are sealed;
- Where compressors, generators and pumps are located in proximity to NSLs and have the potential to exceed the construction noise thresholds, these will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation; and
- Resonance effects in panel work or cover plates can be reduced through stiffening or the application of damping compounds, while other noise nuisance can be controlled by fixing resilient materials in between the surfaces in contact

Screening

Screening is an effective method of reducing CNLs at a receiver location and can be used successfully as an additional measure to other forms of noise control. The effectiveness of a noise screen will depend on the height and length of the screen, its mass, and its position relative to both the source and receiver. BS 5228–1 (BSI 2014a) states that on level sites the screen should be placed as close as possible to either the source or the receiver. The construction of the barrier will be such that there are no gaps or openings at joints in the screen material.

Erection of localised demountable enclosures or screens will be used around piling rigs, breakers or drill bits, as required, when in operation in proximity to NSLs with the potential to exceed the construction noise thresholds. Annex B of BS 5228–1 (Figures B1, B2 and B3) provide typical details for temporary and mobile acoustic screens, sheds and enclosures that can be constructed on-site from standard materials. A well placed and designed mobile temporary screen around a pile, breaker or excavation can effectively reduce noise emissions by 10 dB(A).

In addition, careful planning of the construction site layout will also be considered. The placement of site buildings such as offices and stores between the site and sensitive locations can provide a good level of noise screening.

Hours of Work

Working hours will be restricted to 07:00 to 19:00 Monday to Friday & 08:00 to 14:00 on Saturdays. No Sunday or Bank Holiday work will be permitted. Out of hours working will be only permitted by arrangement with site management. Work outside of normal hours will be subject to approval by Dublin City Council

Liaison with the Public

For the proposed development, the duration of excavation, breaking and other high noise or vibration activities is usually short in relation to the length of construction work as a whole, and the amount of time spent working near to sensitive areas can represent only a part of the overall period.

The contractor will establish clear forms of communication that will involve the appointed contractor to NSLs in proximity to the works, so that residents or building occupants are aware of the likely duration of activities likely to generate noise or vibration that are potentially significant.

Monitoring

During the construction phase the contractor will carry out noise monitoring at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise monitoring will be conducted in accordance with ISO 1996–1 (ISO 2016) and ISO 1996–2 (ISO 2017).

Vibration Control

On review of the likely vibration levels associated with demolition/construction activities, construction activities associated with the proposed development are not expected to give rise to vibration that is either significantly intrusive or capable of giving rise to structural or cosmetic damage to buildings.

Vibration from demolition/construction activities will be limited to the values set out in Table 10.3 to avoid any form of potential cosmetic damage to buildings and structures. Monitoring will be undertaken at identified sensitive buildings, where proposed works have the potential to be at or exceed the vibration limit values in Table 10-3.

In the case of vibration levels giving rise to human discomfort, in order to minimise such impacts, the following measures shall be implemented during the Construction Phase

- A clear communication programme will be established by contractor to inform adjacent building occupants in advance of any potential intrusive works which may give rise to vibration levels likely to result in significant effects as per Table 10-4. The nature and duration of the works will be clearly set out in all communication circulars as necessary; and
- Appropriate vibration isolation shall be applied to plant (such as resilient mounts to pumps and generators), where required and where feasible.

10.6.2 Operational Phase

Building Services Noise

At the detailed design stage, best practice measures relating to building services plant will be taken to ensure there is no significant noise impact on NSLs adjacent to the development. Best practice measures in this context include the following:

- The selection and design of operational plant items with potential to emit noise to atmosphere will be designed to comply with the noise control guidance from BS 4142 (BSI 2014) as discussed in Section 10.2.2.
- Where ventilation is required for plant rooms, consideration will be given to acoustic louvers or attenuated acoustic vents, where required, to reduce noise breakout;
- Ventilation plant serving plant rooms and car parks will be fitted with effective acoustic attenuators to reduce noise emissions to the external environment;
- The use of perimeter plant screens will be used, where required, for roof-top plant areas to screen noise sources;

- The use of acoustic enclosures will be used, where required, for plant areas deemed to be excessively noisy during the detailed design phase to attenuate noise sources;
- The use of attenuators or silencers will be installed on external air-handling plant;
- All mechanical plant items, e.g. fans, pumps etc., shall be regularly maintained to ensure that excessive noise generated by worn or rattling components is minimised;
- Any new or replacement mechanical plant items, including plant located inside new or existing buildings, shall be designed so that all noise emissions from site do not exceed the noise limits outlined in this document; and
- Installed plant will have no tonal or impulsive characteristics when in operation.

To ensure noise levels from items of plant are contained to within the limits set out in section 10.5.2.1 mitigation must be employed for the heat pump array and heat pumps currently located beside Block B and Block C. For the purposes of our assessment an enclosure has been included around the heat pump enclosures that controls noise emissions to be no greater than 55dB(A) at 10m from any point of the enclosure. Items of plant must not exceed the day time values of 45 dB $_{LAeq,15min}$ and night time values of 40 dB $_{LAeq,15min}$ at locations offsite from the development.

Traffic Along Surrounding Road Network

Changes to traffic flows will result in a not significant increase in noise level in the surrounding environment. Therefore, no mitigation measures are necessary in this case.

10.7 RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT

10.7.1 Construction Phase

The use of best practice noise control measures, hours of operation, scheduling of works within appropriate time periods, and noise monitoring during this phase will be implemented. With the inclusion of the various noise and vibration control measures on site discussed in Section 10.6, it is expected that calculated noise levels in Table 10-16 and Table 10-17 can be reduced by 5 to 10 dB.

After the implementation of mitigation measures, there is likely to be residual demolition/construction noise levels up to 5 dB above the lower CNT of 65 dB $L_{Aeq,T}$ during intrusive activities close to the southern, northern and eastern site boundaries for intermittent periods of time during phases 1 and 2 of construction. Referring to Table 10-16 and Table 10-17 there is therefore potential for a ***residual, negative, moderate to significant*** and ***temporary*** impact at the NSLs along these boundaries.

The majority of residual construction noise impacts during the remaining work phases, are however expected to be controlled to within the CNT, thus resulting in a ***short-term***, ***negative*** and ***slight*** to ***moderate*** impact.

The residual effect of construction vibration after the implementation of mitigation measures set out in Section 10.6 is ***short term***, ***negative***, and ***slight***.

10.7.2 Operational Phase

Once operational, residual noise levels associated with building services plant from the proposed development will be designed to not increase the prevailing background noise environment by more than 5 dB. The residual effect is ***long-term***, ***neutral***, ***not significant***.

Traffic along the surrounding road network will not lead to a change in noise level that would pose any significant effect. The resultant impact is ***long-term***, ***negative*** and ***not significant***.

10.8 MONITORING OR REINSTATEMENT

10.8.1 Demolition/Construction Phase

During the demolition/construction phase the contractor will carry out noise monitoring at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise monitoring will be conducted in accordance with ISO 1996–1 (ISO 2016) and ISO 1996–2 (ISO 2017).

10.8.2 Operational Phase

There are no proposed monitoring requirements associated with the operational phase of the proposed Development.

10.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

10.9.1 Construction Phase

A full list of developments that are currently permitted or under construction within the surrounding area are identified and described in Section 2.8, of Chapter 2 (Description of the Proposed Development).

In the event that demolition/construction activities at nearby sites are taking place concurrently with the demolition/construction of the proposed development, there is potential for cumulative noise impacts to occur. Due to the nature of demolition/construction works associated with the proposed development, noise levels from this site will dominate the noise environment when occurring in proximity to the noise sensitive locations along its immediate boundary. The noise contribution from other construction sites would need be equal to those associated with the proposed development in order to result in any cumulative effect.

In the event of the two construction phases of the proposed development overlapping predicted construction noise levels within Section 10.5.1 will rise by the order of +3 dB.

10.9.2 Operational Phase

The noise limits set for off-site noise sensitive locations are designed to avoid any significant increase in the prevailing background noise environment. Operational noise limits included in this report refer to cumulative noise from all fixed installations on site. The design of plant and other fixed installations will be progressed during the design stage to ensure the noise limits at off-site noise sensitive locations are not exceeded.

Traffic volumes assessed take account of the additional traffic from other permitted developments and therefore the traffic noise assessment presented is already assessing the cumulative impact. This assessment has concluded there will be no significant noise impact due to operational traffic.

10.10 REFERENCES

- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (hereafter referred to as the EPA Guidelines) (EPA 2022).
- British Standard Institute (BSI) British Standard (BS) 5228-1:2009 +A1 2014 Code of Practice for noise and vibration control of construction and open sites - Part 1: Noise (BSI 2014a);
- BS 5228-2:2009+A1:2014 Code of Practice for noise and vibration control of construction and open sites - Part 2: Vibration (BSI 2014b);
- BS 7385: 1993 Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration (BSI 1993);
- BS 6472-1: 2008 Guide to evaluation of human exposure to vibration in buildings, Part 1 Vibration sources other than blasting (BSI 2008);
- BS 8233:2014 Guidance on sound insulation and noise reduction for buildings (BSI 2014c);
- BS 4142: 2014 +A1 2019 Methods for Rating and Assessing Industrial and Commercial Sound (BSI 2019);
- UK Highways Agency (UKHA) Design Manual for Roads and Bridges (DMRB) LA 111 Sustainability and Environmental Appraisal LA 111 Noise and Vibration Revision 2 (UKHA 2020);
- S.I. No. 549/2018 – European Communities (Environmental Noise) Regulations 2018;
- S.I. No. 241/2006 - European Communities Noise Emission by Equipment for Use Outdoors (Amendment) Regulations 2006;
- International Organization for Standardization (ISO) 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors - Part 2: General method of calculation (ISO 1996);
- ISO 1996-1: 2016 Acoustics - Description, measurement and assessment of environmental noise. Part 1: Basic quantities and assessment procedures (ISO 2016);
- ISO 1996-2:2017 - Description, measurement and assessment of environmental noise - Part 2: Determination of sound pressure levels (ISO 2017), and;
- The UK Department of Transport Calculation of Road Traffic Noise (UK Department of Transport 1998).

CHAPTER 11

LANDSCAPE AND VISUAL

awnconsulting
A Trinity Consultants Company

CHAPTER 11 CONTENTS

11.0 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

11.1 INTRODUCTION

This chapter provides an assessment of the potential landscape and visual effects of the proposed St Vincent's Hospital Fairview Redevelopment on a site at St Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The chapter should be read in conjunction with the verified photomontages provided in Volume 3 of this EIAR.

11.2 METHODOLOGY

The assessment was carried out with reference to the following guidance documents:

- Guidelines for Landscape and Visual Impact Assessment, 3rd edition, 2013 (GLVIA), published by the Landscape Institute;
- Technical Information Note on Townscape Character Assessment, 2016, published by the Landscape Institute;
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022, published by the EPA;
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, 2018, published by the Department of Housing, Planning and Local Government.

The EPA guidelines provide a general EIA methodology and impact ratings/ classifications for all types of specialist assessments. The GLVIA provides specific guidelines for landscape and visual impact assessment. Therefore, a combination of the EPA guidelines, the GLVIA and professional experience has informed the methodology for this assessment.

11.2.1 Key Principles of the GLVIA

11.2.1.1 Assessment of Both Landscape and Visual Effects

The GLVIA requires that effects on views and visual amenity be assessed separately from the effects on landscape, although the two topics are inherently linked.

- 'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations and spatial distribution of these elements create variations in landscape character. Landscape impact assessment identifies the changes to this character which would result from the proposed development, and assesses the significance of those effects on the landscape as a resource.
- Visual impact assessment is concerned with changes that arise in the composition of views, the response of people to those changes and the overall effects on the area's visual amenity - with particular focus on public views and public visual amenity.

11.2.2 Methodology for Assessment of Landscape Effects

The assessment of potential landscape effects involves (a) classifying the sensitivity of the landscape receptors (the main elements, features, characteristics and character areas of the landscape), (b) classifying the potential magnitude of change to each receptor, and (c) combining these factors to arrive at an assessment of the significance of the effects on each receptor - and the quality of the effects (positive, neutral or negative).

11.2.2.1 Landscape Sensitivity

The GLVIA requires that effects on views and visual amenity be assessed separately from the effects on landscape, although the two topics are inherently linked.

The sensitivity of the landscape is a function of its character, which may be determined by its land use pattern, urban grain, building typologies and architecture, cultural and natural heritage elements, and the quality of the public realm. These factors determine the value that is placed on the landscape. The nature and scale of the proposed development is also taken into account (a particular landscape can have varying sensitivity to different development types), as are any trends of change, and relevant policy. Five categories are used to classify sensitivity, as set out in Table 11.1.

Table 11.1 *Categories of landscape sensitivity*

Sensitivity	Description
Very High	Areas where the landscape exhibits very strong, positive character with valued elements, features and characteristics that combine to give an experience of unity, richness and harmony. The landscape character is such that its capacity to accommodate change is very low. These attributes are recognised in policy or designations as being of national or international value and the principle management objective for the area is protection of the existing character from change.
High	Areas where the landscape exhibits strong, positive character with valued elements, features and characteristics. The landscape character is such that it has limited/low capacity to accommodate change. These attributes are recognised in policy or designations as being of national, regional or county value and the principle management objective for the area is the conservation of existing character.
Medium	Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in policy at local or county level and the principle management objective may be to consolidate landscape character or facilitate appropriate, necessary change.
Low	Areas where the landscape has few valued elements, features or characteristics and the character is weak. The character is such that it has capacity for change; where development would make no significant change or would make a positive change. Such landscapes are generally unrecognised in policy and the principle management objective may be to facilitate change through development, repair, restoration or enhancement.
Negligible	Areas where the landscape exhibits negative character, with no valued elements, features or characteristics. The character is such that its capacity to accommodate change is high; where development would make no significant change or would make a positive change. Such landscapes include derelict industrial lands, as well as sites or areas that are designated for a particular type of development. The principle management objective for the area is to facilitate change in the landscape through development, repair or restoration.

Note on definitions used in this assessment

The definitions in Table 11.1 (landscape sensitivity), 11.2 (magnitude of landscape change), 11.5 (viewpoint sensitivity) and 11.6 (magnitude of visual change) are not taken from either the GLVIA or the EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022. Both of these guidance documents require that classifications of sensitivity and magnitude of change (such as high, medium, low, etc.) be used in the assessment process (see EPA Guidelines Figure 3.4 and GLVIA Box 3.1, Paragraph 3.26 and Figure 3.5) but neither guidance document provides definitions for such classifications.

The GLVIA specifically avoids being prescriptive in this this regard (GLVIA paragraph 1.20): *"The guidance concentrates on principles... <u>It is not intended to be prescriptive, in that it does not provide a detailed 'recipe'</u> that can be followed in every situation. It is always the primary responsibility of any landscape professional carrying out an assessment to ensure that the approach and methodology adopted are appropriate to the particular circumstances."* (emphasis added)

The EPA Guidelines state (in Section 3, p.49): *"While guidelines and standards help ensure consistency, the professional judgement of competent experts can play an important role in the determination of significance. These experts may place different emphases on the factors involved. As this can lead to differences of opinion, the EIAR sets out the basis of these judgements so that the varying degrees of significance attributed to different factors can be understood."* (emphasis added)

The GLVIA and EPA Guidelines thus require that the factors used in arriving at significance conclusions (i.e. classifications of sensitivity and magnitude) should be explained in the EIAR, but the guidelines do not provide the explanations themselves.

It is for this reason that the definitions in Tables 11.1, 11.2, 11.5 and 11.6 are provided in this section. These definitions have been developed and refined by LVIA practitioners in Ireland and the UK, including the chapter author, over decades of practice. They are not standard, i.e. the classifications/definitions used in this assessment may differ from those used by other practitioners. However, the author considers them to be reasonable and appropriate for the purpose of classifying the significance of landscape and visual effects and the same definitions have been used in many previous LVIA reports/chapters prepared by the author and accepted by the planning authorities.

<u>11.2.2.2</u> <u>Magnitude of Landscape Change</u>

Magnitude of change is a factor of the scale or degree of change imposed on the landscape by a development (and the geographic extent of its effects), with reference to its key elements, features, characteristics and character areas (collectively termed 'landscape receptors'). Five categories are used to classify magnitude of change, as set out in Table 11.2.

Table 11.2 *Categories of magnitude of landscape change*

Magnitude	Description
Very High	Change that is large in extent, resulting in the loss of or major alteration to key elements, features or characteristics of the landscape, and/or introduction of large elements considered totally uncharacteristic in the context. Such development results in fundamental change in the character of the landscape.
High	Change that is moderate to large in extent, resulting in major alteration to key elements, features or characteristics of the landscape, and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the landscape.
Medium	Change that is moderate in extent, resulting in partial loss or alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that may be prominent but not necessarily substantially uncharacteristic in the context. Such development results in change to the character of the landscape.

Low	Change that is moderate or limited in scale, resulting in minor alteration to key elements, features or characteristics of the landscape, and/or introduction of elements that are not uncharacteristic in the context. Such development results in minor change to the character of the landscape.
Negligible	Change that is limited in scale, resulting in no alteration to key elements features or characteristics of the landscape, and/or introduction of elements that are characteristic of the context. Such development results in no change to the landscape character.

11.2.2.3 Significance of Effects

To classify the significance of effects (for both landscape and visual impacts) the magnitude of change is measured against the sensitivity of the receiving environment/ receptor using the guide in Table 11.3.

Table 11.3 *Guide to Classification of significance of landscape and visual effects*

		Sensitivity of the Landscape/View				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Magnitude of Landscape/Visual Change	**Very High**	Profound	Profound to Very Significant	Very Significant to Significant	Moderate	Slight
	High	Profound to Very Significant	Very Significant	Significant	Moderate to Slight	Slight to Not Significant
	Medium	Very Significant to Significant	Significant	Moderate	Slight	Not Significant
	Low	Moderate	Moderate to Slight	Slight	Not significant	Imperceptible
	Negligible	Slight	Slight to Not Significant	Not significant	Imperceptible	Imperceptible

The matrix above is derived from the EPA Guidelines 2022 (specifically Figure 3.4 of the Guidelines – see Figure 11.1 below). The impact significance classifications, i.e. imperceptible to profound, are also taken from the EPA Guidelines. The guidelines define the classifications as follows (Table 11.4):

Table 11.4 *EPA definitions of environmental impact classifications*

Magnitude	Description
Imperceptible	An effect capable of measurement but without significant consequences.
Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.

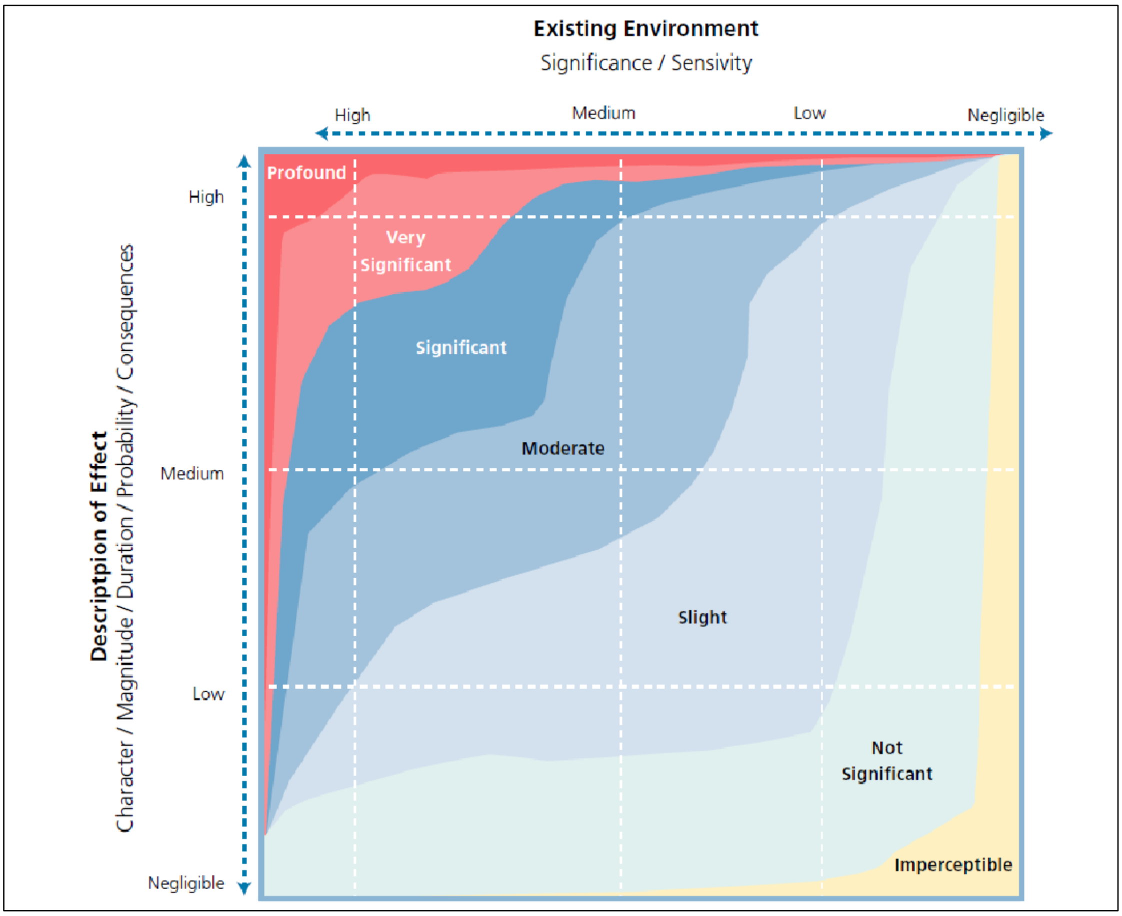


Figure 11.1 *'Chart showing typical classifications of the significance of impacts' (Source: Figure 3.4 of the EPA Guidelines on the Information to be Contained in Environmental Impact Assessment Reports, 2022)*

The matrix (Table 11.3) and the EPA chart (Figure 11.1) are only a guide to the classification of impact significance. The assessor also uses professional judgement informed by their expertise, experience and common sense to arrive at a classification that is reasonable and justifiable. (In the EPA guidelines the chart above is accompanied by a footnote that states: *"The depiction of significance classifications is indicative and should not be relied on as being definitive. It is provided for general guidance purposes"* (EPA guidelines Section 3, page 53)).

For example, according to the EPA chart a change of high magnitude affecting a receptor of medium sensitivity could be classified as either 'significant' or 'moderate'. That judgement must be made by the assessor.

11.2.3 Methodology for Assessment of Visual Effects

Assessment of visual effects involves identifying a number of key/representative viewpoints in the site's receiving environment, and for each one of these: (a) classifying the viewpoint sensitivity, and (b) classifying the magnitude of change which would result in the view (informed by photomontages of the proposed development), and (c) combining these factors to arrive at a classification of significance of the effects on each viewpoint.

11.2.3.1 Sensitivity of the Viewpoint/Visual Receptor

Viewpoint sensitivity is a function of two main considerations:

- Susceptibility of the visual receptor to change. This depends on the occupation or activity of the people experiencing the view, and the extent to which their attention is focused on the views or visual amenity they experience at that location. Visual receptors most susceptible to change include residents at home, people engaged in outdoor recreation focused on the landscape (e.g. trail users), and visitors to heritage attractions and places of congregation where the setting contributes to the experience. Visual receptors less sensitive to change include travellers on road, rail and other transport routes (unless on recognised scenic routes), people engaged in outdoor recreation where the surrounding landscape does not influence the experience, and people in their place of work or shopping.
- Value attached to the view. This depends to a large extent on the subjective opinion of the visual receptor but also on factors such as policy and designations (e.g. scenic routes, protected views), or the view or setting being associated with a heritage asset, visitor attraction or having some other cultural status (e.g. appearing in arts).

Five categories are used to classify a viewpoint's sensitivity, as set out in Table 11.4.

Table 11.5 *Categories of viewpoint sensitivity*

Magnitude	Description
Very High	Iconic viewpoints (views towards or from a landscape feature or area) that are recognised in policy or otherwise designated as being of national value. The composition, character and quality of the view are such that its capacity for change is very low. The principle management objective for the view is its protection from change.
High	Viewpoints that are recognised in policy or otherwise designated as being of value, or viewpoints that are highly valued by people that experience them regularly (e.g. views from houses or outdoor recreation amenities focused on the landscape). The composition, character and quality of the view may be such that its capacity to accommodate change may or may not be low. The principle management objective for the view is its protection from change that reduces visual amenity.
Medium	Views that may not have features or characteristics that are of particular value, but have no major detracting elements, and which thus provide some visual amenity. These views may have capacity for appropriate change and the principle management objective is to facilitate change to the composition that does not detract from visual amenity, or which enhances it.
Low	Views that have no valued feature or characteristic, and where the composition and character are such that there is capacity for change. This category includes views experienced by people involved in activities with no particular focus on the landscape. For such views the principle management objective is to facilitate change that does not detract from visual amenity or enhances it.
Negligible	Views that have no valued feature or characteristic, or in which the composition may be unsightly (e.g. in derelict landscapes). For such views the principle management objective is to facilitate change that repairs, restores or enhances visual amenity.

11.2.3.2 Magnitude of Change to the View

Classification of the magnitude of change takes into account the size or scale of the intrusion of development into the view (relative to the other elements and features in the composition, i.e. its relative visual dominance), the degree to which it contrasts or integrates with the other elements and the general character of the view, and the way in which the change will be experienced (e.g. in full view, partial or peripheral view, or in glimpses). It also takes into account the geographical extent of the change, as well as the duration and reversibility of the visual effects. Five categories are used to classify magnitude of visual change to a view, as set out in Table 11.5.

Table 11.6 *Categories of magnitude of visual change*

Magnitude	Description
Very High	Full or extensive intrusion of the development in the view, or partial intrusion that obstructs valued features or characteristics, or introduction of elements that are completely out of character in the context, to the extent that the development becomes dominant in the composition and defines the character of the view and the visual amenity.
High	Extensive intrusion of the development in the view, or partial intrusion that obstructs valued features, or introduction of elements that may be considered uncharacteristic in the context, to the extent that the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.
Medium	Partial intrusion of the development in the view, or introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity.
Low	Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity.
Negligible	Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.

11.2.3.3 Significance of Visual Effects

As for landscape effects, to classify the significance of visual effects the magnitude of change to the view is measured against the sensitivity of the viewpoint, using the guidance in Table 11.3 and Figure 11.1 above.

11.2.4 Quality of Effects

In addition to predicting the significance of the effects, EIA methodology requires that the quality of the effects be classified as positive/ beneficial, neutral, or negative/ adverse. For landscape to a degree, but particularly for visual effects, this is an inherently subjective exercise. This is because landscape and visual amenity are perceived by people and are therefore subject to variations in the attitude and values - including aesthetic preferences - of the receptor. One person's attitude to a development may differ from another person's, and thus their response to the effects of a development on a landscape or view may vary.

Additionally, in certain situations there might be policy encouraging a particular development in an area, in which case the policy is effectively prescribing landscape and visual change. If a development achieves the objective of the policy the resulting effect might be considered positive, even if the landscape character or views are profoundly changed. The classification of quality of landscape and visual effects should seek to take these variables into account and provide a reasonable and robust assessment.

11.2.5 Methodology for the production of Verified Photomontages

The photomontages were produced by Model Works Ltd. The photomontage methodology is based on the Landscape Institute advice note 01/11 Photography and

Photomontage in Landscape and Visual Impact Assessment and 20 years' experience in photomontage production. The method has five main steps:

- Photography
- Survey
- 3D Modelling and Camera Matching
- Rendering and Finishing of Photomontages
- Presentation

11.2.5.1 Photography

Date, Time, and Conditions

The photography is timed so that the scene conditions, weather conditions and sun position allow - as far as possible - for a clear and representative baseline photograph to be captured. The objective is to ensure that all key elements of the view are clearly visible and unobscured by, for example, vehicular or pedestrian traffic in the foreground, precipitation, darkness/shade, sun glare, etc. The date and time of each photograph are recorded so that the sun position can be accurately portrayed in the 3D model ultimately montaged into the baseline photograph.

Camera and Camera Set-Up

The photographs were taken using a Canon EOS5D Mark II camera with a 21 mega pixel sensor and image resolution of 5616 x 3744 pixels. At each viewpoint the camera was positioned on a tripod with the lens 1.65m above ground level (the level of the average adult's eyes), directed at the site and levelled in the horizontal and vertical axes.

Lenses

Prime lenses (fixed focal length with no zoom function) are used as this ensures that the image parameters for every photograph are the same and that all photographs taken with the same lens are comparable. For the close-up to middle distant views a 24mm prime lens is normally used. This lens captures a field of view of 73 degrees. This relatively wide field of view is preferred for the purpose of Landscape and Visual Impact Assessment in urban areas as it shows more of the context landscape surrounding a site. For distant viewpoints a 50mm prime lens may be used (i.e. 'zooming in' to the site/development). This lens captures a narrower (39 degree) horizontal field of view.

11.2.5.2 Survey

The coordinates of each viewpoint/camera position, including the elevation, are recorded using a survey grade GPS receiver, the Trimble Geo7X, which is accurate to within 1cm. For each viewpoint, the coordinates of several static objects in the view are also surveyed (e.g. lamp posts, bollards, corners of buildings, etc.). The coordinates of these 'markers' are used as reference points later in the process, to ensure that the direction of view of the cameras in the 3D model matches the direction of view of the photographs.

11.2.5.3 3D Model and Camera Matching

Creation of 3D Model

Drawings of the proposed development (buildings, roads, hard and soft landscape areas) were provided by the project architects and landscape architect in Autodesk Revit and CAD formats. These were used to generate a 3D model of the development (positioned and scaled using the topographical survey drawing of the site provided by the project architect). The 3D CAD model was exported to Autodesk 3DS Max in which materials and textures were applied to the model.

3D Camera Positions

The surveyed camera positions and markers for each view are inserted into the 3D model, with information on the focal length of the lens attributed to each camera. For each camera/view, the date and time is set to match those of the original photograph. This ensures that the direction of sunlight and shadows in the 3D model match those of the photographs.

11.2.5.4 Rendering of 3D Model and Finishing Photomontages

For each view a render of the development is generated. This is the process of creating a photo-realistic image of the 3D model, as seen from each camera position, with sunlight and shadow applied to the model. The render of the development is then inserted (or montaged) into the photograph to create the photomontage.

11.2.5.5 Presentation

The individual photomontages are presented on A3 pages in landscape format. For each photomontage, the viewpoint number, location description, and the date and time of photography are provided on the page.

11.2.6 Difficulties in Compiling the Assessment

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

11.3 RECEIVING ENVIRONMENT

11.3.1 Location in the City

The site is located on Richmond Road in Fairview, a short distance outside the ‘canal ring’, which has traditionally defined Dublin’s city centre. It is 2.6km walk (c.30 mins) or cycle (c.10 mins) from O’Connell Bridge. Considered in the metropolitan context this places the site close to the centre of the urban area.

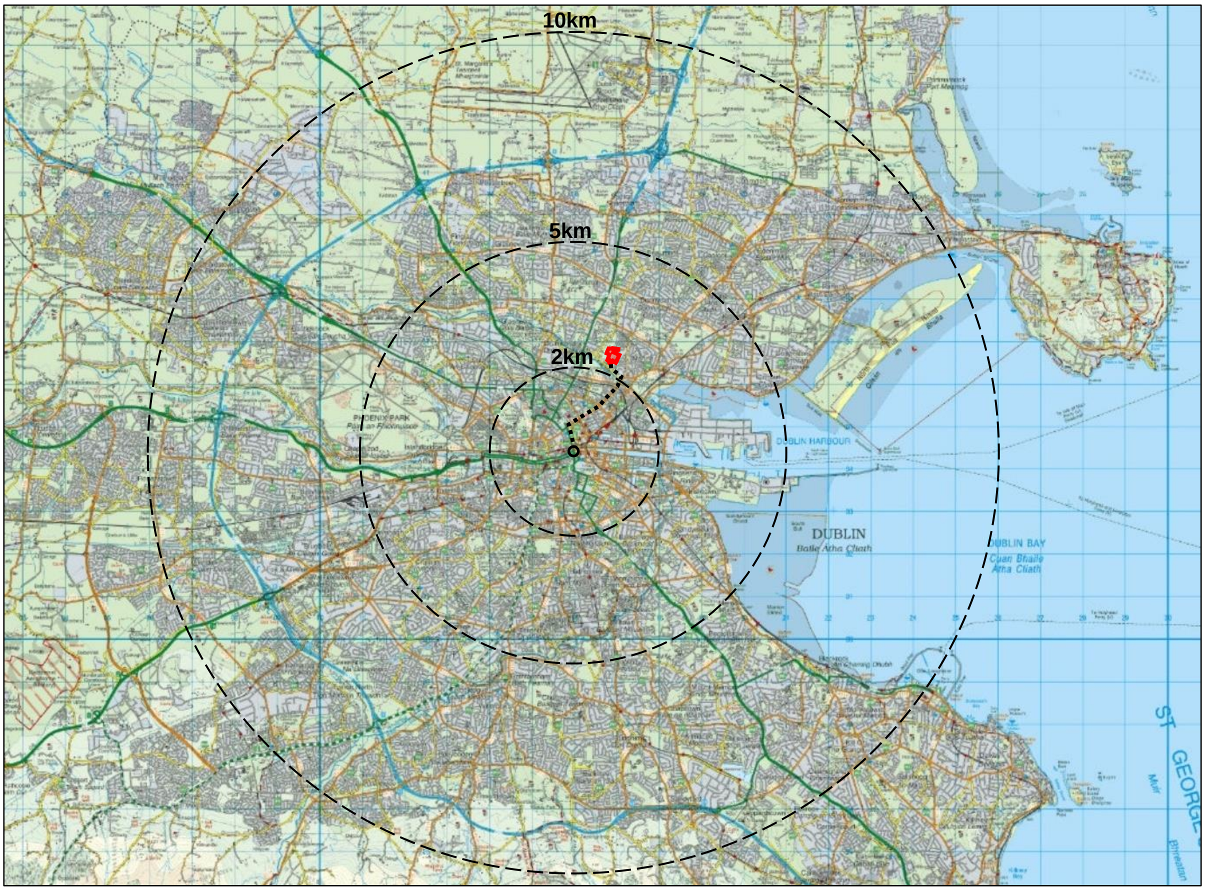


Figure 11.2 *Site location in the context of the Dublin urban area*

11.3.2 The Site

The site of the proposed hospital and residential development (excluding off-site works) is a 9.46 ha land parcel lying to the north of Richmond Road in Dublin 3. The lands are predominantly greenfield, although there are several buildings/building clusters, including (see Figure 11.3):

1) <u>Along the site frontage to Richmond Road</u>: (a) the Crannog Day Care Hospital, and (b) a cluster of three buildings inside the entrance to Richmond House, including Brooklawn House (protected structure) beside the road.
2) <u>Richmond House</u>, a protected structure (in the Dublin City Development Plan 2022-2028).
3) <u>St Vincent’s Hospital</u>, a complex of buildings incorporating three protected structures.
4) Other sundry structures.

The historic buildings are described in detail in the Architectural Heritage chapter of the EIAR.

There are two entrances to the site directly from Richmond Road, one at the Crannog day hospital and the other the original entrance to Richmond House, beside Brooklawn House. There is also an entrance to St Vincent's Hospital at the end of Convent Road, which leads from Richmond Road.

Figure 11.3 *The site with existing buildings highlighted and protected structures identified by red asterisks. (Note: The red line is indicative. Refer to the site location map for the full extent of the application site.)*

The green spaces, which occupy the majority of the site, can be divided into four main spaces as follows:

1) The north field: This is a large, roughly square (c. 175m x 165m) grassland field to the north west of the hospital complex. The field is on a rise, with a gentle slope to

the south. There is a hedgerow including some tall trees on the field's west boundary which is shared with the neighbouring pitch and putt golf club.

2) The lower field: This is a smaller, rectangular field at a level below the north field, to the rear of the Crannog day hospital. There is a vegetated embankment between the fields, and some scrub along the west boundary which is shared with a small light industrial estate.
3) The hospital garden: This is a large, enclosed garden to the south of St Vincent's Hospital, featuring numerous mature trees, lawn areas and a sports court.
4) The east field. This is an amenity grassland area surrounded by lines and stands of mature trees. It lies to the south east of the hospital, beside the hospital garden. An access road curves around the side of the space giving access to the hospital from Richmond Road, via Convent Avenue.

The site topography is one of its key characteristics. The north field and St Vincent's Hospital complex are elevated and there is a short, steep fall from these areas down to the lower field, the hospital garden, the east field and the Richmond Road frontage. The north field will provide panoramic views south over the city.

The Arboricultural Assessment Impact Tree Protection Strategy Report prepared by CMK Horticulture and Arboriculture Ltd states that a total of 277 no. trees have been identified on the site. 12.6% of the trees are classified as being of high value; 68% are of moderate value; 19.4% are of low value (including 17 no. trees which were recommended for removal due to their poor quality).

The greatest concentration of mature, high value trees is in the hospital garden and around the east field to the south of the existing St Vincent's Hospital complex. There are also numerous trees around the modern hospital buildings to the north of the historic buildings and in the hospital parking area. The north field and the lower field are characterised by a relative absence of trees.

Figure 11.4 *Bird's eye view of the site from the south east*

Figure 11.5 *Bird's eye view of the site from the north west, showing its proximity to the city centre*

11.3.3 Historic Development of the Landscape

Richmond Road is an historic element of Dublin's urban structure, being the road that ran alongside the Tolka River. The Ordnance Survey (OS) 6 inch map from the mid 19th century (Figure 11.6) shows the road running along the north side of the river, connecting bridges/river crossings at Ballybough and Drumcondra. The road was then already lined by buildings on its north side, despite there being an area of rural land between the Tolka and the city to the south.

Notable entries on the 6 inch map include (a) Richmond House, with its entrance avenue off Richmond Road; (b) the Convent, which later was incorporated into St Vincent's Hospital; (c) Brooklawn House, which formed part of a line of buildings along Richmond Road. There was a gravel pit extending into the lower field, which may explain the field's disturbed topography.

The 25 inch map (Figure 11.7) from around the turn of the 20th century shows the convent now incorporated into a larger, linear building repurposed as St Vincent's Asylum. A cluster of industry had developed along the Tolka River directly to the south of Richmond House. Richmond Road was almost fully developed on both sides, and urban in character (with a diversity of uses, plot and building typologies and scale). The early suburbs had begun to develop – in Fairview and along Philipsburgh Avenue to the east and in Drumcondra to the west, and the area would soon be subsumed by the expanding city.

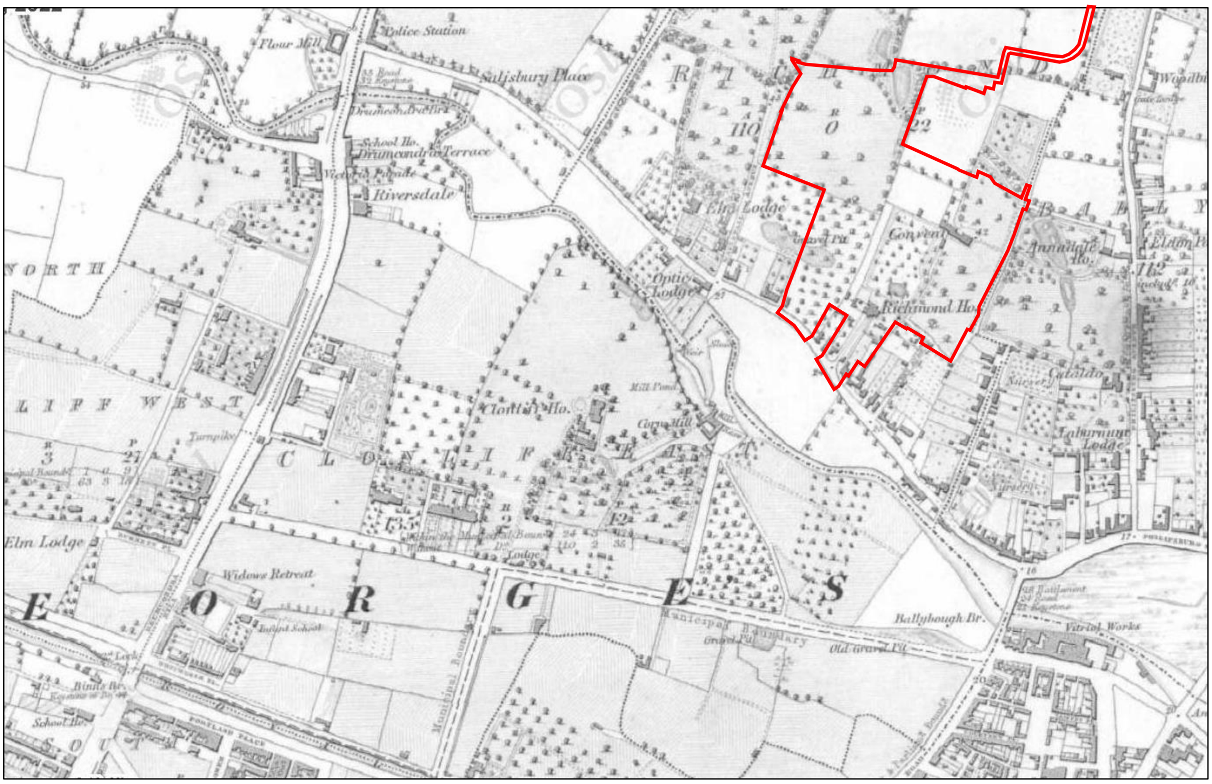


Figure 11.6 *6 inch map from the mid 19th century showing the established alignment and built frontage to Richmond Road, Richmond House and the 'Convent' in a peri-urban landscape (i.e. with both urban and rural elements and influences)*

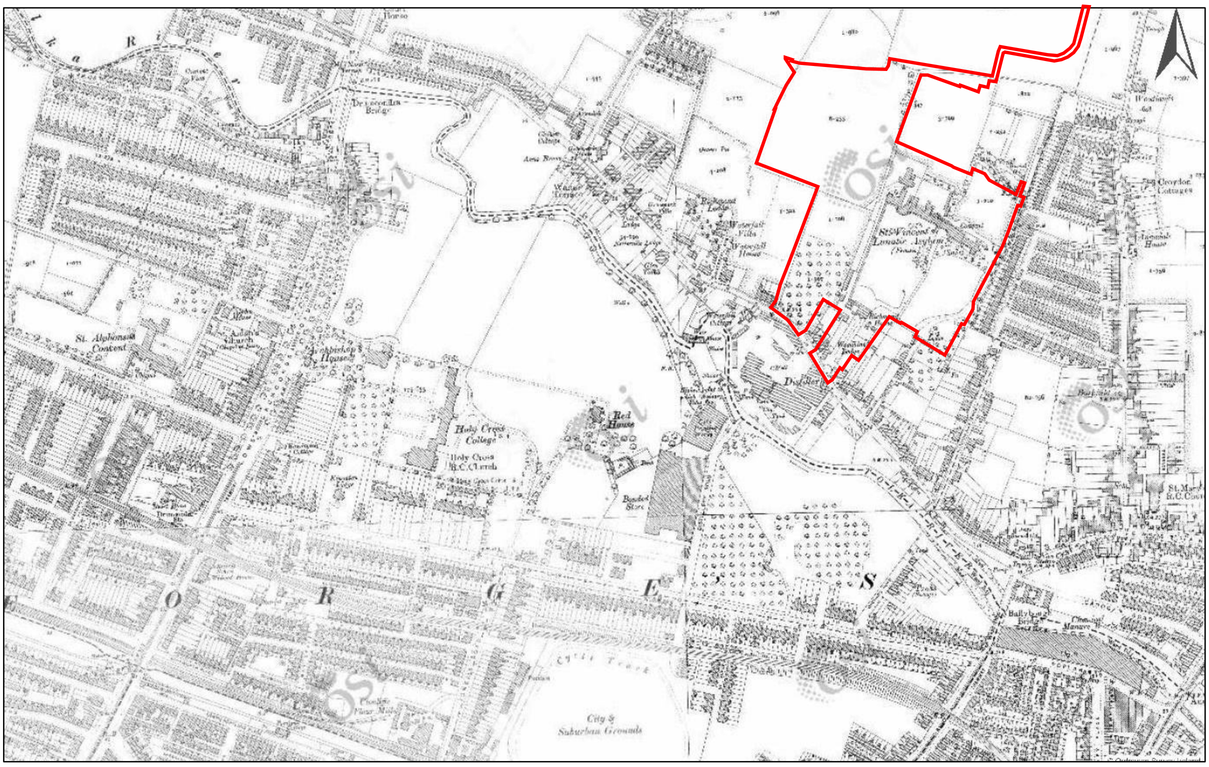


Figure 11.7 *25 inch map showing the start of Dublin's suburban expansion, and Richmond Road as an urban spine in the evolving landscape. (Note: The red line is indicative. Refer to the site location map for the full extent of the application site.)*

Over the course of the 20th century the city underwent a massive suburban expansion, including to the north and north east around Dublin Bay (see Figure 11.8), leaving Fairview, Marino and Drumcondra as 'inner suburbs'. The only lands not taken up by low density residential estates were institutional lands, sports facilities and public parks such as Fairview and St Anne's. In the aerial photo there is a noticeable belt of institutional lands on either side of Richmond Road (including the St Vincent's lands) and Griffith Avenue.

Figure 11.8 *Aerial photograph from 2005 showing Richmond Road/Fairview subsumed into the city by its 20th century suburban expansion. (Note: The red line is indicative. Refer to the site location map for the full extent of the application site.)*

A further stage in the evolution of the landscape/townscape has taken place since the turn of the 21st century, driven by sustainable development policy. This is the consolidation and densification of land use to make more efficient use of the land resource and services, particularly public transport (i.e. to slow urban expansion and reduce dependency on private car use). There is also a need to balance the mix of housing types, with low density estates having been favoured throughout the 20th century (as shown in the 2005 aerial photo above).

One of the ways in which consolidation and densification has been achieved has been by developing previously underutilised institutional lands and redundant industrial lands with high density residential typologies, making use of the space and the precedent for large buildings on these sites. This has taken place throughout the city, including in the northern inner suburbs. Some examples of this in the vicinity of the site include the Griffith Wood development on Griffith Avenue in Marino, and the Grace Park Wood development just to the north of the site, which comprises mostly houses but also some small apartment buildings. Directly to the south of the site across Richmond Road, is the Richmond Hall apartment development which was an early example of high density residential development on a previously industrial site.

There are also two planning applications currently under consideration by DCC and An Bord Pleanála for high density residential developments to the south west of the site across Richmond Road ('Richmond Road SHD' and 'Leydens LRD'). Both of these are in the former industrial zone between Richmond Road and the Tolka River.

Figure 11.9 *Recent aerial photograph of the showing the mixed and still evolving character of the urban landscape surrounding the site. (Note: The red line is indicative. Refer to the site location map for the full extent of the application site.)*

The site is now part of a townscape of diverse character (see Figure 11.9). Richmond Road is a spine of urban, mixed use development – lined by houses, apartment buildings, industrial buildings, petrol stations, shops and wholesalers, a park, and Tolka Park football stadium. There are early 20th century residential streets/ suburbs (e.g. the streets off Philipsburgh Avenue), later 20th century estates (e.g. Griffith Court), and modern mixed density estates (e.g. Grace Park). Extensive institutional lands/uses remain, and there is a notable concentration of sports facilities (including Ierne Social and Sports Club and Dublin Port Stadium adjacent to the site, Tolka Park and Belvedere Rugby Ground).

11.3.4 Key Receptors - Elements and Character Areas – in the Receiving Environment

Due to the site's large scale, the diversity of its surroundings, and the height of the proposed buildings, there are a wide range of potential receptors of landscape and visual change in the receiving environment. These include:

- The historic buildings on the site
- Richmond Road to the south

- Light industry, sports grounds and residential neighbourhood to the west
- Grace Park Gardens
- St Joseph's and Grace Park development to the north west
- Griffith Court to the north east
- Victorian neighbourhood off Philipsburgh Avenue to the east
- Richmond Avenue to the south east

11.3.4.1 Historic Buildings on the Site

The protected structures on the site, including Brooklawn, Richmond House and the historic elements of the St Vincent's Hospital complex, are key potential receptors of change - in that their own use and condition, and the character and condition of their context, could be dramatically changed by the proposed development.

St Vincent's Hospital

St Vincent's Hospital is a linear complex of buildings incorporating a Georgian house (built c. 1780, later used as a convent), an adjoining school (c. 1820) of similar architectural style, a chapel (c. 1865-1870) at the eastern end, and the hospital (largely built in 1899, but with several later additions) at the western end of the complex.

The later hospital buildings in particular are large, and positioned on a rise, which makes them locally prominent. However, they are well removed from the public realm on all sides (230m to the north of Richmond Road) and therefore mostly feature as distant features of views from the surroundings, particularly to the west of the site. Within the site, the buildings are impressive when seen from the open spaces to the south (the 'lower field', 'hospital garden' and 'east field'), due to the site topography.

Figure 11.10 *A view of the hospital from the lower field to the south west*

Figure 11.11 *A view from the east field to the south east of the hospital*

The immediate environs of the hospital buildings is utilitarian, with the area to the north and east used mostly for access and parking (Figure 11.12). There is a complex of three low, modern buildings to the north of the historic hospital range (Figure 11.13).

Overall, from a landscape and visual perspective, the historic hospital buildings are removed from the public realm and make limited contribution to the landscape character and visual amenities of the area – <u>as experienced by the public</u>. Seen from close up (i.e. within the site), the buildings are impressive and visually interesting, but their immediate context (except for the area to the south, Figure 11.11) lacks quality.

Figure 11.12 *The north façade of the hospital, comprised of the original house in the foreground, the school, and the red brick hospital building*

Figure 11.13 *The hospital as seen from the east, with the taller, historic buildings to the left and a complex of low, modern buildings to the right*

Richmond House

Richmond House was built as a private house in the mid 18th century. In the mid-19th century it was bought by St Vincent's Hospital for use as the residence for the French Sisters who ran the hospital, and as a hospital for female patients. It was later converted for office use and remains in this use today.

The building stands within the site at the end of an avenue of trees, off Richmond Road. It can be glimpsed from the road through the entrance gate (Figure 11.14) but makes limited contribution to landscape character and visual amenity outside of the site. The building and its immediate context are in less than optimal condition and could benefit from some renewal.

Figure 11.14 *The view of Richmond House from Richmond Road, with the side elevation of Brooklawn House to the right*

Brooklawn House

Brooklawn was originally built in the late 18th century and a second volume was added in the late 19th century, resulting a building of unusual form and varied façade treatments. The building is now used for offices and is in relatively poor condition. It is separated from Richmond Road by a high boundary wall, but is the part of the site most exposed to view from the public realm.

Figure 11.15 *Brooklawn House as seen from Richmond Road*

11.3.4.2 Richmond Road

The site has two stretches of frontage to Richmond Road - of 45m (Richmond House stretch) and 55m (Crannog Hospital stretch). The proposed development could thus form an important part of the 'townscape corridor' of which Richmond Road is the spine, and the road users are the largest cohort of potential visual receptors (although on an urban street of mixed character and quality they are of relatively low sensitivity).

Figure 11.16 *The eastern end of Richmond Road as seen from Ballybough Luke Kelly Bridge*

The townscape along Richmond Road is diverse. Roadside development ranges from historic bungalows to period houses, modern apartment blocks up to five storeys, small shops and offices, wholesalers, industrial sites, a park and a sports stadium. This diversity creates capacity to accommodate change.

Figure 11.17 *A view west along Richmond Road showing modern residential developments in the foreground, a terrace of Georgian houses, and Brooklawn in the middle distance beside a motor dealership*

Crannog day care hospital is a small, modern building set well back from the Richmond Road boundary behind a high wall. It is so low that it can barely be seen over the wall. As a result the site presents a conspicuous gap in the street elevation along the 55m site frontage at Crannog hospital.

Figure 11.18 *The site frontage to Richmond Road in front of Crannog Hospital, beside a neighbouring apartment building of four storeys*

Figure 11.19 *A view east along Richmond Road showing the Crannog Hospital entrance and boundary wall. The roof of Richmond House can be seen in the distance behind the neighbouring apartment building*

There is another entrance to the site from Richmond Road via Convent Road, which leads to the main St Vincent's Hospital complex. Convent Road is a narrow road lined by mixed density residential development and some light industrial use outside the hospital gate (Figure 11.20).

Figure 11.20 *Convent Road leading the entrance to St Vincent's Hospital. The roof of the hospital chapel can be discerned above the trees in the distance*

In summary, the character and condition of the Richmond Road townscape corridor are mixed. The diversity of development creates capacity to accommodate change, and the condition of the streetscape and roadside developments/ plots is sub-optimal in places. The area could benefit from enhancement.

The site makes no positive contribution to the townscape character and visual amenity along Richmond Road currently, and its redevelopment has the potential to enhance this element of the receiving environment.

11.3.4.3 Light Industry, Sports Grounds and Residential Neighbourhood to the West

Adjacent to the west of the site, behind the Richmond Road frontage, is a small light industrial strip along a single access lane. A high boundary wall separates the lane from the lower field (part of the site). As a receptor of potential change the industrial use is of low sensitivity.

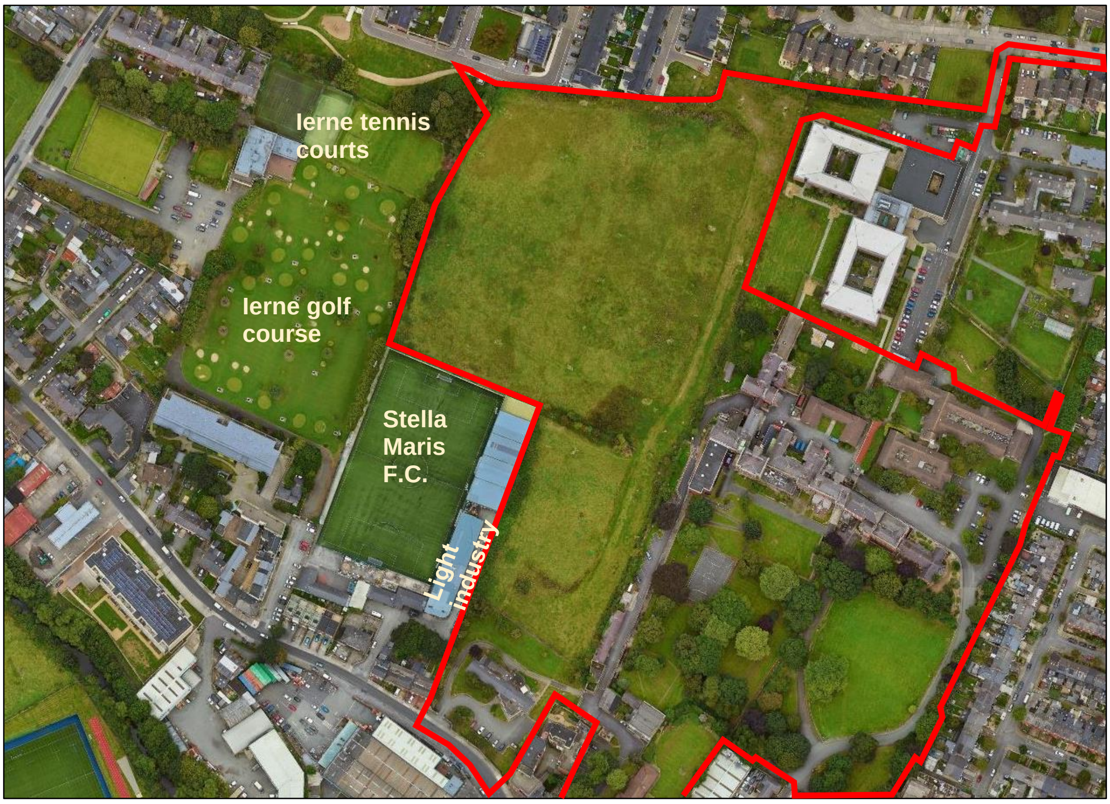


Figure 11.21 *The light industrial strip west of the lower field, and the sports grounds that form a buffer around the north field. (Note: The site boundary is indicative. Refer to the site location map for the full extent of the application site.)*

Figure 11.22 *A view over the wall between the light industrial strip and the lower field, with St Vincent's hospital prominent across the field*

West of the industrial strip are two sports facilities (Stella Maris F.C.'s Dublin Port Stadium and the Ierne Social and Sports Club). Together these grounds wrap around the south and west sides of the site's north field, forming a broad open space buffer (see Figure 11.21). This contributes to the site's capacity to accommodate height.

Figure 11.23 *A view across the Dublin Port Stadium ground towards the site, with the St Vincent's Hospital buildings visible in the distance*

While forming an open space buffer on the one hand, the sports facilities are also potential receptors of landscape and visual change. The football ground is less sensitive due to the active, focussed nature of the sport. The Ierne pitch and putt course is more sensitive, as the players are more likely to observe and appreciate their surroundings, and likely enjoy the currently unenclosed, green setting of the golf course.

Figure 11.24 *A view towards the site across the Ierne Club's pitch and putt course towards the site, with St Vincent's visible in the distance*

To the west and south of the two sports grounds is an area of mixed density residential use, in the corner between Richmond Road and Grace Park Road. This includes a street of terraced bungalows on Grace Park Avenue, and a three storey apartment block (the Garden House), which overlooks the Ierne pitch and putt course.

Figure 11.25 *The Victorian terraced bungalows on Grace Park Avenue, with a modern three storey apartment building to their rear*

11.3.4.4 Grace Park Gardens

To the north of the Ierne sports club is Grace Park Gardens, a cul-de-sac street lined on its north side by handsome Victorian houses. Like the site's north field and St Vincent's Hospital, which lie 110m to the east of the street, beyond the Ierne tennis courts, Grace Park Gardens is situated on a rise, affording panoramic views to the south. The street is zoned Residential Conservation Area and is thus sensitive to change.

Figure 11.26 *A view east along Grace Park Gardens towards the site, which is 110m from the eastern end of the street, beyond the Ierne tennis courts*

11.3.4.5 St Joseph's and Grace Park Wood Development to the North West

To the north west of the site is the former St Joseph's institutional campus (housing the St Joseph's School for the Visually Impaired). The campus includes Drumcondra Castle and a Victorian wing and separate chapel, all protected structures. The institutional lands were recently redeveloped as a mixed density residential estate (retaining the school in the northern part of the property). This is an example of 21st century consolidation and densification of the urban area, although the development contains a high proportion of houses, reflecting the market forces and planning policy at the time of the redevelopment of these lands, i.e. post the 2008 economic crash and prior to the National Planning Framework 2018 and subsequent guidelines.

Due to its position on elevated ground above the site, the proximity of some of the houses and apartments to the boundary, and the alignment of its urban grain, Grace Park Wood is a key receptor of landscape/visual change (see also Figure 11.5 above).

Figure 11.27 *The recently developed Grace Park Wood estate to the north of the site is a key potential receptor of change. (Note: The site boundary is indicative. Refer to the site location map for the full extent of the application site.)*

Figure 11.28 *An apartment building in Grace Park Wood, overlooking the site boundary. The St Vincent's Hospital buildings can be discerned in the distance to the right*

Figure 11.29 *A view from one of the Grace Park Wood estate streets. The alignment of the streets directs views south across the site towards the city centre, with the Dublin Mountains on the horizon*

It should be noted that while the alignment of the Grace Park streets frames views south across the site (Figure 11.29), the houses themselves are perpendicular to this axis. The principal views from the houses (from the front and rear windows, and the rear gardens) are therefore to the east or west, i.e. away from the site. The apartment buildings are the exception to this (as shown in Figure 11.28).

11.3.4.6 Griffith Court to the North East

To the north east of the site is Griffith Court (see Figure 11.27), a mid 20th century estate of detached and semi-detached two storey houses. Similar to the neighbouring Grace Park Wood estate, the estate roads frame views towards the site. Additionally, there is a row of houses at the southern edge of the estate, which back onto the site boundary.

Figure 11.30 *A view from the westernmost estate road in Griffith Court, showing the row of detached houses that back onto the site's northern boundary*

11.3.4.7 Victorian Neighbourhood off Philipsburgh Avenue to the East

To the east of St Vincent's Hospital is a 19th century residential neighbourhood off Philipsburgh Avenue, comprised of Lomond Avenue, Waverley Avenue, Melrose Avenue and Inverness Road. This is an area of particularly strong townscape character (due to its tight urban grain, uniformity of land use and architecture).

Inverness Road runs parallel to the site's east boundary, and the houses on the west side of the street back onto the boundary. A combination of the steep gradient of the street and the tall Victorian houses generates a high degree of visual enclosure (see Figure 11.31). The houses are zoned Residential Conservation Area and are therefore sensitive to change. Due to their proximity to the site they are potentially exposed, and are a key potential receptor of landscape and visual change.

Figure 11.31 *A view north along Inverness Road. The houses to the left are zoned Residential Conservation Area, and their rear gardens back onto the site boundary*

Figure 11.32 *A view west along Waverley Avenue towards the site, showing the strong townscape character of the area. The houses of Inverness Road close the vista*

The other three streets, Lomond Avenue, Melrose Avenue and Waverley Avenue, are aligned east-west and frame views towards the site. In the case of Waverley Avenue and Melrose Avenue the vista to the west is closed by the tall houses on Inverness Road (see Figure 11.32). In contrast, the view west along Lomond Avenue is not blocked by buildings. The only anomaly in the land use pattern locally is a post office at the end of Lomond Avenue, adjacent to the site, and the parking/service yard of the post office is positioned at the end of the street. The absence of buildings in the yard allows a view over the boundary wall, where the St Vincent's buildings can be seen in the middle distance.

Figure 11.33 *The view west from Lomond Avenue with the post office to the right and the St Vincent's Hospital buildings protruding above the wall on the site boundary*

11.3.4.8 Richmond Avenue to the South East

South of Melrose Avenue, between the historic neighbourhood and Richmond Road, is an area of mixed use development accessed by Richmond Avenue.

Figure 11.34 *The area of mixed use and untidy townscape character to the south east of the site, including an unfinished apartment development beside the site's east field. (Note: The site boundary is indicative. Refer to the site location map and site layout plan for the full extent of the application site.)*

At the northern end of Richmond Avenue, where it turns into Richmond Estate, the road passes close to the south east corner of the site. An apartment development on the plot between the street and the site has stalled mid-construction, and this contributes to a somewhat untidy townscape locally.

Figure 11.35 *A view along Richmond Avenue showing the mixed character of the area, and the unfinished development outside the south east corner of the site*

11.3.5 Relevant Policy – Dublin City Development Plan 2022-2028

<u>11.3.5.1</u> <u>Land Use Zoning</u>

The land use objectives for the site include Z12 'institutional land with future development potential' (the north field and the lower field), Z15 'community and social infrastructure' (St Vincent's Hospital and grounds including the hospital garden, east field and Crannog day hospital), and Z1 'sustainable residential neighbourhoods' (the lands fronting Richmond Road either side of the entrance/avenue to Richmond House).

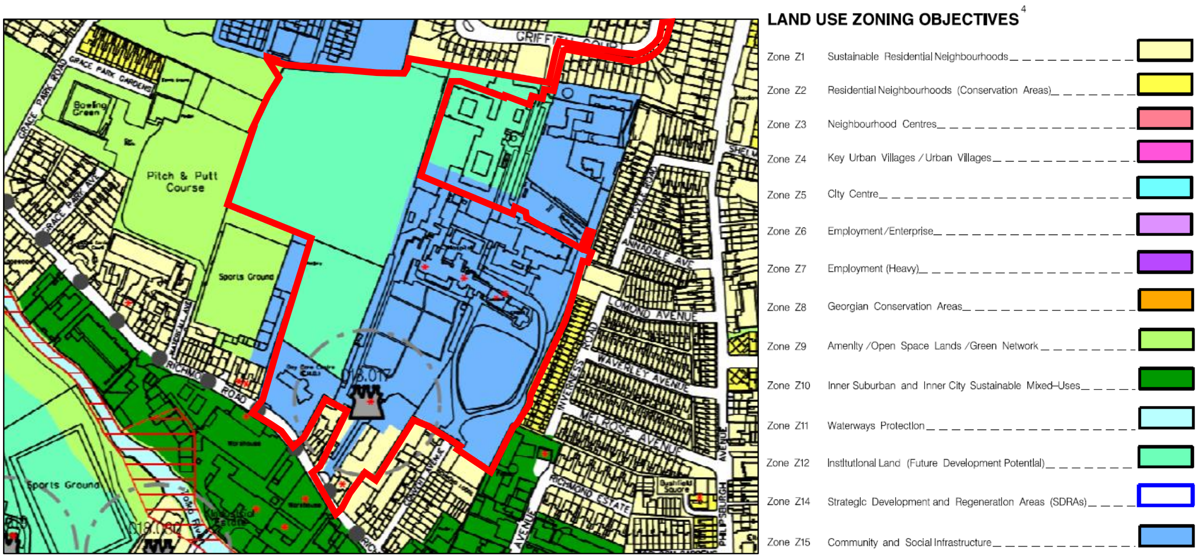


Figure 11.36 *Dublin City Development Plan 2022-2028 land use zoning objectives. (<u>Note</u>: The site boundary is indicative. Refer to the site location map for the full extent of the application site.)*

The other zoning objectives of note in the area are:

- The area of Z10 ('inner suburban and inner city sustainable mixed uses') on the south side of Richmond Road opposite the site, and along Richmond Avenue to the south east. This reflects the street's urban, mixed use character.
- The strip of Z1 ('sustainable residential neighbourhoods') on the north side of Richmond Road (including part of the site) opposite the mixed use area.
- The extensive Z9 ('amenity/open space/green network') area to the west of the site. This forms a buffer between the site and any sensitive receptors (e.g. residential properties) to the west of the site's north field and the lower field.
- The strip of Z2 ('residential conservation area') zoning along Inverness Road to the east of St Vincent's Hospital and the east field.
- The Conservation Area designation of the Tolka River corridor to the south of the site.

11.3.5.2 Approach to the Inner Suburbs as Part of the Metropolitan Area

In Chapter 7 of the DCDP both Fairview and Drumcondra are identified as 'Urban Villages'. The site lies half way between these two local urban cores, 750m (walking distance) from both, with frontage to the spine road connecting them (Richmond Road).

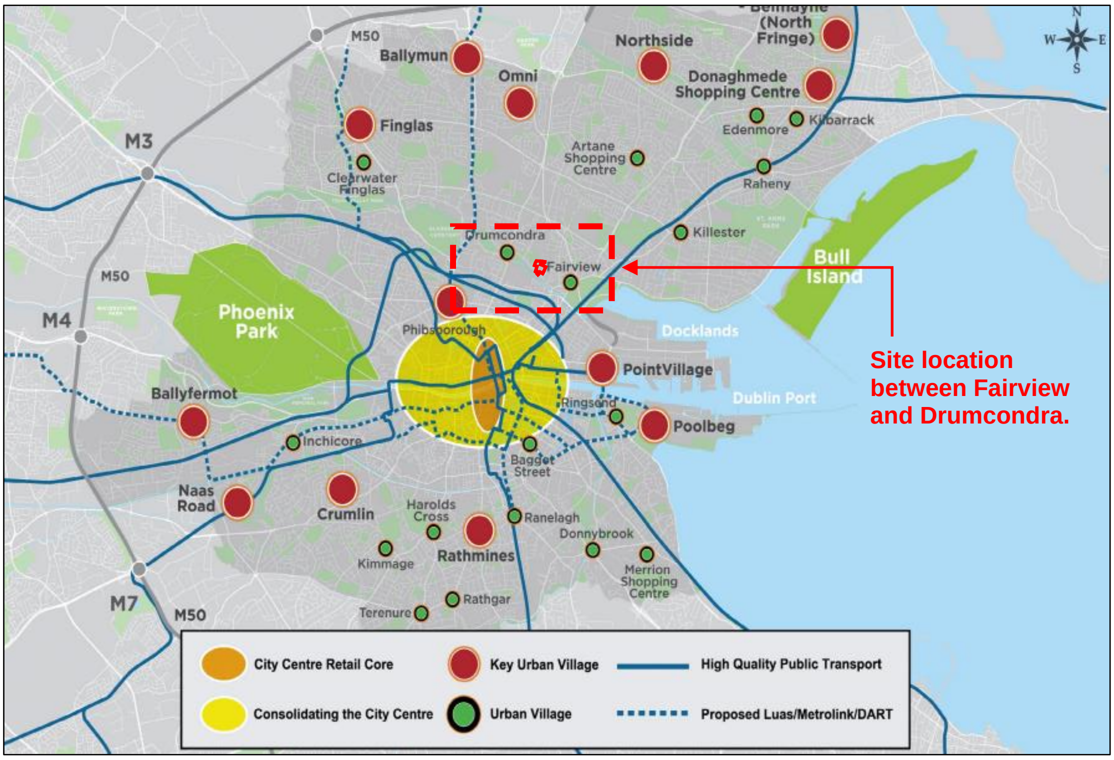


Figure 11.37 *Dublin City Development Plan 2022-2028 Figure 7.1*

Section 4.5.2 of the DCDP states: *"The inner suburbs comprise the established suburban communities located outside of the canal belt...* (all underlining is the author's emphasis)

"Within the inner suburbs, there has also been significant investment with a number of infill and former industrial sites being regenerated for high quality housing and mixed use development…

"A key objective will be to ensure that these large suburban areas are integrated into the structure of the city, both in relation to the city centre and the metropolitan area. Future development will be aligned with the strategic development areas and corridors set out under the Dublin MASP <u>and further opportunities for intensification of infill, brownfield and underutilised land fully explored</u>, particularly where it aligns with existing and future public transport infrastructure.

"<u>In developing the inner suburbs and outer city, there will be an increased focus on the importance of the strategic green network</u> and it is acknowledged that such features contribute to the built and natural landscape of the city and play an integral role in addressing the challenges of climate change.

"Over the next plan period, the strategic approach is also to <u>strengthen the hierarchy of urban villages in the inner suburbs</u> and outer city and <u>consolidate and develop them as key focal points for the communities that they serve</u>. The urban centres can provide opportunities for good urban placemaking, are centres for local services and form a basis for sustainable city living."

<u>11.3.5.3 Urban Consolidation and Density</u>

Section 4.5.3 of the DCDP states: *"<u>The NPF recognises that there is a need to increase densities on underutilised lands</u> within core urban areas in order to promote consolidation and compact growth, prevent further sprawl and address the challenges of climate change… The RSES and Dublin MASP also <u>promotes greater densification and more intensive forms of development</u> particularly on infill, brownfield and underutilized lands along key strategic public transport corridors…*

"<u>It is acknowledged that good quality, higher density developments can make a positive contribution to the evolving urban form and structure of the city</u> and can help to achieve sustainable land use and movement patterns. "<u>Increasing density can however, bring challenges in terms of ensuring appropriate levels of amenity for existing and future residents and integrating higher density schemes successfully with the existing built fabric</u>…

"The objective is to <u>provide opportunities for increased density in a sustainable manner whilst ensuring the highest standards of design as well as the protection of existing amenities and the natural and historical assets of the city</u>…"

Policy SC 11 on Compact Growth: *"In alignment with the Metropolitan Area Strategic Plan, to <u>promote compact growth and sustainable densities through the consolidation and intensification of infill and brownfield lands</u>, particularly on public transport corridors, which will:*

- *<u>enhance the urban form and spatial structure of the city</u>;*
- *be <u>appropriate to their context and respect the established character of the area</u>;*
- *include <u>due consideration of the protection of surrounding communities</u> and provide for enhanced amenities for existing and future residents;*
- *be supported by a full range of social and community infrastructure such as schools, shops and recreational areas;*
- *and have regard to the criteria set out in Chapter 15: Development Standards, including the criteria and standards for good neighbourhoods, quality urban design and excellence in architecture."*

Overbearance

Section 15.9.18 states*: "'Overbearance' in a planning context is the extent to which a development impacts upon the outlook of the main habitable room in a home or the garden, yard or private open space service a home. In established residential developments, any significant changes to established context must be considered. Relocation or reduction in building bulk and height may be considered as measures to ameliorate overbearance.*

11.3.5.4 Building Height

Policy SC16 states: *"To recognise the predominantly low rise character of Dublin City whilst also recognising the potential and need for increased height in appropriate locations including the city centre, Strategic Development Zones, Strategic Development Regeneration Areas, Key Urban Villages and other locations as identified in Appendix 3, provided that proposals ensure a balance with the reasonable protection of existing amenities and environmental sensitivities, protection of residential amenity and the established character of the area.."*

11.3.5.5 Appendix 3: 'Achieving Sustainable Compact Growth - Policy for Density and Building Height in the City'

The introduction to the policy states: *"It is adopted planning policy at both national and regional level to promote compact growth and provide for increased density and height on underutilised lands within core urban areas in order to promote consolidation, prevent further sprawl and address climate change. Increasing height and density however, can also bring challenges in terms of design and sustainability."*

Identification of Areas for Increased Height and Density

"The general principle is to support increased height and higher density schemes in the city centre, Strategic Development Regeneration Areas, key urban villages, areas close to high frequency public transport and some other areas (as identified) considered as suitable for increased intensity of development…

"In considering locations for greater height and density, all schemes must have regard to the local prevailing context within which they are situated. This is particularly important in the lower scaled suburban areas of the city where broader consideration must be given to potential impacts such as overshadowing and overlooking, as well as the visual, functional, environmental and cumulative impacts of increased building height…"

In Section 11.4.3.3 below the proposed development is evaluated against the criteria contained in the DCDP Appendix 3 Table 3 ('Performance Criteria in Assessing Proposals for Enhanced Height, Density and Scale').

11.3.5.6 Urban Design and Architecture

Section 4.5.5 of the Draft DCDP 2022 states: *"Well-considered urban design and architecture, including use of high quality materials and finishes, and well-designed buildings, spaces and landscapes make a positive contribution to the urban environment and improve the environmental performance, competitiveness and attractiveness of the city…*

"The City Council will strive to ensure exemplar design quality across the city, with the aim of achieving excellence in the ordinary, including the creation of new landmarks, streets and public spaces where appropriate…

Quality design and healthy placemaking are core principles of the NPF and the RSES, improving quality of life for all. The strategic approach is also to ensure that the principles of healthy placemaking are embraced and that high quality urban design that supports active lifestyles through good quality pedestrian and cycle links, particularly to places of work, education and recreation are promoted. Placemaking and sustainable communities are also supported through the creation of vibrant, safe and accessible spaces which facilitate recreation and social interaction."

Policy SC 19 on High Quality Architecture: *"To promote development which positively contributes to the city's built and natural environment, promotes healthy placemaking and incorporates exemplar standards of high-quality, sustainable and inclusive urban design and architecture befitting the city's environment and heritage and its diverse range of locally distinctive neighbourhoods."*

Policy SC 20 on Urban Design: *"Promote the guidance principles set out in the Urban Design Manual – A Best Practice Guide and in the Design Manual for Urban Roads and Streets (2013)."*

Policy SC 21 on Architectural Design: *"To promote and facilitate innovation in architectural design to produce contemporary buildings which contribute to the city's character and which mitigates and is resilient to, the impacts of climate change."*

Policy SC 22 on Historical Architectural Character states: *"To promote understanding of the city's historical architectural character to facilitate new development which is in harmony with the city's historical spaces and structures."*

11.3.5.7 Public Realm and Green Infrastructure

Policy CCUV 38 on High Quality Streets and Spaces: *"To promote the development of high-quality streets and public spaces which are accessible and inclusive in accordance with the principles of universal design, and which deliver vibrant, attractive, accessible and safe places and meet the needs of the city's diverse communities regardless of age, ability, disability or gender."*

Policy CCUV 39 on Permeable, Legible and Connected Public Realm: *"To deliver a permeable, legible and connected public realm that contributes to the delivery of other key objectives of this development plan namely active travel and sustainable movement, quality urban design, healthy placemaking and green infrastructure."*

Policy CCUV 43 on New Development: *"That development proposals should deliver a high quality public realm which is well designed, clutter-free, with use of high quality and durable materials and green infrastructure. New development should create linkages and connections and improve accessibility."*

Policy SC 13 on Green Infrastructure: *"To recognise and promote Green Infrastructure and landscape as a key mechanism to address climate change and as an integral part of the form and structure of the city, including streets and public spaces".*

11.3.6 National Planning Framework 2018

Compact growth is one of the main principles and intended outcomes of the NPF. This encourages higher density - and therefore taller - development in urban areas where supporting infrastructure and services are available.

National Policy Objective 11 states: *"In meeting urban development requirements, there will be a presumption in favour of development that can encourage more people and generate more jobs and activity within existing cities… subject to development meeting appropriate planning standards and achieving targeted growth."*

Regarding infill development the NPF states: *"The National Planning Framework <u>targets a significant proportion of future urban development on infill/brownfield development sites within the built footprint of existing urban areas</u>… This means encouraging more people, jobs and activity generally within our existing urban areas… and <u>requires a change in outlook</u>... It also requires active management of land and sites in urban areas."* (emphasis added)

11.3.7 Building Height Guidelines 2018

The Guidelines state: *"Reflecting the National Planning Framework strategic outcomes in relation to compact urban growth, the Government considers that there is significant scope to accommodate anticipated population growth and development needs, whether for housing, employment or other purposes, <u>by building up and consolidating the development of our existing urban areas</u>…*

"*Therefore, these guidelines require that the scope to <u>consider general building heights of at least three to four storeys, coupled with appropriate density, in locations outside what would be defined as city and town centre areas, and which would include suburban areas</u>, must be supported in principle at development plan and development management levels…*

"A key objective of the NPF is therefore to see that greatly increased levels of residential development in our urban centres and <u>significant increases in the building heights and overall density of development is not only facilitated but actively sought out and brought forward</u> by our planning processes and particularly so at local authority and An Bord Pleanála levels." (emphasis added)

In Section 3.2 of the Guidelines, 'development management criteria' are set out to guide the evaluation of development proposals for buildings taller than the prevailing heights in the area:

"In the event of making a planning application, the applicant shall demonstrate to the satisfaction of the Planning Authority/ An Bord Pleanála, that the proposed development satisfies the following criteria <u>[Note, the criteria quoted below are not the full list of criteria in Section 3.2 of the Guidelines; these are the criteria most relevant to the assessment of landscape/townscape and visual effects]</u>:

At the scale of the relevant city/town:

- *"The site is well served by public transport with high capacity, frequent service and good links to other modes of public transport.*
- *Development proposals incorporating increased building height, including proposals within architecturally sensitive areas, should <u>successfully integrate into/ enhance the character and public realm of the area, having regard to</u>*

topography, its cultural context, setting of key landmarks, protection of key views. Such development proposals shall undertake a landscape and visual assessment, by a suitably qualified practitioner such as a chartered landscape architect.
- *On larger urban redevelopment sites, proposed developments should make a positive contribution to place-making, incorporating new streets and public spaces, using massing and height to achieve the required densities but with sufficient variety in scale and form to respond to the scale of adjoining developments and create visual interest in the streetscape."* (emphasis added)

At the scale of district/neighbourhood/street:

- *"The proposal responds to its overall natural and built environment and makes a positive contribution to the urban neighbourhood and streetscape.*
- *The proposal is not monolithic and avoids long, uninterrupted walls of building in the form of slab blocks with materials / building fabric well considered.*
- *The proposal enhances the urban design context for public spaces and key thoroughfares and inland waterway/ marine frontage, thereby enabling additional height in development form to be favourably considered in terms of enhancing a sense of scale and enclosure...*
- *The proposal makes a positive contribution to the improvement of legibility through the site or wider urban area within which the development is situated and integrates in a cohesive manner.*
- *The proposal positively contributes to the mix of uses and/ or building/ dwelling typologies available in the neighbourhood."* (emphasis added)

It is noteworthy that the Height Guidelines allow for 'significant increases in building height and overall development density' including within architecturally sensitive areas and suburban areas, subject to the development responding appropriately to its context.

The above criteria have been incorporated into the policy of Dublin City Council, specifically the DCDP 2022 Performance Criteria in Assessing Proposals for Enhanced Height, Density and Scale (Table 3 of Appendix 3, DCDP 2022). The proposal is evaluated against those criteria in Table 11.8 below.

11.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The summary description of the proposal is as follows: A ten year planning permission is sought for the proposed development comprising of the following:

- Provision of a new part two and part three storey hospital building, providing mental health services, accommodating 73 no. beds, associated facilities, a single storey facilities management building, plant rooms and service areas, associated car and cycle parking, access roads, and open space, all on a proposed hospital site of c. 2.67 ha.
- Refurbishment and repurposing of existing buildings on site including Brooklawn (RPS Ref.: 8789), Richmond House, including chapel and outbuildings (RPS Ref.: 8788), the Laundry building and Rose Cottage for ancillary uses associated with the new hospital. The existing gate lodge building will remain in residential use and used by visiting members of staff to the new hospital.
- Change of use, refurbishment, alterations and extensions, to the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a library, a childcare facility, and a community hall (referred to as Block K).
- The proposal includes the demolition of existing structures on site with a GFA of 5,872 sq.m, including the (1) westernmost range of the hospital building, which includes St. Teresa's and the Freeman Wing, (2) extensions to the south and north of the main hospital building, including the conservatory extension, toilet block extension, an external corridor, toilet core, lift core, and stair core (which are all part of / within the curtilage of RPS Ref.: 2032), (4) hospital buildings and outbuildings located to the north of the existing main hospital building (5) St. Joseph's Adolescent School located in the southeast of the site, (6) Crannog Day Hospital located in the southwest of the site, and (7) extensions to the Old Laundry Building and Rose Cottage.
- Provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L) providing a total of 811 no. residential units, including 494 no. standard designed apartments (in Blocks A, B, C, G, H, J, and L) and 317 no. Build to Rent apartments (in Blocks D-E and F). Residential amenities and facilities are proposed in Block C, D-E, J and K. A retail unit is proposed in Block A and a café in Block F. Block J is proposed as an extension of the existing hospital buildings (protected structure RPS Ref.: 2032- referred to as Block K).
- The building heights of the proposed residential blocks range from part 2 to part 13 storeys. A proposed basement / lower ground level, containing car and cycle parking and plant areas, is located below and accessed via Blocks C, D-E and F.
- Access to the new hospital and associated grounds is provided from Richmond Road and Convent Avenue, with separate internal access points. A separate vehicular access to the residential development is provided from Richmond Road. The development includes a proposed pedestrian / cycle connection to Griffith Court, requiring alterations to the service yard of the Fairview Community Unit, pedestrian / cycle connections to the Fairview Community Unit campus to the north (providing an onward connection to Griffith Court), a pedestrian / cycle connection to Grace Park Wood, and makes provision internally within the site for a potential future connection to Lomond Avenue / Inverness Road.
- The proposal includes public open space, including allotments, children's play areas, a central park, a linear park and an entrance plaza, with a set down area at Richmond Road, and communal open space at surface level. The proposal includes communal roof terraces on Block C and Blocks D-E and private balconies / terraces for the apartments.

- The proposal also includes provision of internal access roads, car and cycle parking, pedestrian and cycle infrastructure, associated set down areas, alterations to existing landscape features, landscaping, boundary treatments, lighting, telecommunications infrastructure at roof level of Block B, green roofs, lift overruns and plant at roof level, site services, including a watermain connection / upgrade via Griffith Court, Philipsburgh Avenue and Griffith Avenue, site clearance, and all associated site works.

The proposed development would be built in phases. Phase 1 would be the construction of the new hospital, followed by Phase 1A, the construction of the new residential blocks in the Z12 lands (Blocks B, C, DE, F, G). Phase 1B is the construction of Block A and the plaza off Richmond Road. Phases 2 and 2A are the decommissioning of the existing hospital, refurbishment and repurposing of the retained protected structures and construction of Blocks J, H and L. The landscape and visual impacts during the construction process will change as construction progresses.

The key elements and aspects of the proposal, with regard to potential landscape and visual impacts, are as follows:

11.4.1 Layout, Height and Massing

The masterplan divides the site into two parts, i.e. (1) the new hospital, providing mental health services, and associated buildings and open space, located in the south east portion of the site, occupying the east field alongside the retained hospital garden to the south of the existing hospital complex, and (2) a large residential site, with supporting community and commercial uses, and substantial areas of public open space, to the north and west of the hospital, incorporating the protected structures.

The proposed entrance to the new hospital is the original Richmond House entrance from Richmond Road beside Brooklawn House. A separate entrance would be provided for the residential neighbourhood, from Richmond Road at the Crannog day care hospital frontage.

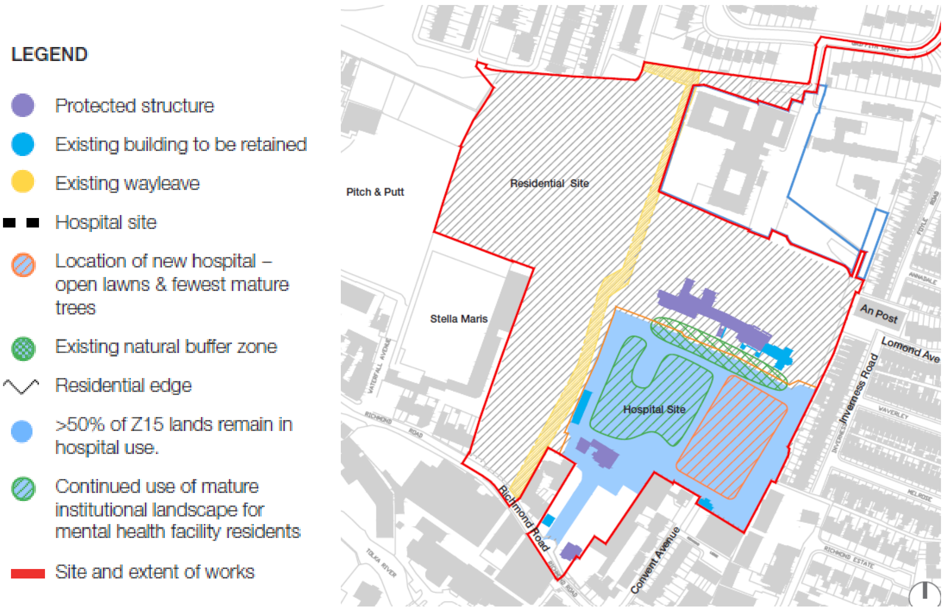


Figure 11.38 *Proposed location of the new hospital and the residential site*

The proposed residential buildings are positioned around (a) a central linear park that runs east-west across the site, and (b) a north-south-aligned linear park (incorporating the access road) that connects the main entrance from Richmond Road to the central park. A plaza space is proposed off Richmond Road beside the entrance to the residential neighbourhood, with the proposed new Block A set back behind this space. The arrangement of entrances, circulation routes and open space creates five areas for the introduction of new residential and related buildings/floorspace.

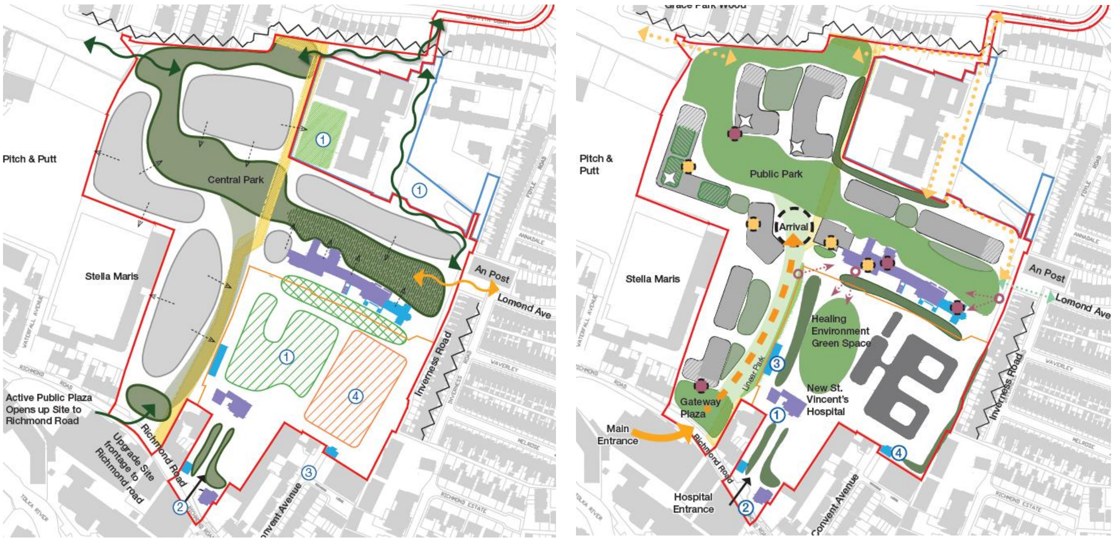


Figure 11.39 *'Site planning principles' and Master Plan*

- Blocks A, B and C are located in a row alongside the access road/linear park leading from Richmond Road into the site. (They are located in the 'lower field' to the rear of the Crannog day hospital – see Figure 11.3 above.) Block A is set back behind the roadside plaza, and the footprint of the building turns to address the plaza and the street (with a double height retail volume fronting the plaza to activate the space).
- Block A steps up to seven storeys behind the retail volume. Block B is eight storeys and Block C is seven storeys.
- These buildings have the wide access corridor/linear park on their east side and to the west is a strip of light industrial development behind which is the Stela Maris football ground. There are thus no highly sensitive receptors close to Blocks B and C.
- There is a terrace of houses fronting Richmond Road to the west of the proposed plaza and south west of Block A. These houses are sensitive to change, although it should be recognised that they are already part of a mixed use townscape corridor fronting a busy city street.

Figure 11.40 *The positioning of Block A with respect to the new plaza and the neighbouring existing houses, and the heights of Blocks A, B and C*

Figure 11.41 *The positioning of Blocks A and B with respect to the new plaza beside the main entrance, the neighbouring houses fronting Richmond Road and the light industrial area and pitch to the west*

- The north west portion of the site (the 'north field' – see Figure 11.3) is where the design team considers a large part of the site development opportunity exists. There are large zoned open spaces to the south and west of this area; to the east is the St Vincent's hospital complex, and to the north is the Grace Park Wood residential development. Grace Park Wood is a sensitive receptor.
- Blocks DE, F and G are proposed in this part of the site, arranged around the western part of the central open space.
- Block DE is an L-shaped building inside the west and south boundaries of the field. It steps up from five and six storey volumes at either end to a 13 storey 'landmark tower' in the corner, overlooking the golf course to the west and the football ground to the south.

- The northern end of Block DE is set back a long distance from the northern site boundary, forming a well-defined open space in the north west corner of the site. This functions as a buffer between the proposed development (Block DE in particular) and Grace Park Wood.
- Blocks F and G are located in the northern part of the field, combining with Block DE to enclose the internal central park. These are the closest buildings to Grace Park Wood to the north, although they are set back 20m from the shared boundary behind a densely vegetated linear open space.
- Block F is an L-shaped building of up to nine storeys. It steps down in height towards the boundary shared with Grace Park Wood to the north. The nearest volume to the neighbouring estate is four storeys. There is a deeper volume of six storeys behind that, and the nine storey volume is positioned centrally within the site, well removed from the northern boundary. **The height of Block F was reduced from ten to nine storeys in response to the DCC LRD Opinion**, which queried the justification for the proposed height in this part of the site.
- The small eastward projection from the building encloses a courtyard (along with Block G) which is contiguous with the linear open space inside the northern boundary.
- Block G is formed by two buildings that combine to enclose a courtyard to the east (facing St Vincent's Fairview Community Unit). Similar to Block F, the Block G buildings are disaggregated into volumes of various height, stepping up from four storeys nearest to Grace Park Wood and Griffith Court to the north, to six and then nine storeys within the site.

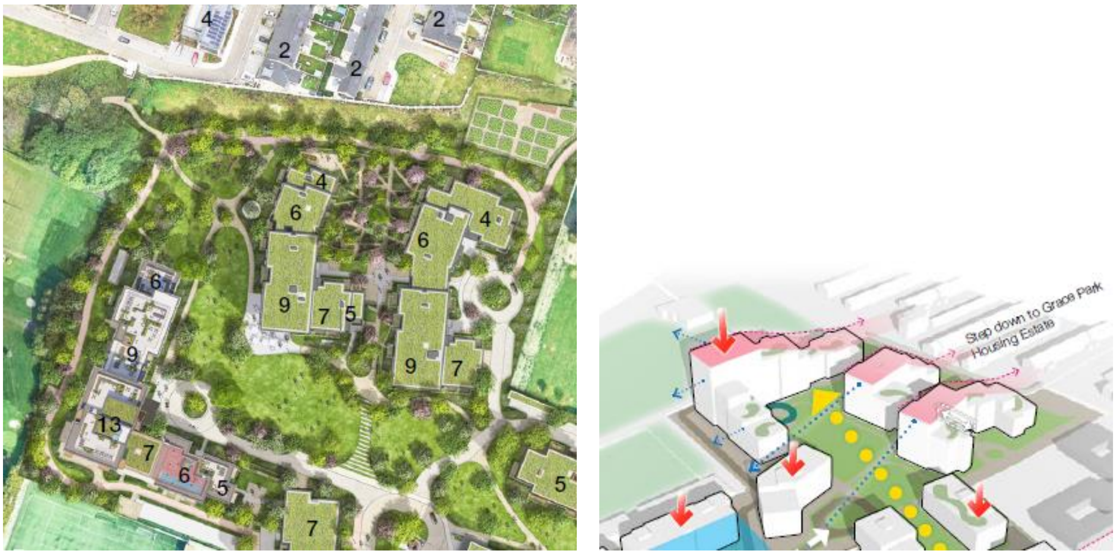


Figure 11.42 *Blocks DE, F and G in the north western part of the site, with the Ierne sports club to the west and Grace Park Wood estate to the north*

Figure 11.43 *Blocks DE, F and G in the north western portion of the site, with linear open space inside the shared boundary with Grace Park Wood*

- Blocks H, J and L are located in the north eastern part of the site and combine with the retained protected structures of St Vincent's to form a distinct character area, enclosing the eastern, linear stretch of the central park.
- The retained historic buildings are proposed to be restored and re-purposed to contain the majority of the proposed community uses on the site (including concierge, gym, café, co-working offices, library, creche and community hall).
- Block J is a new building attached to the retained St Vincent's complex. At four storeys it is approximately the same height as the adjoining historic building. It is set back slightly from the hospital's front (south) building line, and combines with the historic building to define a courtyard space facing the central park on the north side.

Figure 11.44 *Blocks H, J and L in the eastern part of the site along with the retained protected structures of the St Vincent's Hospital complex*

Figure 11.45 *Blocks H, J and L in the eastern part of the site combining with the retained St Vincent's Hospital buildings to enclose the linear central park*

- Blocks H and L are two apartment blocks in a row parallel and to the north of the complex of historic buildings, enclosing the central linear open space. The two buildings range from four to six storeys, with the highest volumes where the central open space is widest and most densely planted.
- The new hospital is located in the south east portion of the site, occupying the east field alongside the retained hospital garden to the south of the existing (to be refurbished and re-purposed) hospital complex. The proposed hospital is a building of large footprint, enclosing two internal courtyards, with a projecting wing to the west fronting a large garden.
- The hospital is two storeys tall. Its modest height is advantageous to the houses on Inverness Road to the east of the site. Inverness Road is a Residential Conservation Area and the houses on the west side of the road back onto the site boundary.
- The historic hospital buildings on a ridge above the new hospital also benefit from the limited height of the new hospital, as they protrude well above its roofline (see Figure 11.47).

Figure 11.46 *The proposed new hospital building and gardens*

Figure 11.47 *Height relationship between the proposed new hospital and the historic hospital buildings on the ridge above*

Figure 11.48 *The proposed new hospital building and gardens*

11.4.2 Façade Design and Materials

The proposed development is divided into several distinct zones or ‘quarters’, each with a different materials palette and detailing to create diversity and local identity within the new neighbourhood.

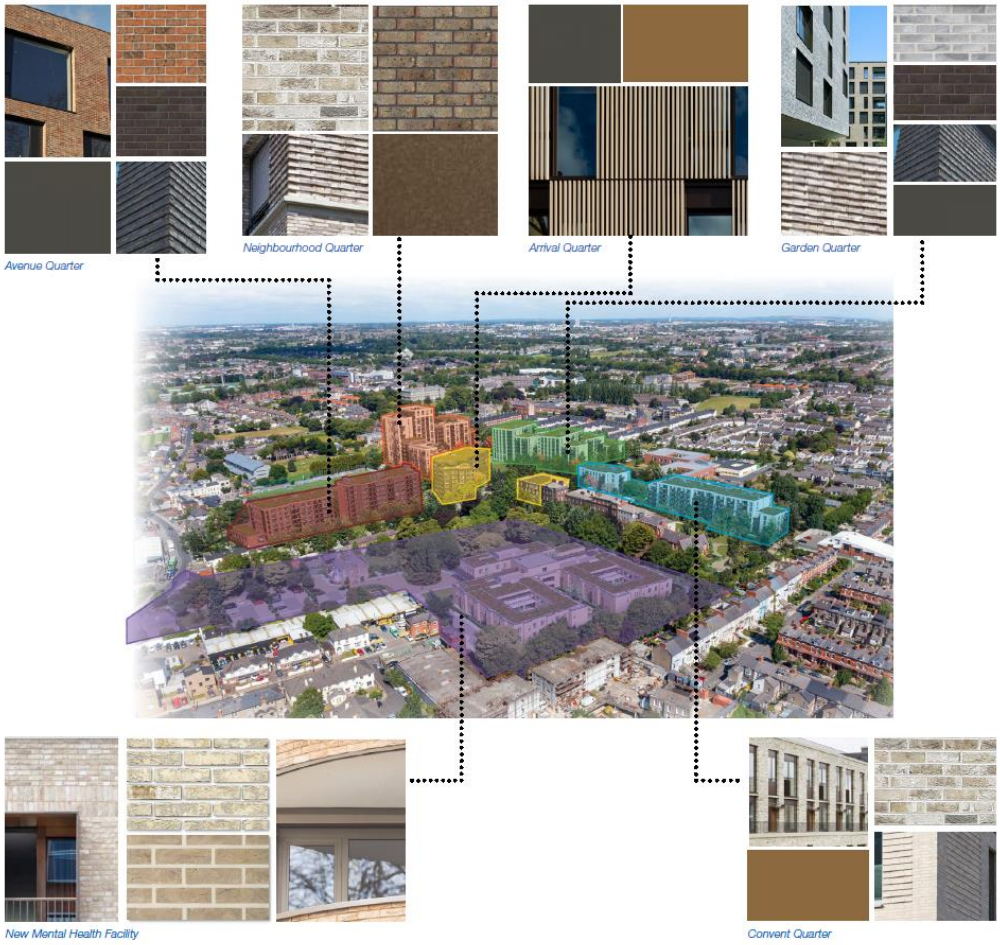


Figure 11.49 *Varied architectural expression across the site*

11.4.2.1 The Hospital

The hospital is clad in light and dark buff brick and metalwork in pearl beige (see Figures 11.46 and 11.48 above).

11.4.2.2 Residential Buildings

- Blocks A and B comprise the ‘Avenue Quarter’, with Block A also fronting the plaza on Richmond Road. These buildings are clad in red and dark grey brick with dark grey metalwork. Red brick is characteristic of many of the houses and some modern apartment buildings on Richmond Road, and Blocks A and B are intended to tie in with that character.
- Blocks C and J comprise the ‘Arrival Quarter’ at the centre of the site where the entrance avenue intersects with the central park beside the historic St Vincent’s complex. Blocks C and J are clad in bronze and dark grey aluminium, giving the buildings a contemporary character that distinguishes them from the adjoining historic buildings (in the case of Block J) and from the wider new residential neighbourhood.
- Block DE is identified as the ‘Neighbourhood Quarter’. The façade of the large building is clad in light and dark buff brick and bronze coloured metalwork.
- Blocks F and G comprise the ‘Garden Quarter’. They are clad in light grey brick, with selected areas of dark grey brick, and dark grey aluminium metalwork.
- The ‘Convent Quarter’, comprised of Blocks H and L, uses light buff brick with bronze aluminium.

The larger buildings, notably Blocks DE, F and G, are vertically divided into smaller volumes, with steps in height, recesses in the facades and variations in design and materials to distinguish them from each other. This disaggregation of form is intended to lessen the massing of the buildings and to create visual interest (see Figure 11.43 above and 11.50 below).

Figure 11.50 *The disaggregated form and articulation of the Block DE facades lessen the building's apparent massing and create visual interest*

11.4.3 Landscape Proposals

<u>11.4.3.1 Open Spaces</u>

The proposal includes an extensive, interconnected network of open spaces within the site. These are also positioned and designed to connect to the public realm (streets and open spaces) external to the site.

- <u>Richmond Road 'Gateway' plaza</u>. A plaza space is proposed beside the main entrance to the residential neighbourhood on Richmond Road. The space is formed by the setback of Block A from the street, and the retail use in Block A provides active frontage to the plaza. The plaza includes hard surfaced areas for seating and circulation, public art, a lawn area and trees – notably a row of trees along the west boundary of the space to provide screening for the neighbouring residential property.
- <u>Linear Park</u>. A linear green space is proposed alongside the main access road to the east of Blocks A, B and C. This space connects the Richmond Road plaza to the central park in the northern part of the site. The linear space includes a large number of trees in areas of lawn and ornamental planting.

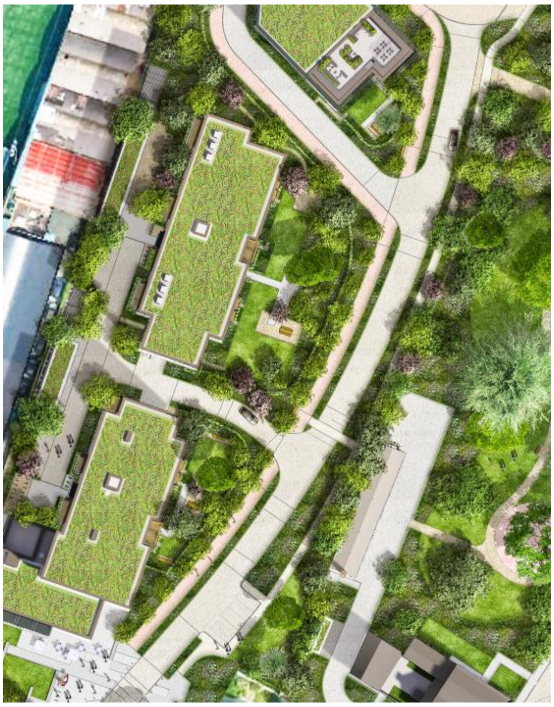


Figure 11.51 *The 'Gateway Plaza' and linear park*

Figure 11.52 *The 'Gateway Plaza' and linear park alongside the access road to the new neighbourhood*

- Richmond House Avenue. It is proposed to retain the existing trees that form an avenue inside the entrance to Richmond House from Richmond Road. This entrance is proposed to be the main entrance to the new hospital. The retained trees will be supplemented by new planting to strengthen the avenue as a landscape feature.
- Central Park. The central park is a key element of the proposed development. The wide, linear space (up to 59.2m wide) is the main arranging element around which the residential and community buildings are positioned. It provides amenity space for the neighbourhood (including a 'market space', a kick-about

area, play spaces, outdoor seating areas for the café and community hall, etc.) and an east-west pedestrian and cycle route across the site. A proposed café in the ground floor of Block F and the various community uses (library, creche, community hall, office space, etc.) in the retained St Vincent's buildings would activate the space.

Figure 11.53 *A view of the western end of the central park, with Blocks F and G to the left*

Figure 11.54 *A view of the eastern end of the central park, with Blocks H and L to the right and the community hall in the re-purposed St Vincent's chapel to the left*

- Boundary spaces. The proposed buildings are generally set back c.15m+ from the site boundaries. The corridors of space between the buildings and the boundaries are densely planted to provide screening/softening of the buildings, and a 'woodland walk' is proposed around Blocks C, DE, F and G.
- Allotment garden. In the north eastern part of the site, between Block G and the boundary shared with the neighbouring estate Griffith Court, it is proposed to provide a community allotment garden.

- Hospital garden. The existing open space to the rear of Richmond House - originally the garden of the historic house and now functioning as the current St Vincent's Hospital garden – is proposed to be retained and enhanced to function as the new hospital garden. This allows for the retention of a number of high quality, mature trees. The proposed garden includes an outdoor terrace adjacent to the hospital, multi-functional lawn areas, parkland areas, a walking/activity track, seating, a sports court and extensive multi-canopy planting around the periphery for privacy.

Figure 11.55 *The proposed hospital garden in the former grounds of Richmond House*

- Roof gardens. A key feature of the proposal is the extent of green roofs on the new buildings (see Figures 11.43, 11.45, 11.48). Additionally, Block DE, which has from extensive open space to the west and south – and therefore has no nearby residential receptors susceptible to overlooking - features a number of roof terraces providing communal amenity space for the residents.

Figure 11.56 *Green roofs proposed on the new hospital and residential buildings, and the roof terraces on Block DE*

11.4.3.2 Permeability

In addition to the two vehicular, pedestrian and cycle entrances to the site from Richmond Road (one to the residential neighbourhood and one to the new hospital), it is proposed to provide pedestrian and cycle entrances from Griffith Court to the north and Grace Park to the north west.

These new entrances and the new, publicly accessible open space within the development would provide new pedestrian and cycle routes across the site. The site was historically closed to public access and was a gap in the circulation network, restricting pedestrian and cycle permeability.

Figure 11.57 *The proposed primary pedestrian circulation network across the site*

11.4.3.3 Tree Protection, Tree Loss and Compensation Planting

The Arboricultural Assessment Impact Tree Protection Strategy Report prepared by CMK Horticulture and Arboriculture Ltd states that a total of 277 no. trees have been identified on the site. 12.6% of the trees are classified as being of high value; 68% are of moderate value; 19.4% are of low value (including 17 no. trees which were recommended for removal due to their poor quality).

The greatest concentration of mature, high value trees is in the hospital garden and around the east field to the south of the existing St Vincent's Hospital complex. There are also numerous trees around the modern hospital buildings to the north of the historic buildings and in the hospital parking area. The north field and the lower field are characterised by a relative absence of trees (see Figure 11.58).

In addition to the 17 no. trees recommended for removal due to their poor quality, the proposed development would require the removal of 122 no. of the 277 no. trees on the site. The majority of these trees are in the east field, to accommodate the new hospital. Other concentrations of trees to be removed include the area around the modern hospital buildings (to be demolished) and the area around the Crannog day care hospital. The majority of the trees that make up the avenue to Richmond House would be retained, with additional trees proposed to strengthen the avenue.

A total of 420 no. new trees are proposed to be planted on the site. The proposed trees vary in species. The majority are native species and the mix includes deciduous and evergreen trees of varying habit/form. The proposed trees also vary in size at time of planting. A number of large specimen trees are proposed for immediate effect in key areas, including the Richmond Road/'Gateway' plaza and in the central park.

Figure 11.58 *The trees proposed for removal, retention and planting on the site as part of the development*

In summary, 139 no. trees would be removed from the site (including the 17 no. recommended for removal due to their poor condition), 138 no. would be retained (and protected during construction), and 420 no. new trees would be planted. There would be a significant net gain in the local urban forest.

Appendix III of the Arboricultural Assessment, Arboricultural Impact and Tree Protection Report prepared by CMK Horticulture and Arboriculture Ltd contains a detailed Tree Protection Strategy. If implemented correctly, this strategy would ensure the preservation of the 132 no. trees proposed for retention on the site.

11.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

11.5.1 Construction Phase

During construction the site and immediate environs would be heavily disturbed by construction activities and the incremental growth of the buildings on site.

The most significantly affected views would be those from nearby to the north (Grace Park Wood and Griffith Court estates) and west (the Ierne Sports and Social Club). The magnitude of change to these relatively close-up views would be high, although temporary (in Table 11.7 below the temporary duration of the construction impacts is reflected in a lower magnitude of change classification than the operational phase, which is ‘long term’). The construction impacts would reduce with increasing distance from the site.

The significance and quality of the construction phase effects are assessed for each representative viewpoint individually in Table 11.7 below. Generally, the effects would be negative since construction is an inherently, unavoidably unsightly activity.

11.5.2 Operational Phase – Visual Effects

33 no. viewpoints were selected for detailed assessment of the proposal’s potential visual effects - informed by verified photomontages.

The viewpoints were selected to represent the key elements and character areas of the receiving environment (as identified in Section 11.3 above), and to provide visualisations of the proposal (in the form of photomontages) from a wide range of directions and distances from the site.

In Table 11.7 below the visual effect on each viewpoint is assessed by classifying the viewpoint sensitivity and the magnitude of change to the view and combining these factors to arrive at a classification of significance of the effect. The viewpoints are grouped in the table, with each group representing a different character area in the receiving environment. Commentary is provided on the visual effects on each viewpoint, and on the overall landscape effects on each character area.

For an explanation of the methodology and terms used in the assessment refer to Section 11.2.3 above.

The assessment should be read in conjunction with the verified photomontages provided in Volume 3 of the EIAR.

For each viewpoint the following are provided:

- Existing view (a photograph of the site/environment in the current condition);
- Proposed view (a verified photomontage of the proposed development – see the method for photomontage production in Section 11.1.5 above).

For five viewpoints (Viewpoints no. 10, 16, 19, 31, 33) a ‘Cumulative view’ has also been provided. This is a photomontage of the proposed development, also showing the massing of the proposed Richmond Road SHD which is located to the south west of the site across Richmond Road. The five views are those in which the two proposed developments could be seen together, i.e. the views in which there would be cumulative visual effects arising from the two proposals.

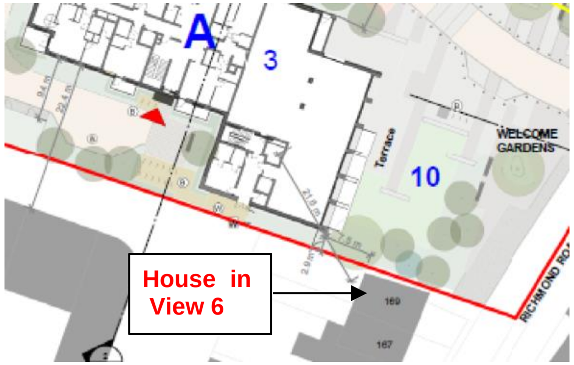
Figure 11.59 *Viewpoints for visual effects assessment*

Table 11.7 *Assessment of visual and landscape effects*

<table>
<tr><th rowspan="2">No.</th><th rowspan="2">Viewpoint Location</th><th rowspan="2">Viewpoint Sensitivity</th><th colspan="3">Magnitude of Change</th><th colspan="3">Significance of Visual Effects</th></tr>
<tr><th>Construction (temporary)</th><th>Operation (long term)</th><th>Residual* (long term)</th><th>Construction (temporary)</th><th>Operation (long term)</th><th>Residual* (long term)</th></tr>
<tr><td colspan="9">RICHMOND ROAD IN THE VICINITY OF THE SITE</td></tr>
<tr><td>1</td><td>Richmond Rd at Convent Ave junction</td><td>Medium</td><td>Low</td><td>Low</td><td>Low</td><td>Not significant negative</td><td>Slight neutral</td><td>Slight neutral</td></tr>
<tr><td>2</td><td>College Ave approaching St Vincent’s entrance</td><td>Low-Medium</td><td>Low</td><td>Low</td><td>Low</td><td>Not significant negative</td><td>Slight neutral</td><td>Slight neutral</td></tr>
<tr><td colspan="9">● The new hospital and apartment buildings replace the existing greenery on St Vincent’s in the composition. In both views a small portion of the composition is changed, and the introduction of additional buildings in the already built-up context is not a significant change. (Both viewpoints are in the area zoned Z10 (inner suburban and inner city sustainable mixed uses) on Richmond Road and Convent Avenue. Therefore the viewpoints are not sensitive to new urban development.)
● Additionally, (a) the existing buildings/development in both views are of mixed character and quality, which limits the existing visual amenity, and (b) the proposed buildings, although seen only at a distance or glimpsed through the entrance, are of high design and material quality. Therefore the visual effects can be classified neutral - in that the greenery which adds some amenity to the views would be replaced by buildings of good quality, maintaining the amenity of the views overall.</td></tr>
<tr><td>3</td><td>Richmond Rd approaching Richmond House entrance</td><td>Medium</td><td>Medium</td><td>Low-Medium</td><td>Low-Medium</td><td>Slight negative</td><td>Moderate positive</td><td>Moderate positive</td></tr>
<tr><td colspan="9">● The most significant changes to the view are (a) the improved condition of the protected structure Brooklawn House and (b) the replacement of the unsightly boundary wall with a hedge and railing. Further along the street the densely planted plaza at the new entrance can be seen, with the retail façade of Block A set back behind the plaza. The tops of Blocks A and B protrude marginally above the already complex foreground roofline.
● Although the composition would not be substantially changed, the quality of the streetscape would be noticeably, meaningfully improved.</td></tr>
<tr><td>4</td><td>Richmond House entrance/avenue</td><td>Medium</td><td>High</td><td>Medium</td><td>Medium</td><td>Moderate negative</td><td>Moderate positive</td><td>Moderate positive</td></tr>
<tr><td colspan="9">● The view is taken from inside the Richmond House gate off Richmond Road. The protected structure is visible at the end of an avenue of trees, but the overall view is somewhat untidy due to the buildings to either side and the low roadside planting which undermines the legibility of the avenue.
● The road would be upgraded to function as the main access road to the new hospital. The majority of the existing trees would be retained and their condition improved by pruning/management. New supplementary tree planting would strengthen the avenue. To the right is a small open space beside a new parking area, replacing an unsightly building.
● Richmond House would remain as the centrepiece of the view, with the avenue of trees retained and improved, in a contemporary, high quality landscape – suitable as the arrival point to the new hospital.</td></tr>
</table>

5	Richmond Rd opposite Crannog entrance	Low	High	Very High	Very High	**Moderate negative**	**Significant positive**	**Significant positive**
6	Richmond Rd approaching Crannog frontage from the west	Medium	Medium	High	High	**Slight negative**	**Moderate positive**	**Moderate positive**

- View 5 and to a lesser extent View 6 would be transformed by the creation of a new street-side urban plaza in front of Block A beside the entrance to the new residential neighbourhood. **Both views show that the breadth of the plaza space is substantial. It would make a meaningful contribution to the local public realm on a street (Richmond Road) that currently is characterised by a lack of width in places. The plaza and Block A are both of high design and material quality, and the plaza would be activated by the retail use in Block A** (in addition to the pedestrian traffic to and from the new neighbourhood within the site).
- In View 6 the juxtaposition of building typologies and scale between Block A (seven storeys) and the neighbouring house is revealed. It should be noted that the part of the building closest to the house is two storeys (i.e. it steps down), with the taller volume rising behind it, scaled to have a presence in views along Richmond Road. A row of trees is proposed inside the boundary between the plaza and house, for visual screening. Additionally, the new building would be peripheral to the main views out of the rear windows of the house.
- **Such juxtapositions of typology and scale are not unusual nor undesirable in the context of a modern, mixed use city street. While the context of the neighbouring house would be transformed, the environmental quality of the area would be considerably improved**. Therefore even the effects on the house itself could be considered positive or neutral.



7	Richmond Rd to west of site	Medium	Low	Low	Low	**Not significant negative**	**Slight positive**	**Slight positive**

- **The established urban character of the Richmond Road corridor would be strengthened by Block A. It would also provide a visual marker in the townscape and elevate the quality of the built environment overall**.

Overall, the urban character of the Richmond Road corridor would be strengthened, and the quality/condition and visual amenity of the area enhanced by the development.

The effects would be most significant along the site's street frontage, particularly at the new entrance and plaza where a valuable new open space would be added to the public realm. Along the affected stretch of Richmond Road the streetscape would be positively transformed. The effects would reduce with distance from the site (due to the setback of the new buildings from the street).

Both of the protected structures visible from the street (Richmond House and Brooklawn House) would be restored and their immediate environs enhanced, with benefit to the historic buildings themselves and the areas from which they are visible.

* Mitigation measures for landscape and visual impacts are embedded in the design. No additional mitigation measures are recommended. Therefore, the residual change/effects are the same as the operation magnitude/effects.

<table>
<tr><th rowspan="2">No.</th><th rowspan="2">Viewpoint Location</th><th rowspan="2">Viewpoint Sensitivity</th><th colspan="3">Magnitude of Change</th><th colspan="3">Significance of Visual Effects</th></tr>
<tr><th>Construction (temporary)</th><th>Operation (long term)</th><th>Residual* (long term)</th><th>Construction (temporary)</th><th>Operation (long term)</th><th>Residual* (long term)</th></tr>
<tr><td colspan="9">MIXED DENSITY RESIDENTIAL AREA TO SOUTH WEST OF SITE</td></tr>
<tr><td>8</td><td>Waterfall Ave</td><td>Medium</td><td>Medium</td><td>High</td><td>High</td><td>Moderate negative</td><td>Significant positive</td><td>Significant positive</td></tr>
<tr><td colspan="9">● Viewpoint 8 represents a modern apartment development on Waterfall Ave opposite the Stella Maris FC Dublin Port Stadium, just off Richmond Road. The open space of the football ground is not fully appreciable as it lacks definition in the view. To the left through the gate is the Ierne golf course. The landscape in view has a poorly defined character, and a ‘backland’ quality.
● In the proposed view Blocks B, C and DE are a prominent addition, arranged around the far side of the football ground, with Block DE rising to a landmark tower overlooking the football ground and the golf course. The landscape is transformed from backland to urban in character, with buildings of high quality defining and overlooking the open space – transforming a sports facility into a landscape and visual amenity (for the future residents). This view illustrates the favourable effect of the neighbouring (zoned) open space in creating capacity to accommodate height on the site. Despite the density and height of the proposed development there is no sense of excessive enclosure.</td></tr>
<tr><td>9</td><td>Grace Park Ave</td><td>Medium</td><td>Low</td><td>Low-Medium</td><td>Low-Medium</td><td>Slight negative</td><td>Slight neutral</td><td>Slight neutral</td></tr>
<tr><td colspan="9">● In View 9 the development is heavily filtered by the foreground trees. (In summer these will screen the development entirely.) Blocks DE and C have sufficient presence to shift the landscape character further towards an urban condition (there is already a modern apartment building in view), but due to the separation distance and the filtering effect of the trees there is no sense of dominance or excessive enclosure.</td></tr>
<tr><td colspan="9">Overall, the effect on this area would be neutral to positive. The landscape is already characterised by mixed development eras, typologies, scale and architecture, and there is a localised dissolution of the urban grain/structure on Waterfall Ave. The development would strengthen the urban structure by providing definition/ enclosure to Dublin Port Stadium - thus deriving additional value from the open space. It would also add buildings of design and material quality and identity to the view, thereby improving townscape character and legibility.</td></tr>
</table>

* Mitigation measures for landscape and visual impacts are embedded in the design. No additional mitigation measures are recommended. Therefore, the residual change/effects are the same as the operation magnitude/effects.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
RICHMOND ROAD TO WEST OF THE SITE								
10	Richmond Road at Grace Park Road junction	Medium	Negligible	Low	Low	**Not significant negative**	**Slight neutral**	**Slight neutral**
11	Richmond Road to west	Medium	Negligible	Low-Medium	Low-Medium	**Not significant negative**	**Slight neutral**	**Slight neutral**

- Views 10 and 11 represent the western stretch of Richmond Road, which differs in character from the mixed use stretch to the east (represented by Viewpoints 1-7). This area is predominantly residential – with the notable exception of Tolka Park stadium on the south side of the road (Diagonally across the road behind Viewpoint 10). View 31 shows a particularly uniform character, on a stretch of the road that frames a view east towards the site.
- In both views the top of the landmark volume of Block DE protrudes above the roofline of the street-front houses. The degree of protrusion is sufficient that the building would catch the eye (in View 11 in particular).

The site is well removed from this low density residential stretch of Richmond Road. The intrusion of Block DE into the views would be limited. It would be seen as separate from the foreground character area and would have no effect on that character, or on visual amenity. Nonetheless, the building would protrude sufficiently above the roofs of the houses to be identifiable, and therefore to contribute to legibility.

* Mitigation measures for landscape and visual impacts are embedded in the design. No additional mitigation measures are recommended. Therefore, the residual change/effects are the same as the operation magnitude/effects.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
DRUMCONDRA ROAD								
12	Drumcondra Rd at Richmond Rd junction	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
13	Drumcondra Rd at Clonturk Park junction	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
14	Drumcondra Rd at Ormond Rd junction	Medium	Negligible	None	None	**Not significant negative**	**No effect**	**No effect**

- In View 12 the greater perspective afforded by the distance from the site (compared to Views 10 and 11) causes the development to be more exposed to view, and the alignment of the street frames the view, placing the development in a focal point position. Block DE is therefore a quite significant addition to the view, and it represents a new development typology in the townscape. **However, there is a degree of complexity in the existing view that creates capacity for the change. Additionally, measures such as its articulated form and facades and the rooftop gardens soften the building's presence despite its scale**.

- Views 13 and 14 were included in the assessment to assess any variation in visibility/visual effects elsewhere along Drumcondra Rd. The effects on View 13 are similar to View 12, while at Viewpoint 14, at the next junction 100m further up the road, it would be screened from view.

The development would be a prominent (albeit distant) but benign addition to views from specific locations on Drumcondra Rd. The change in the townscape is not inappropriate considering that the affected viewpoints are on a main urban thoroughfare approaching the city centre. The visibility of development of contemporary urban character and scale is appropriate in this context. The building itself is attractive and would fit comfortably into the evolved townscape, while also contributing to legibility - by marking the new neighbourhood in the townscape.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
CLONTURK PARK AND GRACE PARK OPEN SPACE								
15	Clonturk Park	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
16	Grace Park public open space	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**

- The two viewpoints are a short distance apart – one representing the residential neighbourhood of Clonturk Park and the other the adjacent open space west of Grace Park Road. In both views Block DE is a significant addition to the composition, the large building representing a new development typology, therefore changing the character of the landscape.

Measures such as the articulated form and facades, the texture and natural colours of the brick, and the rooftop gardens assist in integrating the building into the landscape despite its large scale. <u>These views show how the open space surrounding the site (Dublin Port Stadium and Ierne sports club) and the trees in the wider area contribute to an accommodating context, forming a spatial buffer so that pronounced juxtapositions in typology/scale are avoided</u>.

The development would be a prominent (albeit distant) but benign addition to views, causing a change in character but no reduction in visual amenity. Such changes in character are an unavoidable consequence of compact growth policy.

* Mitigation measures for landscape and visual impacts are embedded in the design. No additional mitigation measures are recommended. Therefore, the residual change/effects are the same as the operation magnitude/effects.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
IERNE SOCIAL AND SPORTS CLUB AND GRACE PARK GARDENS								
17	Ierne Social and Sports Club parking area	Medium-High	Medium	High	High	**Moderate negative**	**Significant neutral**	**Significant neutral**
• Block DE is a prominent addition to the view (co-dominant with the open space of the golf course), showing the strong enclosing effect of the development on the Ierne Club, and the resulting change in landscape character, shifting the area towards a more urban condition. • **Design measures such as (a) the articulated form (with recesses and steps in height to disaggregate the massing), (b) articulated facades (large windows and variations in material), (c) the texture and natural colours of the brick, and (d) the rooftop gardens, combine with aspects of the context (the open space of the golf course and football ground and the many existing trees) to integrate the building into the landscape despite its large scale. Overall, while dramatically changed, the view is a pleasing composition of open space and architecture**. • However, it must be assumed that the main receptors of this change (Ierne club members/golf players) appreciate the unenclosed, green environs of the golf course. (There is a three storey apartment block adjacent to the south, overlooking the course, but the building is down the slope, largely screened by trees, and has a much more limited presence.) **These people are likely to perceive the effects of the development as negative**. • While that response is natural and valid, **it must also be recognised that (a) the golf course is an *urban* facility (the course is less than 2.5km from the centre of a capital city), (b) it is a substantial open space in itself (generating its own landscape/visual amenity), and (c) it is enjoyed by a small cohort of the population**. • The users' (assumed) preference for keeping the adjacent lands (the site) free from development, or developed at lower intensity, must be weighed against considerations such as (a) compact growth policy (driven by the goal of sustainable development in response to the climate change and biodiversity crises), and (b) that the golf course creates a favourable context and amenity potential for the site as a residential land use asset. • If the lands are developed, the golf course will function as a spatial buffer for the large buildings, and as a visual amenity for the many new residents overlooking the course. These benefits counterbalance the negative effect on visual amenity that may be felt by the golf course users. (The design and material quality of the development are also taken into account.) **Views/visual amenity experienced at the Ierne Club will be changed, but its value as a landscape and visual resource will be heightened. Hence the classification of the effects as significant but neutral**.								
18	Grace Park Gardens	High	Negligible	Low	Low	**Slight negative**	**Slight neutral**	**Slight neutral**
• View 18 represents the Residential Conservation Area of Grace Park Gardens. The site lies over 110m from the nearest house on the street. **In winter the development will be discernible, causing a shift in character, but there will be no reduction in visual amenity (due to the separation distance and the filtering effect of the trees). When the trees are in leaf (for more than half of the year) the development will be screened**.								
Of the two sensitive receptors nearby the site to the west, one (Grace Park Gardens) would be slightly affected and one (Ierne Club) significantly affected by the development. The negative effects which may be perceived by club members, resulting from development of the neighbouring currently unused (and Z12 zoned) lands, would be counterbalanced by the at least equally significant increase in the site's value as a landscape and visual resource for the new residents.								

* Mitigation measures for landscape and visual impacts are embedded in the design. No additional mitigation measures are recommended. Therefore, the residual change/effects are the same as the operation magnitude/effects.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
GRACE PARK ROAD TO NORTH OF SITE								
19	Grace Park Rd at entrance to St Joseph's/Grace Park Wood estate	Medium-High	Medium	Medium	Medium	**Moderate negative**	**Significant neutral**	**Significant neutral**
• View 19 is an attractive composition, with the corner of Clontarf Castle (St Joseph's) visible to the left of the new residential estate entrance, a large open space in front of the historic building, a row of handsome modern houses facing the space, and a large number of mature trees in the view. Like many of the views from west of the site (e.g. 7, 11, 11a, 12) there is (a) extensive open space in the landscape, and (b) mostly low density/low rise development in view. • Blocks DE and F would be significant additions to the view, the large buildings representing a new development typology, therefore changing the character of the landscape. Standing beside, and protruding above the modern houses, there is a strong contrast in typologies and scale, but the composition is not uncomfortable or unsightly. This is due to both the design of the buildings** and the favourable characteristics of the context landscape. ** **Design measures such as (a) the articulated form (recesses and steps in height to disaggregate the massing and meaningful stepping down in height towards the lower neighbouring development), (b) the articulated facades (large windows and variations in material), (c) the texture and natural colours of the brick, and (d) the rooftop gardens, combine with the extensive open space and existing trees to integrate the buildings into the landscape despite their scale**. **Overall, while dramatically changed, the view is a pleasing composition of open space and historic and modern architecture**.								
20	Grace Park Rd at junction with Grace Park Terrace	Medium	Negligible	Negligible	Negligible	**Not significant neutral**	**Not significant neutral**	**Not significant neutral**
• Viewpoint 20 is further up the road, towards Griffith Avenue. The development would be barely visible from this position and would have no effect on landscape character or visual amenity.								
The two contrasting views show the variable effects of the proposed development on Grace Park Road to the north of the site. Where it is visible, the development would be prominent but not unsightly. The extensive open space and mature trees in the landscape create capacity to accommodate the change. The would be no loss of visual amenity.								

* Mitigation measures for landscape and visual impacts are embedded in the design. No additional mitigation measures are recommended. Therefore, the residual change/effects are the same as the operation magnitude/effects.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
GRACE PARK WOOD ESTATE								
21	Grace Park View (road) and open space adjacent to site	Medium-High	Medium	Medium-High	Medium-High	**Moderate negative**	Moderate neutral	Moderate neutral

- View 21 shows the southern built frontage of Grace Park Wood. The houses present their gable ends to the south (towards the site) and the apartment building faces the site. In the foreground is a linear open space between Grace Park Wood and the Ienre Club (out of view to the right).
- The photomontage shows the northern ends of Blocks DE and F, heavily filtered by the trees inside the Grace Park Wood boundary. **The buildings are tall but step down towards the boundary, and there is substantial separation distance between the new blocks and the buildings in the neighbouring estate. This allows for the trees along the shared boundary to be supplemented for additional screening**.
- It is significant that Block DE is set well back from the boundary of Grace Park Wood, behind an area of open space (part of the central park). This means that the large building, which would be directly in the line of sight from the Grace Park Wood apartment building balconies, is 68.7m distant from those balconies. Therefore, while Block DE would be a prominent addition to views from the Grace Park Wood apartments, it would not be overbearing. Additionally, the large number of new trees in the open space between the buildings would soften Block DE's presence.

22	Grace Park Grove – mid distant view	Medium-High	Medium	Medium-High	Medium-High	**Moderate negative**	**Moderate neutral**	**Moderate neutral**
23	Grace Park Close – close-up view	Medium-High	Medium	High	High	**Moderate negative**	**Significant negative**	**Significant negative**
24	Grace Park Close – distant view	Medium-High	Medium	Medium-High	Medium-High	**Moderate negative**	**Moderate neutral**	**Moderate neutral**

- Views 22, 23 and 24 are from various distances to the north of the site within Grace Park Wood, on the north-south aligned estate roads. The roads and buildings frame the views south towards the site.
- In all three views the proposed development closes the vistas, screening existing features such as Croke Park (View 22), St Vincent's Hospital (View 23) and the Dublin Mountains on the horizon from view. **The occupation/infilling of the open space (the site) by buildings, the screening of the above features from view, and the general increase in built/visual enclosure would constitute a loss of visual amenity**.
- **However, it must be recognised that those features (St Vincent's, Croke Park and the distant mountains) exist in the views only because the site is undeveloped**. In the central urban location this scenario is unsustainable and unrealistic to maintain.
- The proposal seeks to achieve density through building height - responding to (a) the scale of the site, which allows for taller buildings, centrally located, to be well removed from surrounding receptors, and screened/softened by new vegetation inside the site boundaries, and (b) the related opportunity presented by the open space of the golf course and football ground to the west.
- The photomontages and the aerial view (overleaf) show that, while ambitious in terms of density, the proposal is sensitive to the estate to the north:
  - The linear buildings, Blocks DE, F and G, are positioned so that the Grace Park Wood roads align with the corridors of space between the blocks (see Views 22 and 23 in particular). There is thus continuity of space between the two sites, despite the increase in enclosure experienced in Grace Park Wood.

- The stepping down of Blocks DE, F and G (so that the tallest elements are well removed from the boundary) avoids excessive enclosure, and disaggregates the massing. This is complemented by the articulated facades (large windows, expressed balconies, brick cladding in various colours with bands of textured detailing).
- The open space corridor inside the site's north boundary, separating the buildings from the neighbouring estate, is densely plated with a mix of deciduous and evergreen trees. As this vegetation matures it will form an effective visual buffer.

It is unavoidable that the development of the site would cause some loss of visual amenity for the neighbouring estate, which enjoys the open space and views to the south afforded by the site's unused/ undeveloped condition.

The continuation of that scenario is not sustainable however, and any sustainable residential development on this part of the site (in accordance with its Z12 zoning) will result in some loss of visual amenity (through increased built/visual enclosure and loss of features such as St Vincent's and the distant mountains from view).

The photomontages show that the proposal seeks to limit and compensate for the loss of visual amenity through (a) responsive design (the positioning of the buildings, the stepping down in height towards the boundary, and the façade design and materials), and (b) the provision of open space continuity and generous planting.

It should be noted that the Grace Park Wood houses are aligned east-west. Therefore, the principle views from the houses (from front and rear windows, and rear gardens) are to the east or west, i.e. <u>not towards the site</u>. The visual effects of the development will thus be experienced mainly on the estate roads and open space - and the apartments, which do face the site.

It should also be noted that the Grace Park residents would experience landscape-related and other benefits from the development, e.g. the increased provision of public open space in the vicinity (the 'central park'), much improved pedestrian permeability, access to the various community facilities, cafes and retail, etc.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
GRIFFITH COURT								
25	Griffith Court – western street	Medium-High	Low-Medium	Medium	Medium	**Moderate negative**	**Moderate negative**	**Moderate negative**
26	Griffith Court – beside entrance to St Vincent's Fairview Community Unit	Medium	Low	Low	Medium	**Slight negative**	**Slight neutral**	**Slight neutral**

- View 25 shows that a small number of houses and some of the public realm in Griffith Court, in the south west corner of the estate, adjacent to the site, would experience similar impacts to Grace Park Wood. Currently, the properties closest to the site enjoy views across the open space of the site, over the city, towards the distant Dublin Mountains.
- By infilling the site with built form, the development would screen or partially screen these features and increase the built/visual enclosure experienced in the south west corner of Griffith Court. There would be a shift in landscape character from suburban (owing to the low density of development and the extent of open space in the area) towards a more built-up, urban condition.
- View 21 shows that the effects would be much reduced only a short distance to the east in the estate.

As with Grace Park Wood, the visual amenity that stands to be lost in a small part of Griffith Court, derives largely from the unused/undeveloped condition of the site. The continuation of this scenario is not sustainable, and it is unavoidable that some loss of visual amenity will result in the nearest part of the neighbouring estate when the site is developed.

The photomontages show that the separation distance (Block G is c.55m from the nearest house in Griffith Court) and the stepping down in height towards the boundary, limit the resulting degree of built enclosure – although there is an increase, due to Block F as much as Block G. A large number of trees are also proposed around Blocks G and F, which will mature to soften and screen the buildings' presence in time.

* Mitigation measures for landscape and visual impacts are embedded in the design. No additional mitigation measures are recommended. Therefore, the residual change/effects are the same as the operation magnitude/effects.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
VICTORIAN NEIGHBOURHOOD OFF PHILIPSBURGH AVENUE EAST OF THE SITE								
27	Philipsburgh Avenue junction with Lomond Avenue	Medium-High	Negligible	Negligible	Negligible	**Not significant neutral**	**Not significant neutral**	**Not significant neutral**
● View 27 shows that the development will have no significant effect on Philipsburgh Avenue. A curve in the alignment of Lomond Avenue causes the buildings to be screened.								
28	Lomond Avenue approaching post office and east site boundary	Medium	Low	Medium	Medium	**Slight negative**	**Moderate positive**	**Moderate positive**
● View 28 represents the part of the historic neighbourhood potentially most affected by the proposal. ● Currently the service yard of the An Post facility at the western end of Lomond Avenue dominates the view, framed by the houses in the foreground. The roofs of some of the St Vincent's Hospital buildings are visible, though partially screened by trees, above the An Post boundary wall, which is shared with the site. ● In the proposed view the a number of the new buildings can be seen protruding above the boundary wall alongside the retained St Vincent's buildings. To the right is Block L, four storeys tall facing the boundary and stepping up to six storeys within the site. To the left of a central corridor of open space are the restored convent, school and St Vincent's Hospital buildings (all protected structures). In the distance is the landmark volume of Block DE. Together the new and restored buildings form a pleasing and interesting composition of built form and architecture. ● **This view shows again how the scale of the site allows the height to be arranged so that stark juxtapositions with neighbouring buildings are avoided**. The character of the historic neighbourhood (Lomond Avenue and Inverness Road) is so strong that it can withstand the change with no compromise to its character or visual amenity. On the contrary, at the interface with the site (e.g. Viewpoint 28) there would be an enhancement of townscape character and visual interest. ● There is also the potential for an improvement in permeability were a pedestrian route to be provided into the site through the An Post property in the future..								
29	Melrose Avenue	High	Negligible	None	None	**Not significant negative**	**No effect**	**No effect**
● Waverley Avenue and Melrose Avenue lie to the east of the proposed new hospital. Like Lomond Avenue these streets are aligned east-west, so they frame views towards the site. ● The proposed hospital building is low, so its visibility would be blocked by the tall Victorian houses on Inverness Road. The development would not be visible from Inverness Road itself (a Residential Conservation Area), due to a combination of (a) the existing visual enclosure along the street, and (b) the modest height of the hospital building.								
The Victorian neighbourhood to the east of the site would experience limited change despite its proximity to the site. The only significant change would occur at the western end of Lomond Avenue. The development would be partially exposed to view over the post office boundary wall. The effect in this area would be an enhancement of townscape character and visual interest.								

* Mitigation measures for landscape and visual impacts are embedded in the design. No additional mitigation measures are recommended. Therefore, the residual change/effects are the same as the operation magnitude/effects.

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
AREA OF MIXED CHARACTER ON RICHMOND AVENUE TO SOUTH EAST								
30	Richmond Avenue	Low	Negligible	None	None	**Not significant negative**	**No effect**	**No effect**
● The development will not be visible from Richmond Avenue.								

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual* (long term)	Construction (temporary)	Operation (long term)	Residual* (long term)
DISTANT VIEWS TO SOUTH EAST AND SOUTH								
31	Ballybough Luke Kelly Bridge	Low-Medium	Negligible	Low	Low	**Slight negative**	**Slight positive**	**Slight positive**
● View 31 shows the mixed urban character and quality of Richmond Road towards its eastern end at Ballybough Bridge. The developments in view include a petrol station, one and two storey houses fronting Richmond Road (mostly converted for commercial use), and a number of modern apartment buildings. The tall volume of Block DE would be visible in the distance. It would take its place comfortably in the complex townscape, strengthening the urban character, introducing a building of design and material quality, and contributing to visual interest and legibility.								
32	Clonliffe Road junction with Distillery Road	Medium	Low	Low-Medium	Low-Medium	**Slight negative**	**Slight-Moderate neutral**	**Slight-Moderate neutral**
33	Distillery Road – northern end approaching the Tolka River	Medium	Low	Low-Medium	Low-Medium	**Slight negative**	**Slight-Moderate neutral**	**Slight-Moderate neutral**
● To the south of Richmond Road and the Tolka River, Distillery Road runs towards the city centre, meeting Clonliffe Road beside Croke Park. View 32 is the view north along Distillery Road from Clonliffe Road (400m+ from the site), and View 33 is from a position towards the northern end of Distillery Road approaching the Tolka River. The alignment of the street frames the view towards the site, and in both views the Distillery Lofts apartment building (a converted 19^{th} century distillery) is prominent, marking the historic industrial cluster along the Tolka. There is a notable variety in building typologies, scale and architecture along Distillery Road, particularly along the northern stretch closer to the site (View 33). ● The tall volume of Block DE would be a prominent addition to the views, positioned on the axis of the street, to the side of the historic distillery, up the hillside beyond the Tolka. There is already considerable diversity in development typologies and scale in the views. The contemporary high density residential building would shift the character towards a more urban condition. This is not an inappropriate change in the context (Viewpoint 32 is beside a large city centre stadium, and Viewpoint 33 focusses on an historic industrial zone in which there is precedent for large buildings), and there would be no reduction in visual amenity.								

* Mitigation measures for landscape and visual impacts are embedded in the design. No additional mitigation measures are recommended. Therefore, the residual change/effects are the same as the operation magnitude/effects.

11.5.3 Operational Phase – Landscape Effects

11.5.3.1 Landscape Character and Sensitivity to Change

The *Guidelines for Landscape and Visual Impact Assessment* state that landscape sensitivity should be classified with consideration of 'the particular project or development that is being proposed', and 'the location in question'. Sensitivity of the landscape is determined by two factors:

1. Susceptibility to change: *"This means the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area…) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape policies or strategies"*.
2. Value of the landscape receptor: This can be indicated by designations or, where there are no designations, by judgements based on criteria that can be used to establish landscape value.

The landscape character of the receiving environment is described in Section 11.2 above. The following summarises the key landscape receptors:

- The site itself contains several protected structures, including Richmond House, Brooklawn House and several buildings forming part of St Vincent's Hospital (see Section 11.2.4.1). Each of these buildings is a valued cultural and architectural heritage feature and they are sensitive to change affecting the structures themselves and their context landscapes. Currently these buildings and their environs are in relatively poor condition. Therefore, while sensitive, they could also benefit from landscape change. Additionally, the hospital buildings are removed from the public realm and make limited contribution to the landscape character and visual amenities of the area as experienced by the public.
- Although there are several protected structures on the site, there are no designations (such as Conservation Area or Architectural Conservation Area) affecting the site.
- The site also contains extensive unused areas such as the north field, the lower field and the east field (see Section 11.2.2), several modern buildings (of no cultural/heritage significance) and parking areas, etc.
- The site is zoned Z12 ('institutional land with future development potential'), Z15 ('community and social infrastructure') and Z1 ('sustainable residential neighbourhoods') – see Figure 11.36. The development or redevelopment of the lands is thus acceptable in principle. The site's development is also supported by the DCDP policy on urban consolidation. The site must be recognised as a land use/development asset, being largely unused, only 2.5km walk from the city centre, 750m from both Fairview and Drumcondra urban villages, well served by public open space in the vicinity, and by public transport.
- Richmond Road passing to the south of the site is the spine of a corridor of distinctly urban character. Roadside development ranges from historic bungalows to period houses, modern apartment blocks up to five storeys, small shops and offices, wholesalers, industrial sites, petrol stations, a park and a sports stadium. This diversity creates capacity to accommodate change, and the condition of the streetscape and roadside developments/plots is sub-optimal in places. The site in its current condition makes no positive contribution to the character and visual amenity along Richmond Road, and its

redevelopment has the potential to enhance this important element of the receiving environment.
- Immediately to the west of the site, behind the Richmond Road corridor, is a small light industrial strip and two large zoned open spaces – the Stella Maris F.C. Dublin Port Stadium and the Ierne Social and Sports Club. Together these grounds wrap around the south and west sides of the site's north field. While forming a beneficial open space buffer on the one hand, the sports facilities are also potential receptors of landscape and visual change. The football ground is less sensitive due to the nature of the sport. The Ierne pitch and putt course is more sensitive as the players are more likely to appreciate their surroundings, and likely enjoy the unenclosed, green setting of the golf course.
- To the north of the site are two residential estates, Grace Park Wood (an example of 21st century urban consolidation on former institutional land) and Griffith Court (a mid-20th century estate of detached and semi-detached houses). These estates benefit from the currently unused condition of the north field, and they are susceptible to change on the site. It should be noted that while the alignment of the Grace Park Wood streets frames views south across the site, the houses themselves are perpendicular to this axis. The principal views from the houses (from the front and rear windows and the rear gardens) are therefore to the east or west, i.e. away from the site. The apartment buildings are the exception to this. The same is true for most of the houses in Griffith Court, although there is one row of houses at the southern edge of the estate, which back onto the site boundary.
- To the east of the site is a 19th century residential neighbourhood off Philipsburgh Avenue, comprised of Lomond Avenue, Waverley Avenue, Melrose Avenue and Inverness Road. This is an area of particularly strong character (due to the uniformity of land use and architecture). Inverness Road, which runs parallel to the site's east boundary, is a Residential Conservation Area.

In summary, the site is part of an urban landscape of diverse character, including the mixed use Richmond Road corridor, sensitive 19th and 20th century residential streets and estates of suburban character, and modern mixed and higher density developments. There are several examples of 21st century urban consolidation on previously institutional or industrial sites in the area (e.g. the cluster of Richmond Hall, Weir House, Riverview and the Lofts apartments, Griffith Wood in Marino, and Grace Park Wood). There is a concentration of sports facilities in the area (including the Ierne Social and Sports Club and Dublin Port Stadium adjacent to the site, Tolka Park and Belvedere Rugby Ground). Extensive institutional lands/uses remain, including the site itself. In this diverse receiving environment there is varying sensitivity to the type of development proposed.

Taking the above factors into account, the landscape sensitivity can be classified 'Medium' (definition: *Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in landscape policy at local or county level and the principle management objective may be to consolidate landscape character or facilitate appropriate, necessary change*).

11.5.3.2 Magnitude of Landscape Change

The *Guidelines for Landscape and Visual Impact Assessment* state that the magnitude of landscape change should be classified based on (1) the size or scale of the physical change which would take place in the landscape, (2) the geographical extent over which that change would be perceived, and (3) the duration and reversibility of the landscape effects.

Size/Scale of Change

- At close to 9 ha (the proposed hospital and residential development site, excluding off-site works) the site is large for the urban context (in which development plots are typically smaller).
- Comprising a new hospital building, nine new apartment buildings of up to 13 no. storeys, the refurbishment and re-purposing of five protected structures, and extensive open space, the proposed development is of large scale.

Geographical Extent Over Which the Change Would be Perceived

- The proposed buildings are somewhat removed from the streets/public realm to the south (Richmond Road).
- To the west the public realm and most sensitive receptors are buffered from the site by the Dublin Port Stadium and the Ierne Club. However these open spaces are themselves receptors of change and would experience a high magnitude of change.
- The modest height of the proposed new hospital limits the extent change perceptible to the to the east.
- To the north, the proposed buildings are exposed to view from two neighbouring estates, Grace Park Wood and Griffith Court.
- Additionally, due to the height of the proposed Block DE, which is intended to have a 'landmark' function and status in the townscape, the development would be visible along certain corridors of view - from the south (Distillery Road), and west (along Richmond Road and Clonturk Park from Drumcondra Road).

Duration and Reversibility

- The development would cause a permanent, irreversible change to the landscape, i.e. the transformation of the site from institutional in use, with large areas inaccessible and unoccupied by development, to a high density residential neighbourhood incorporating several re-purposed protected structures alongside a new hospital.

In summary, **the magnitude of landscape change which would result from the development is 'high'** (definition: *Change that is moderate to large in extent, resulting in major alteration to key elements, features or characteristics of the landscape, and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the landscape*).

11.5.3.3 Significance and Quality of Landscape Effects

Measuring the magnitude of change against the landscape sensitivity, **the significance of the landscape effects is predicted to be 'significant'** (EPA definition: *An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment*).

The GLVIA (Section 5.37) states: *"One of the more challenging issues is deciding whether the landscape effects should be categorised as positive or negative. It is also possible for effects to be neutral in their consequences for the landscape. An informed professional judgement should be made about this and the criteria used in reaching the judgement should be clearly stated. They might include, but should not be restricted to:*

- *the degree to which the proposal fits with existing character;*
- *the contribution to the landscape that the development may make in its own right, usually by virtue of good design, even if it is in contrast to existing character…"*

The proposed development is deliberately a departure from the existing character of (most of) its immediate environs. It is driven by the policy of compact growth, the purpose of which is to see the introduction of new buildings of larger scale to previously lower density urban contexts. The Building Height Guidelines, NPF and DCDP 2022-2028 recognise that such change needn't necessarily be (or be considered to be) negative. Developments of scale, that cause change in the landscape character and the composition of views, can be designed with consideration of its context, so that its effects, while significant, are not unduly harmful to the receiving environment.

Table 3 of Appendix 3 of the DCDP 2022 provides a set of criteria which can be used in assessing schemes of high density, to evaluate whether they may be considered to be of high urban design and architectural quality, and would achieve positive placemaking. The proposed development is assessed against the DCDP 2022 criteria below to inform the classification of the proposal's landscape effects as positive, neutral or negative.

Table 11.8 *Assessment of proposal against DCDP Performance Criteria in Assessing Proposals for Enhanced Height, Density and Scale*

Performance Criteria	Assessment
1. To promote development with a sense of place and character… Enhanced density and scale should:	
• respect and/or complement existing and established surrounding urban structure, character and local context, scale and built and natural heritage and have regard to any development constraints,	As a contemporary, high density neighbourhood in an *historically* low density urban environment (albeit with an urban mix of uses along Richmond Road, including industry), the proposal diverts from the established townscape character. This is an unavoidable and not undesirable outcome of compact growth policy, and it can be complementary to the existing urban structure and character. There are several aspects/elements of the proposal that display respect/consideration of the context and the constraints in the area, including: - **The retention, refurbishment and re-use of all buildings of architectural heritage value on the site** (the protected structures in the St Vincent's Hospital complex, Richmond House and Brooklawn House). In addition to improving the condition of the buildings and their environs, by extending the public realm through/across the site, the development would integrate these buildings (which were previously enclosed in institutional grounds, separated from the public realm, and in sub-optimal condition) into the evolved urban structure. The townscape would benefit from the buildings' improved condition and new uses, and the community would benefit from increased exposure to/ appreciation of the site's architectural heritage. - **The setback of buildings from the boundaries** (see graphic below), with the spaces between the boundaries and the buildings densely planted for visual screening.

<table>
<tr>
<td></td>
<td>

- **The stepping down of building height towards boundaries** shared with sensitive neighbouring areas (to the north).
- **The concentration of height adjacent to existing neighbouring open spaces** (e.g. Dublin Port Stadium and Ierne Social and Sports Club), exploiting the opportunity presented by these spaces.
- **The concentration of height closer to the modern, mixed density neighbourhood of Grace Park Wood**.
- **The modest height of the hospital building**, ensuring relatively limited townscape and visual impacts on the Victorian neighbourhood to the east, including the Residential Conservation Area-zoned Inverness Road.

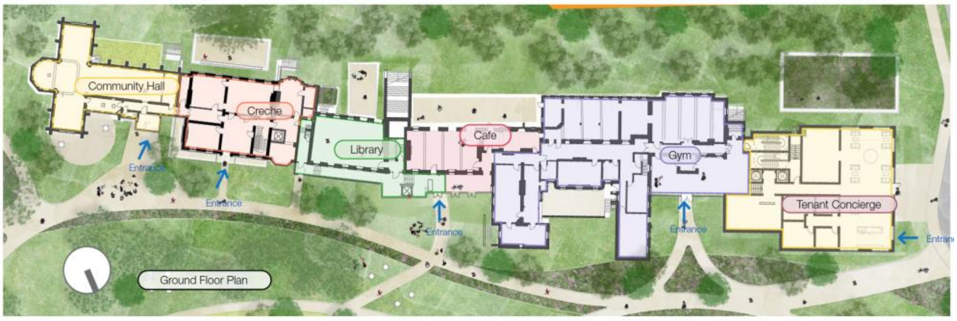
In addition to the constraints, the proposal displays consideration of the opportunities in the urban structure, such as the opportunity to locate new open space and pedestrian and cycle entrances and routes in order to connect to the surroundings.
</td>
</tr>
<tr>
<td>• have a positive impact on the local community and environment and contribute to ‘healthy placemaking’,</td>
<td>

The proposed development includes several ‘placemaking’ elements supporting physical and community health, including:

- **A new plaza off Richmond Road** beside the entrance to the neighbourhood, fronted by Block A, which has retail use in the ground and first floors. The combination of a new open space and active use, contiguous with the street, would create a distinct new ‘place’ in the public realm, substantially improving the environmental quality of Richmond Road in addition to providing new community facilities.

- **A new community hub in the refurbished and re-purposed historic buildings of St Vincent’s Hospital**. This hub of community facilities includes (a) a community hall in the chapel, (b) a creche in the former convent, (c) a café, (d) community library and (e) co-working facility in the former school, and (f) a gym in the former hospital buildings. This large concentration of community uses in the cluster of restored historic buildings, would create a new ‘place’ of high environmental quality and strong identity, with multiple community benefits.
</td>
</tr>
</table>

North Elevation



Ground Floor Plan

- **The new 'central park'**. This substantial linear parkland, comprised of a series of interconnected lawn areas framed by planting, and enclosed by the proposed buildings and restored historic buildings, would constitute a significant new green structure asset and 'place' in the townscape – with positive impact on the environment and community.

• create a distinctive design and add to and enhance the quality design of the area,	The combination of (a) restored historic buildings, (b) a complex of contemporary apartment buildings, and (c) the new hospital, arranged around a generous internal open space network and taking advantage of external open spaces, would create a distinct new neighbourhood with its own character and identity.   The proposed buildings and open space are of a high design and material quality, so that the development's overall effect would be to elevate the quality of the urban environment. This effect would be most pronounced in the Richmond Road corridor where the townscape quality is currently mixed.
• be appropriately located in highly accessible places of greater activity and land use intensity,	The site is located in a long-established inner suburban residential area. It is less than 10 minutes' walk from two urban villages in Fairview and Drumcondra, and within walking/ cycling distance of the city centre. The site has frontage to Richmond Road, which is a mixed use, mixed density street of distinctly urban character. Development along the road ranges from bungalows to period houses, modern apartment blocks up to five storeys, small shops and offices, petrol stations, wholesalers, industrial sites, a park and a sports stadium. In the wider townscape there are historic inner suburbs (e.g. the streets off Philipsburgh Avenue and Marino), later 20th century estates (e.g. Griffith Court), and modern mixed and high density estates (e.g. Grace Park Wood, Griffith Wood on Griffith Avenue). Extensive institutional lands/uses remain, and there is a concentration of sports facilities (including Ierne Social and Sports Club and Dublin Port Stadium adjacent to the site, Tolka Park and Belvedere Rugby Ground). Considering the diverse and evolving character of Richmond Road and the wider area, and taking account of the site's accessible location, the proposed development is appropriately located.

• have sufficient variety in scale and form and have an appropriate transition in scale to the boundaries of a site/adjacent development in an established area,	The proposed development is ambitious in density/scale, but the arrangement of height responds to both the sensitivities and the opportunities presented by the surrounding lands/development. For example: - At its **interface with the northern boundary, facing the Grace Park Wood and Griffith Court estates**, the buildings (Blocks F and G) step down to four storey volumes closest to the boundary. Through a series of steps they rise to 10 no. and nine storeys respectively where they front the 'central park' internal to the site. - **The tallest building, a volume of Block DE, is located in a corner of the site adjacent to the Ierne pitch and putt golf course and the Dublin Port Stadium**. Both of these are zoned open spaces (i.e. they will remain open space), and they form a wide green space buffer between the development and any and sensitivities (other than the sports grounds themselves*) to the west and south west. These variations in height, responding to the surroundings, also create visual interest and identity (a) within the neighbourhood itself, and (b) in the wider townscape – thereby contributing to legibility.  * The development would cause a significant increase in built/visual enclosure of the adjacent sports grounds (refer to Viewpoints 7 and 12), and most likely a perception of negative visual impact by the pitch-and-putt course users in particular (who, due to the nature of the sport, may be more aware of their surroundings than soccer players). It must be recognised that these are *urban* sports facilities and that (a) their currently unenclosed, green environs (due to the absence of development on much of the site) is not sustainable, (b) the visibility of development around such facilities is not inappropriate, and (c) the amenities are currently enjoyed by a small cohort of the population. If the lands are developed, the sports grounds will function as a spatial buffer for the buildings, *and as a visual amenity for the many new residents overlooking the facilities*. These benefits counterbalance the negative effect on visual amenity that may be felt by the pitch-and-putt course users. Views/visual amenity experienced at the Ierne Club will be changed, but the club's value as an urban landscape resource will be heightened.
• not be monolithic and should have a well considered design response that avoids long slab blocks,	The proposal employs buildings of linear footprint in response to a variety of factors including (a) the shape of the site, (b) the footprint of the historic elements of St Vincent's Hospital, and (c) the design objective for the buildings to enclose/define a 'central park'. In order to avoid 'long slab blocks', each building is vertically divided into a series of volumes, with the volumes distinguished from each other by recesses and variations in façade material/treatment and steps in height. The photomontages show that this disaggregation of form and articulation of the facades succeed in avoiding monolithic massing and reducing the perceived scale of the buildings. The use of brick, which is finely textured and naturally coloured, as the predominant material, contributes further to the buildings' integration into the landscape.

	 
• ensure that set back floors are appropriately scaled and designed.	The set back floors in Blocks DE, F and G (pictured below) are deep so that (a) they are effective when the buildings are viewed from close-up, and (b) the tallest elements are well removed from the sensitive boundaries. 
2. To promote appropriate legibility… Enhanced density and scale should:	
• make a positive contribution to legibility in an area in a cohesive manner, • reflect and reinforce the role and function of streets and places and enhance permeability.	The proposed development would improve the character, quality/condition and permeability of the Richmond Road and environs. Along its two stretches of frontage to Richmond Road the improvements at the site interface (see cell below) would improve the condition of the streetscape, better reflecting the status of the street in the urban structure. Additionally, the removal of long stretches of high concrete wall from the site boundary would improve the visual permeability and legibility of the area. Importantly, the development would create public pedestrian and cycle routes north to south across the site, connecting Grace Park Wood and Griffith Court to Richmond Road via public routes across the site. The new entrances and routes across the site would result in a substantial improvement in permeability in the area, benefitting the wider community.

<table>
<tr><td colspan="2">3. To provide appropriate continuity and enclosure of streets and spaces… Enhanced density and scale should:</td></tr>
<tr><td>• enhance the urban design context for public spaces and key thoroughfares,

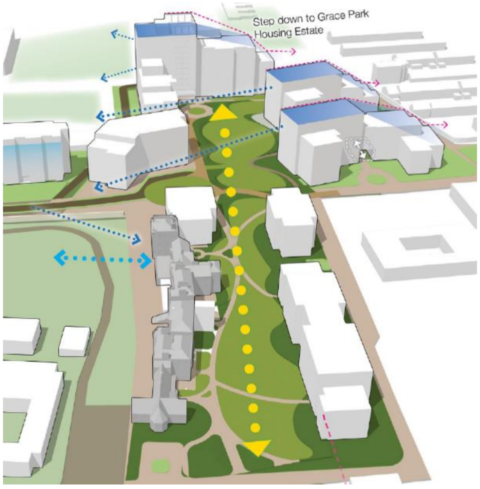
• provide appropriate level of enclosure to streets and spaces,

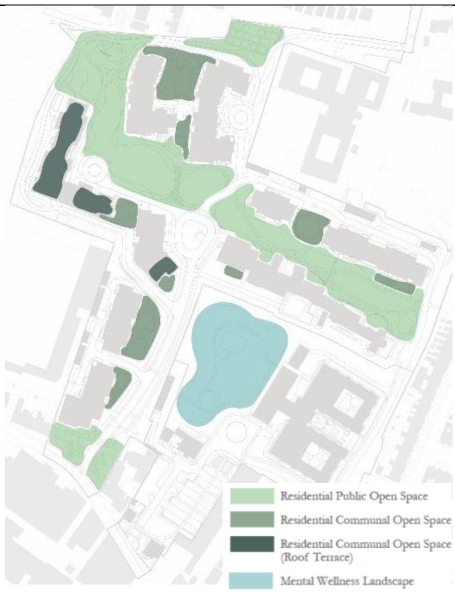
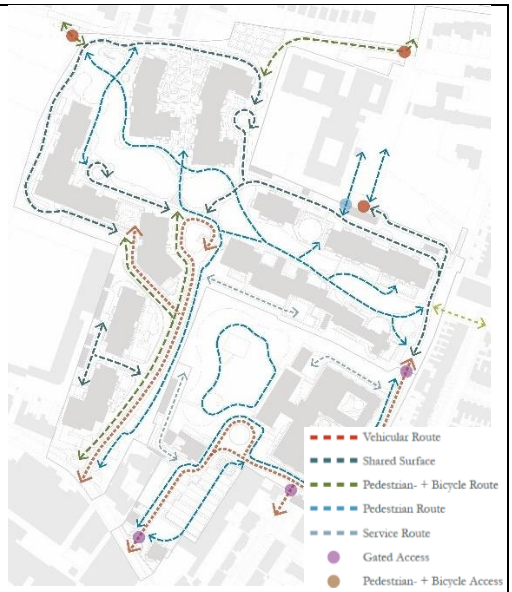
• provide adequate passive surveillance and sufficient doors, entrances and active uses to generate street-level activity, animation and visual interest.</td>
<td>The site has two stretches of frontage to Richmond Road:

- Along Richmond Road in front of the existing Crannog hospital, a new plaza is proposed, incorporating the main entrance to the new neighbourhood. The seven storey Block A is set back from the street behind the plaza, with retail use in a projecting two storey volume. This would activate the plaza and the street, and the five set-back levels above would provide passive surveillance. The ‘urban design context’ of Richmond Road would be considerably improved along the affected stretch. With Block A set well back from the street there would be no undue increase in built enclosure.

The existing and proposed views from Richmond Road along the Crannog Hospital frontage are shown below, illustrating the transformative effect of the development on this stretch of the streetscape.

</td></tr>
</table>

	- At the former **Richmond House entrance**, relatively limited intervention is proposed. Brooklawn House, beside the entrance, would be refurbished, and the boundary wall either side of the gate would be replaced by a hedge and railing. This would improve the site-street interface, and thereby the ‘urban design context’ of that stretch of Richmond Road. No new buildings are proposed around the Richmond House entrance, so there would be no change to the degree of enclosure.
• provide appropriate level of enclosure to streets and spaces, • not produce canyons of excessive scale and overbearing of streets and spaces, • generally be within a human scale and provide an appropriate street width to building height ratio of 1:1.5 – 1:3,	In contrast, within the site, the ‘central park’ is proposed to be enclosed by buildings ranging in height from four to 13 no. storeys (with the building height modulated depending on the varying width of the park). A high degree of built enclosure is thus a characteristic of this space. However: (a) at 50m+ wide in places a ‘canyon of excessive scale’ would be avoided, (b) a series of usable amenity spaces would be provided (a ‘market space’, a kick-about area, play spaces, outdoor seating areas for the café and community hall, etc.), and (c) a high level of visual amenity would be provided to the overlooking apartments.  
4. To provide well connected, high quality and active public and communal spaces… Enhanced density and scale should:	
• integrate into and enhance the public realm and prioritises pedestrians, cyclists and public transport, • be appropriately scaled and distanced to provide appropriate enclosure/	Among the key features/characteristics of the proposed are (a) the provision of a connected network of high quality public and communal open spaces within the site, (b) the provision of pedestrian and cycle routes throughout the open space network, and (c) the integration of the internal open space and movement network with the external public realm. The development would thereby expand the public realm through/across the site (improving permeability/navigability for pedestrians and cyclists in the wider area), and improve the quality of the public realm overall, including by the provision of new assets such as the plaza on Richmond Road and the central park.

exposure to public and communal spaces, particularly to residential courtyards, • provide for people friendly streets and spaces.	
Items 5-8 and 10 of the DCDP Performance Criteria in Assessing Proposals for Enhanced Height, Density and Scale are not directly relevant to landscape/townscape and visual amenity. The proposal is assessed against those criteria elsewhere in the application documents.	
9. To protect historic environments from insensitive development… Enhanced density and scale should:	
• not have an adverse impact on the character and setting of existing historic environments including Architectural Conservation Areas, Protected Structures and their curtilage and National Monuments… • assess potential impacts on key views and vistas related to the historic environment.	Both Richmond House and Brooklawn House would be refurbished for re-use as staff/administration facilities for the new St Vincent's Hospital. As elements of the townscape and visual resources, the condition of both buildings would be substantially improved, as would the condition of their immediate environs. Therefore, the development's impacts on these buildings would be entirely positive. The more significant impacts would be to the historic elements of the St Vincent's Hospital complex. While the modern, non-protected elements of the hospital complex would be removed (see Chapter 13 / Volume 4 for a detailed assessment of the proposed demolition and impacts), the protected structures would be refurbished and re-purposed as a hub of community facilities, including (a) a community hall in the chapel, (b) a creche in the former convent, (c) a café, (d) community library and (e) co-working facility in the former school, and (f) a gym in the former hospital buildings.  The condition of the buildings and their immediate environs would be substantially improved. More importantly, their context would be altered – from hospital/institutional environment in relatively poor condition, to new, high quality residential neighbourhood. This would include an increase in the density and height of built form surrounding the historic buildings, and they would be screened from view in certain views (e.g. from positions to the south west, west and north west (refer to Viewpoints 7, 12, 18). Their visibility from the wider townscape surrounding the site would thus be reduced, but it should be recognised that these views cannot be considered 'key views' and they are experienced by a small cohort of the community. Counterbalancing this effect would be the extension of the public realm through the site, incorporating the buildings themselves (in their improved condition) into the public realm. This would expose them (their exteriors and interiors) to a larger number of people, allowing for greater appreciation of their architecture. As both heritage and landscape/visual assets, their value would be increased.

In summary, based on the analysis of the proposal against the relevant criteria of Table 3 of Appendix 3 of the DCDP 2022, the landscape effects of the proposed development can be classified as positive.

11.6 REMEDIAL AND MITIGATION MEASURES

11.6.1 Construction Phase

The Outline Construction Environmental Management Plan by OCSC (dated March 2023) submitted with the planning application states that perimeter hoarding will be erected around the site and identifies additional site management measures which would mitigate the visual effects of construction to some extent. However, some negative landscape and visual effects are unavoidable in the construction process, which is inherently unsightly.

Given the importance of the existing trees to be retained on site, particular attention should be paid during construction to the tree protection and monitoring measures recommended in the Tree Protection Strategy, Appendix III of the Arboricultural Assessment, Arboricultural Impact and Tree Protection Report prepared by CMK Horticulture and Arboriculture Ltd.

No additional measures are proposed for the mitigation of landscape and visual impacts during construction.

11.6.2 Operational Phase

The proposed development is the culmination of a considered design process, weighing the development opportunity of the strategic land resource and certain characteristics of the context (e.g. the mixed use urban character of Richmond Road, the buffering effect of the open space to the west of the site, etc.) against the sensitivities which also exist (e.g. the lower density residential neighbourhoods to the north and east). The proposal takes account of and responds to its varied context.

The proposal was amended following receipt of the DCC LRD Opinion, which requested justification of the proposed building heights specifically in relation to sensitive receptors in the receiving environment. These receptors are the neighbouring residential estates to the north. To reduce/mitigate the visual effect of the development on these receptors (e.g. Viewpoints 21-25), the height of Block F has been reduced by one floor, from 10 no. to nine storeys.

It is unavoidable that a high density development on a site of close to 9 ha in a mixed but predominantly low density urban area will have some significant effects on the landscape and views. The assessment has found that the majority of the receiving environment would experience positive or neutral effects. Only at two locations, Viewpoint 23 (Grace Park Close) and Viewpoint 25 (Griffith Court) would a negative visual effect be experienced. These effects are already mitigated by measures embedded in the design, and could only be excluded completely by a substantial reduction in scale of several of the proposed buildings.

Given (a) the weight of positive effects identified for the rest of the receiving environment, (b) the demonstrably high urban design and architectural quality of the proposal and its potential placemaking effects (as indicated by the analysis in Table 11.8), (c) the site's strategic urban location, and (d) the policy of compact growth, such a reduction in scale is not recommended. Therefore no mitigation measures are recommended additional to those already incorporated in the design.

11.7 MONITORING OR REINSTATEMENT

No reinstatement measures are required in respect of potential landscape or visual impacts.

11.8 RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT

11.8.1 Construction Phase

During construction the site and immediate environs would be heavily disturbed by construction activities and the incremental growth of the buildings on site. This would have a negative effect on views/visual amenity, and on landscape character locally (a large part of the landscape being in a disturbed condition).

The significance and quality of the construction phase effects on each viewpoint are summarised in Table 11.9 below. The most significantly affected views would be those from nearby to the north (Grace Park Wood and Griffith Court estates) and west (the Ierne Sports and Social Club). The effects would reduce with increasing distance from the site.

11.8.2 Operational Phase – Visual Effects

No mitigation measures (additional to the embedded mitigation in the design) have been recommended. Therefore, the residual effects on individual viewpoints and the landscape character areas they represent are as described in Table 11.7. The effects on the viewpoints are summarised in Table 11.9 below.

Table 11.9 *Assessment of visual effects - summary*

No.	Viewpoint Location	Viewpoint Sensitivity	Magnitude of Change			Significance of Visual Effects		
			Construction (temporary)	Operation (long term)	Residual (long term)	Construction (temporary)	Operation (long term)	Residual (long term)
RICHMOND ROAD IN THE VICINITY OF THE SITE								
1	Richmond Rd at Convent Ave junction	Medium	Low	Low	Low	**Not significant negative**	**Slight neutral**	**Slight neutral**
2	College Ave approaching St Vincent's entrance	Low-Medium	Low	Low	Low	**Not significant negative**	**Slight neutral**	**Slight neutral**
3	Richmond Rd approaching Richmond House entrance	Medium	Medium	Low-Medium	Low-Medium	**Slight negative**	**Moderate positive**	**Moderate positive**
4	Richmond House entrance/avenue	Medium	High	Medium	Medium	**Moderate negative**	**Moderate positive**	**Moderate positive**
5	Richmond Rd opposite Crannog entrance	Low	High	Very High	Very High	**Moderate negative**	**Significant positive**	**Significant positive**
6	Richmond Rd approaching Crannog frontage from the west	Medium	Medium	High	High	**Slight negative**	**Moderate positive**	**Moderate positive**
7	Richmond Rd to west of site	Medium	Low	Low	Low	**Not significant negative**	**Slight positive**	**Slight positive**
MIXED DENSITY RESIDENTIAL AREA TO SOUTH WEST OF SITE								
8	Waterfall Ave	Medium	Medium	High	High	**Moderate negative**	**Significant positive**	**Significant positive**
9	Grace Park Ave	Medium	Low	Low-Medium	Low-Medium	**Slight negative**	**Slight neutral**	**Slight neutral**
RICHMOND ROAD TO WEST OF THE SITE								
10	Richmond Road at Grace Park Road junction	Medium	Negligible	Low	Low	**Not significant negative**	**Slight neutral**	**Slight neutral**
11	Richmond Road to west	Medium	Negligible	Low-Medium	Low-Medium	**Not significant negative**	**Slight neutral**	**Slight neutral**
DRUMCONDRA ROAD								
12	Drumcondra Rd at Richmond Rd junction	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
13	Drumcondra Rd at Clonturk Park junction	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
14	Drumcondra Rd at Ormond Rd junction	Medium	Negligible	None	None	**Not significant negative**	**No effect**	**No effect**

CLONTURK PARK AND GRACE PARK OPEN SPACE								
15	Clonturk Park	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
16	Grace Park public open space	Medium	Low	Medium	Medium	**Slight negative**	**Moderate neutral**	**Moderate neutral**
IERNE SOCIAL AND SPORTS CLUB AND GRACE PARK GARDENS								
17	Ierne Social and Sports Club parking area	Medium-High	Medium	High	High	**Moderate negative**	**Significant neutral**	**Significant neutral**
18	Grace Park Gardens	High	Negligible	Low	Low	**Slight negative**	**Slight neutral**	**Slight neutral**
GRACE PARK ROAD TO NORTH OF SITE								
19	Grace Park Rd at entrance to St Joseph's/Grace Park Wood estate	Medium-High	Medium	Medium	Medium	**Moderate negative**	**Significant neutral**	**Significant neutral**
20	Grace Park Rd at junction with Grace Park Terrace	Medium	Negligible	Negligible	Negligible	**Not significant neutral**	**Not significant neutral**	**Not significant neutral**
GRACE PARK WOOD ESTATE								
21	Grace Park View (road) and open space adjacent to site	Medium-High	Medium	Medium-High	Medium-High	**Moderate negative**	Moderate neutral	Moderate neutral
22	Grace Park Grove – mid distant view	Medium-High	Medium	Medium-High	Medium-High	**Moderate negative**	**Moderate neutral**	**Moderate neutral**
23	Grace Park Close – close-up view	Medium-High	Medium	High	High	**Moderate negative**	**Significant negative**	**Significant negative**
24	Grace Park Close – distant view	Medium-High	Medium	Medium-High	Medium-High	**Moderate negative**	**Moderate neutral**	**Moderate neutral**
GRIFFITH COURT								
25	Griffith Court – western street	Medium-High	Low-Medium	Medium	Medium	**Moderate negative**	**Moderate negative**	**Moderate negative**
26	Griffith Court – beside entrance to St Vincent's Fairview Community Unit	Medium	Low	Low	Medium	**Slight negative**	**Slight neutral**	**Slight neutral**
VICTORIAN NEIGHBOURHOOD OFF PHILIPSBURGH AVENUE EAST OF THE SITE								
27	Philipsburgh Avenue junction with Lomond Avenue	Medium-High	Negligible	Negligible	Negligible	**Not significant neutral**	**Not significant neutral**	**Not significant neutral**
28	Lomond Avenue approaching post office and east site boundary	Medium	Low	Medium	Medium	**Slight negative**	**Moderate positive**	**Moderate positive**
29	Melrose Avenue	High	Negligible	None	None	**Not significant negative**	**No effect**	**No effect**
AREA OF MIXED CHARACTER ON RICHMOND AVENUE TO SOUTH EAST								
30	Richmond Avenue	Low	Negligible	None	None	**Not significant negative**	**No effect**	**No effect**

DISTANT VIEWS TO SOUTH EAST AND SOUTH								
31	Ballybough Luke Kelly Bridge	Low-Medium	Negligible	Low	Low	**Slight negative**	**Slight positive**	**Slight positive**
32	Clonliffe Road junction with Distillery Road	Medium	Low	Low-Medium	Low-Medium	**Slight negative**	**Slight-Moderate neutral**	**Slight-Moderate neutral**
33	Distillery Road – northern end approaching the Tolka River	Medium	Low	Low-Medium	Low-Medium	**Slight negative**	**Slight-Moderate neutral**	**Slight-Moderate neutral**

11.8.3 Operational Phase – Landscape Effects

No mitigation measures (additional to the embedded mitigation in the design) have been recommended. Therefore, the residual effects are as described in Section 11.4.3 (overall landscape effects). The assessment is summarised below.

11.8.3.1 Landscape Character and Sensitivity to Change

The site contains several protected structures. These buildings are sensitive to change affecting the buildings and their contexts, but currently they are in relatively poor condition and could benefit from improvement. There are no designations (such as Conservation Area or Architectural Conservation Area) affecting the site.

The site also contains extensive unused areas, several modern buildings of no cultural heritage significance, parking areas, etc. The lands are zoned Z12 ('institutional land with future development potential'), Z15 ('community and social infrastructure') and Z1 ('sustainable residential neighbourhoods'). Therefore the development or redevelopment of the lands has been deemed acceptable in principle (the DCDP having been subject to Strategic Environmental Assessment). The site is 2.5km walk from the city centre, 750m from both Fairview and Drumcondra urban villages, well served by public transport and by public open space in the vicinity. Therefore, given the policy of urban consolidation, the site must be considered a land use/development asset of strategic importance.

The site is part of an urban landscape of diverse character, including the mixed use Richmond Road corridor, sensitive 19th and 20th century residential streets and estates of suburban character, and modern mixed and higher density developments. There are several examples of 21st century urban consolidation on previously institutional or industrial sites in the area (e.g. the cluster of Richmond Hall, Weir House, Riverview and the Lofts apartments, Griffith Wood in Marino, and Grace Park Wood). There is a concentration of sports facilities in the area (including the Ierne Social and Sports Club and Dublin Port Stadium adjacent to the site, Tolka Park and Belvedere Rugby Ground). Extensive institutional lands/uses remain, including the site itself. In this diverse receiving environment there is varying sensitivity to the type of development proposed.

Taking the above factors into account, the landscape sensitivity can be classified 'Medium' (definition: *Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong, or has evidence of alteration, degradation or erosion of elements and characteristics. The landscape character is such that there is some capacity for change. These areas may be recognised in landscape policy at local or county level and the principle management objective may be to consolidate landscape character or facilitate appropriate, necessary change*).

11.8.3.2 Magnitude of Landscape Change

- At close to 9 ha (the proposed hospital and residential development site, excluding off-site works) the site is large for the urban context (in which development plots are typically smaller).
- Comprising a new hospital building, nine new apartment buildings of up to 13 no. storeys, the refurbishment and re-purposing of five protected structures, and extensive open space, the proposed development is of large scale.

- The proposed buildings are somewhat removed from the streets/public realm to the south (Richmond Road). The modest height of the proposed new hospital limits the extent change perceptible to the to the east.
- To the west the public realm and most sensitive receptors are buffered from the site by the Dublin Port Stadium and Ierne Club. However these open spaces are themselves receptors and would experience a high magnitude of change.
- To the north, the proposed buildings are exposed to view from two neighbouring estates, Grace Park Wood and Griffith Court.
- Additionally, due to the height of the proposed Block DE, which is intended to have a 'landmark' function and status in the townscape, the development would be visible in certain long distance views - from the south (Distillery Road), and west (along Richmond Road and Clonturk Park from Drumcondra Road).
- The development would cause a permanent, irreversible change to the landscape, i.e. the transformation of the site from institutional in use, with large areas inaccessible and unoccupied by development, to a high density residential neighbourhood incorporating several re-purposed protected structures, alongside a new hospital.

In summary, **the magnitude of landscape change which would result from the development is 'high'** (definition: *Change that is moderate to large in extent, resulting in major alteration to key elements, features or characteristics of the landscape, and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the landscape*).

11.8.3.3 Significance and Quality of Landscape Effects

Measuring the magnitude of change against the landscape sensitivity, **the significance of the landscape effects is predicted to be 'significant'** (EPA definition: *An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment*).

The 'significant' classification reflects (a) the scale of the site and the proposed development, and (b) the fact that the proposal is deliberately a departure from the existing character of (most of) its immediate environs. It is driven by the policy of compact growth, the purpose of which is to see the introduction of new buildings of larger scale to previously lower density urban landscapes. The Building Height Guidelines, NPF and DCDP recognise that such change needn't necessarily be (or be considered to be) negative. Developments of density and scale that cause change in landscape character and the composition of views can be designed with consideration for their context, so that their effects, while significant, are not unduly harmful to the receiving environment.

To inform the classification of the effects as positive, neutral or negative, the proposal has been assessed against the relevant criteria in Table 3 of Appendix 3 of the DCDP 2022. The assessment found that overall, the proposed development is of a high urban design and architectural quality.

Positive Landscape Effects

An important part of the receiving environment, and certain key characteristics of the landscape, would experience positive effects.

- The most significant would be the effects on the Richmond Road corridor, in which the urban character would be strengthened and the quality/condition of the built environment substantially enhanced. The introduction of the new plaza at the site entrance, activated by the retail frontage to Block A, would be a significant positive addition to the public realm. Both of the protected structures visible from the street (Richmond House and Brooklawn House) would be restored and their immediate environs enhanced, with benefit to the historic buildings themselves and the areas from which they are visible.

- Another significant positive effect would be the re-purposing of the historic buildings of St Vincent's Hospital as a hub of community facilities. This includes (a) a community hall in the chapel, (b) a creche in the former convent, (c) a café, (d) community library and (e) co-working facility in the former school, and (f) a gym in the former hospital buildings. This concentration of community uses in the restored historic buildings would create a new 'place' of high environmental quality and strong identity, benefitting the new neighbourhood and the wider landscape and community.
- The proposed 'central park', comprised of a series of interconnected lawn areas framed by planting - and enclosed/defined by the new apartments and restored historic buildings - would add a significant new green infrastructure asset to the urban landscape. A key characteristic of this space is its connectivity to the external public realm, making the park available to the public as both open space and movement corridor.
- This would contribute to the development's significant positive impact on the permeability of the landscape. Currently, the large site is closed off from the public realm and is a major impediment to (efficient) pedestrian and cycle movement in the area. The opening of entrances in the north and south boundaries, coupled with the provision of walking and cycling routes through linear open spaces crossing the site, would substantially improve permeability in the area.
- Another positive landscape effect would be the substantial increase in tree cover on the site despite the introduction of the new buildings.
- The Arboricultural Assessment, Arboricultural Impact and Tree Protection Report prepared by CMK Horticulture and Arboriculture Ltd identified 277 no. trees on the site. The proposed development would require the removal of 122 no. trees (in addition to 17 no. trees which were deemed unsuitable for retention/requiring removal). A total of 420 no. new trees are proposed to be planted. There would thus be a significant net gain in tree cover on the site.

Neutral Landscape Effects

In addition to the positive effects, certain parts of the receiving environment are predicted to experience significant but neutral landscape effects. This includes the Ierne Social and Sports Club and Dublin Port Stadium to the west of the site. The proposed Blocks B, C and particularly DE would be prominent additions to views from these sports grounds, increasing their built/visual enclosure and shifting their character towards an urban condition.

Design measures have been taken to ensure that the buildings are not unsightly, including (a) the disaggregated form (with recesses and steps in height to reduce the massing), (b) highly articulated facades and a high quality materials palette, (c) the texture and natural colours of the brick, and (d) the rooftop gardens. These measures would combine with aspects of the context (the open space of the golf course and football ground and the existing trees) to integrate the building (Block DE) into the landscape despite its large scale.

However, it must be assumed that the receptors of this change (Ierne club members/ pitch-and-putt players) appreciate the unenclosed green environs of the facility, and they are likely to perceive the effects of the development as negative. While that response is natural and valid, it must also be recognised that (a) the golf course is an urban facility, close to the centre of the city), (b) it is a substantial open space in itself (generating its own landscape/visual amenity), and (c) it is enjoyed by a small cohort of the community.

The users' (assumed) preference for keeping the adjacent lands (the site) free from development, or developed at lower intensity, must be weighed against considerations such as (a) compact growth policy, and (b) that the golf course creates a favourable context and amenity potential for the site as a residential land use asset.

If the lands are developed, the golf course and football ground will function as a spatial buffer for the large buildings, and as a visual amenity for the many new residents overlooking the course and pitch. These benefits counterbalance the negative effect on visual amenity that may be felt by the golf course users. Views/visual amenity experienced at the Ierne Club will be changed, but its value as a landscape and visual resource will be heightened. Hence the classification of the effects as significant but neutral.

Negative Landscape Effects

Only at two locations, i.e. Viewpoint 23 (Grace Park Close) and Viewpoint 25 (Griffith Court) have negative visual effects been predicted. In these areas/views the occupation/infilling of the site by built form, the screening of landscape features currently visible due to the north field's vacant condition (e.g. St Vincent's Hospital, Croke Park and the distant Dublin Mountains), and the general increase in built/visual enclosure would constitute a loss of visual amenity.

It must be recognised that those features that would be screened are visible only because the site is largely unused/undeveloped. In the central urban location this scenario is unsustainable and unrealistic to maintain. Any sustainable residential development on the site will result in *some* loss of visual amenity to the nearest parts of the neighbouring estates.

The photomontages show that the proposal seeks to limit and compensate for the loss of visual amenity through (a) responsive design (the positioning of the buildings away from the boundary, the stepping down in height towards the boundary, and the façade design and materials), and (b) the provision of open space continuity and generous screening vegetation.

It should also be noted that the Grace Park Wood houses are all aligned east-west. Therefore, the principle views from the houses (from front and rear windows, and rear gardens) are to the east or west, and not towards the site. The effects of the development will thus be experienced mainly on the estate roads and open space (as illustrated by the photomontages) and not from within the homes.

The exception to this is the Grace Park Wood apartment building, in which the apartments and balconies face the site - Block DE specifically. In recognition of this, Block DE is set back from the boundary behind an area of open space (part of the central park). This means that the new building would be 68.7m distant from the Grace Park Wood balconies. Therefore, while Block DE would be a prominent addition to views, it would not be overbearing. Additionally, the large number of new trees in the open space between the buildings would soften Block DE's presence.

Summary

Considering (a) the weight of positive landscape effects identified for a large part of the receiving environment, (b) the demonstrably high urban design, architectural and landscape design quality of the proposal, (c) the consideration of the landscape context and sensitivities evident in the embedded mitigation, (d) the site's strategic urban location, and (d) the national policy of compact growth, the landscape effects can be classified positive overall.

11.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

The permitted and proposed projects identified for consideration of potential cumulative impacts are set out in Chapter 2, Section 2.8 of this EIA Report. A review of these projects has been undertaken. The review identified that (1) the proposed Richmond Road SHD scheme (ABP Ref. 312352-21) and (2) the proposed Leydens LRD scheme (LRD6006/23-S3) have some potential to combine with the subject proposal to cause cumulative landscape and visual effects.

The Leydens LRD site is across Richmond Road from the subject site and the Richmond Road SHD site lies just beyond that (approximately 70m from the subject site). The two schemes are conceived as phases 1 and 2 of a new high density neighbourhood on part of the former industrial/commercial zone between Richmond Road and the Tolka River. Between them they are comprised of four apartment blocks of up to ten storeys (with two blocks – Leydens B and C - connected by a shared ground floor/undercroft). The buildings include a significant quantity of retail, community and cultural uses in the ground floors.

Figure 11.60 *Aerial view of the proposed Leydens LRD and Richmond Road SHD schemes to the south of the subject site across Richmond Road (Source: https://leydenslrd.ie/gallery)*

To inform consideration of potential in combination effects, massing models of the Richmond Road SHD and Leydens LRD schemes were inserted into the photomontages produced for this assessment. Nine of the 33 no. views (Viewpoints nos. 03, 06, 07, 10, 16, 19, 31, 32, 33) would be affected by 'in combination' effects.

'Cumulative views' for these viewpoints have been included in the book of photomontages provided under separate cover (Volume 3 of the EIAR).

The area most significantly affected by cumulative effects would be the stretch of Richmond Road approaching and passing by the site from both sides (east and west). People travelling along the road would pass in between two new high density residential developments, and together they would change the character of views in this area, and the townscape character of the Richmond Road corridor. This area includes a row of houses opposite the Leydens LRD site and just to the west of the existing Crannog day care hospital (where the entrance plaza in front of Block A is proposed as part of the subject application). The following should be noted:

- <u>The proposed development's contribution to this change would be much less than the Leydens LRD scheme</u>, which has buildings positioned along the street frontage (see **Figures 11.60** and **11.61**). In contrast, the proposed Block A is set well back from the street behind a new plaza. Additionally, Block A is seven storeys tall (stepping up from a two storey retail volume fronting the plaza), whereas the Leydens LRD buildings are up to nine storeys along the street front.
- <u>The change is not inappropriate</u>. For well over 100 years Richmond Road has been a mixed use street of urban character (see **Figure 11.7**), fronted by a wide variety of building types, scale and architecture. The further evolution of the Richmond Road corridor to incorporate 21st century high density development is appropriate given the street's history and character and its central urban location (see **Figure 11.2**).

Figure 11.61 *The cumulative photomontage for Viewpoint 06 showing a proposed Leydens LRD building to the right of Richmond Road and Block A of subject proposal to the left, set back behind the entrance plaza. Note the already mixed, urban character of Richmond Road*

The other views (in addition to views along Richmond Road) potentially materially affected by cumulative impacts are the views from the south, i.e. Viewpoints 32 and 33 on Distillery Road. In these views the Leydens LRD site lies *between* the viewpoint and the subject site, and the Leydens LRD Blocks B and C would screen the proposed development from view. The Leydens LRD would effectively negate the proposed development's visual impact on these viewpoints.

Figure 11.62 *The cumulative photomontage for Viewpoint 33, showing the Leydens LRD blocks in front of the proposed development, effectively negating the proposed development's visual impact*

CHAPTER 12

ARCHAEOLOGY AND CULTURAL HERITAGE

awnconsulting
A Trinity Consultants Company

CHAPTER 12 CONTENTS

12.0 ARCHAEOLOGY AND CULTURAL HERITAGE

12.1 INTRODUCTION

IAC Archaeology (IAC) has prepared this chapter to assess the effect, if any, on the archaeological and cultural heritage resource of the proposed St Vincents Hospital Fairview Redevelopment, Dublin 3 (Figure 12.1, ITM 716848, 736613).

This study determines, as far as reasonably possible from existing records, the nature of the archaeological and cultural heritage resource in and within the study area of the proposed development using appropriate methods of assessment. The study area is defined as an area measuring 250m from the proposed development site.

Desk-based assessment is defined as a programme of study of the historic environment within a specified area or site that addresses agreed research and/or conservation objectives. It consists of an analysis of existing written, graphic, photographic, and electronic information in order to identify the likely heritage assets, their interests and significance and the character of the study area, including appropriate consideration of the settings of heritage assets (CIfA 2014).

This leads to the following:

- Determining the presence of known archaeological and cultural heritage assets that may be affected by the proposed development;
- Assessment of the likelihood of finding previously unrecorded archaeological remains during the construction programme;
- Determining the effect upon the setting of known architectural and cultural heritage sites in the surrounding area; and
- Suggested mitigation measures based upon the results of the above research.

The study involved detailed interrogation of the archaeological and historical background of the proposed development area. This included information from the Record of Monuments and Places of County Dublin, the Dublin City Development Plan 2022-2028, the topographical files of the National Museum of Ireland, and cartographic and documentary records. Inspection of the aerial photographic and satellite imagery coverage of the proposed development held by the Ordnance Survey, Bing Maps, and Google Earth has also been carried out. A field inspection was carried out in an attempt to identify any known archaeological, architectural and cultural heritage sites and previously unrecorded features, structures, and portable finds within the proposed development area.

An effects assessment and a mitigation strategy have been prepared. The effect assessment is undertaken to outline potential likely significant effects that the proposed development may have on the cultural heritage resource, while the mitigation strategy is designed to avoid, reduce, or offset such adverse effects (where required).

Architectural Heritage is assessed fully within Chapter 13 (Architectural Heritage) of this EIAR and is cross-referenced where applicable. The chapter includes a full assessment of the historic buildings and structures at St Vincent’s Hospital, an inventory and condition survey of same and conservation reports for Brooklawn, Richmond House, historic boundaries and garden walls and an inventory for St Teresa’s Ward and Auditorium. Chapter 13 has been fully reviewed in order to remove the replication of information between the two assessments and to ensure all sensitive historic sensors have been assessed. Chapter 13 includes appraisals of the protected structures on site, their curtilage and the proposed demolitions. These appraisals have informed the design of the proposed development in relation to the protected structures and are supposed by detailed conservation strategies.

Chapter 11 (Landscape and Visual) of the EIAR comprises the assessment of Landscape and Visual impacts and this chapter has been fully reviewed in relation to potential setting impacts on cultural heritage sites. Visual impacts have been categorised based on verified montages. This study has influenced the development of the proposed development in relation to the landscaping proposals and the retention of historic trees.

12.1.1 Definitions

In order to assess, distil and present the findings of this study, the following definitions apply:

'Cultural Heritage' where used generically, can be an over-arching term applied to describe any combination of archaeological, architectural, and cultural heritage features, where the term:

'Archaeological heritage' is applied to objects, monuments, buildings or landscapes of an (assumed) age typically older than AD 1700 (and recorded as archaeological sites within the Record of Monuments and Places).

'Cultural heritage', where used specifically, is applied to other (often less tangible) aspects of the landscape such as historical events, folklore memories and cultural associations.

12.2 METHODOLOGY

Research for this assessment was undertaken in three phases. The first phase comprised a paper survey of all available archaeological, architectural, cultural, historical and cartographic sources. The second phase involved a geophysical survey and a programme of site investigation monitoring within the proposed development area. The third phase involved a field inspection of the site.

12.2.1 Paper Study

The following sources were consulted as part of the paper study of the proposed development:

- Record of Monuments and Places for County Dublin;
- Sites and Monuments Record for County Dublin;
- National Monuments in State Care Database;
- Preservation Orders List;
- Topographical files of the National Museum of Ireland;
- Cartographic and written sources relating to the study area;
- Dublin City Development Plan 2022-2028;
- Place name analysis;
- Dublin City Industrial Heritage Record;
- Aerial photographs; and
- Excavations Bulletin (1970-2022).

Record of Monuments and Places (RMP) is a list of archaeological sites known to the National Monuments Section, which are afforded legal protection under Section 12 of the 1994 National Monuments Act and are published as a record.

Sites and Monuments Record (SMR) holds documentary evidence and field inspections of all known archaeological sites and monuments. Some information is also held about archaeological sites and monuments whose precise location is not known e.g. only a site type and townland are recorded. These are known to the National Monuments Section as 'un-located sites' and cannot be afforded legal protection due to a lack of locational information. As a result, these are omitted from the Record of Monuments and Places. All RMP and SMR sites are also listed on a website maintained by the Department of Housing, Local Government and Heritage (DoHLGH) – www.archaeology.ie.

National Monuments in State Care Database is a list of all the National Monuments in State guardianship or ownership. Each is assigned a National Monument number whether in guardianship or ownership and has a brief description of the remains of each Monument. In addition to this list any recorded monument of a certain type (commonly bridges, churches or castles) that are situated within local authority-owned land are also considered to have National Monument status.

The Minister for the Department of Housing, Local Government and Heritage may acquire national monuments by agreement or by compulsory order. The state or local authority may assume guardianship of any national monument (other than dwellings). The owners of national monuments (other than dwellings) may also appoint the Minister or the local authority as guardian of that monument if the state or local authority agrees. Once the site is in ownership or guardianship of the state, it may not be interfered with without the written consent of the Minister.

Preservation Orders List contains information on Preservation Orders and/or Temporary Preservation Orders, which have been assigned to a site or sites. Sites deemed to be in danger of injury or destruction can be allocated Preservation Orders under the 1930 Act. Preservation Orders make any interference with the site illegal. Temporary Preservation Orders can be attached under the 1954 Act. These perform the same function as a Preservation Order but have a time limit of six months, after which the situation must be reviewed. Work may only be undertaken on or in the vicinity of sites under Preservation Orders with the written consent, and at the discretion, of the Minister.

The topographical files of the National Museum of Ireland are the national archive of all known finds recorded by the National Museum. This archive relates primarily to artefacts but also includes references to monuments and unique records of previous excavations. The findspots of artefacts are important sources of information on the discovery of sites of archaeological significance.

Cartographic sources are important in tracing land use development within the development as well as providing important topographical information on areas of archaeological potential and the development of buildings. Cartographic analysis of all relevant maps has been made to identify any topographical anomalies or structures that no longer remain within the landscape.

Documentary sources were consulted to gain background information on the archaeological and cultural heritage context of the proposed development area.

Development Plans contain a catalogue of all the Protected Structures and archaeological sites within the county. The Dublin City Development Plan (2022-2028) were consulted to obtain information on cultural heritage sites in and within the immediate vicinity of the proposed development area.

Place Names are an important part in understanding both the archaeology and history of an area. Place names can be used for generations and in some cases have been found to have their root deep in the historical past.

Dublin City Industrial Heritage Record (DCIHR) makes recommendations for sites to be added to the Record of Protected Structures (RPS) in the City Development Plan and is maintained by DCC. It is a policy of the Council to implement the recommendations of the DCIHR.

Aerial photographic coverage is an important source of information regarding the precise location of sites and their extent. It also provides initial information on the terrain and its likely potential for archaeology. A number of sources were consulted including aerial photographs held by the Ordnance Survey and Google Earth.

Excavations Bulletin is a summary publication that has been produced every year since 1970. This summarises every archaeological excavation that has taken place in Ireland during that year up until 2010 and since 1987 has been edited by Isabel Bennett. This information is vital when examining the archaeological content of any area, which may not have been recorded under the SMR and RMP files. This information is also available online (www.excavations.ie) from 1970-2022.

12.2.2 Geophysical Survey and Monitoring

Geophysical survey is used to create ‘maps’ of subsurface archaeological features. Features are the non-portable part of the archaeological record, whether standing structures or traces of human activities left in the soil. Geophysical instruments can detect buried features when their electrical or magnetic properties contrast measurably with their surroundings. In some cases, individual artefacts, especially metal, may be detected as well. Readings, which are taken in a systematic pattern, become a dataset that can be rendered as image maps. Survey results can be used to guide excavation and to give archaeologists insight into the pattern of non-excavated parts of the site. Unlike other archaeological methods, the geophysical survey is not invasive or destructive.

A geophysical survey (Appendix 12.5) was undertaken to inform the redevelopment of the proposed development area in May 2021 (Leigh 2021, Licence 21R0101). A summary of the geophysical report is presented in Section 12.4.9.

This was followed by the archaeological monitoring of site investigations works across the proposed development area, summarised in Section 12.4.10.

12.2.3 Field Inspection

An archaeological field inspection was carried out on the 22nd February 2023 and entailed:

- Walking the proposed development and its immediate environs.
- Noting and recording the terrain type and land usage.
- Noting and recording the presence of features of archaeological or historical significance.

- Verifying the extent and condition of any recorded sites.
- Visually investigating any suspect landscape anomalies to determine the possibility of their being anthropogenic in origin.

12.2.4 Consultation

Following the initial research, a number of statutory and voluntary bodies were consulted to gain further insight into the cultural background of the baseline environment, receiving environment and study area, as follows:

- Department of Housing, Local Government and Heritage – the Heritage Service, National Monuments and Historic Properties Section: Record of Monuments and Places; Sites and Monuments Record; Monuments in State Care Database; Preservation Orders and Register of Historic Monuments;
- National Museum of Ireland, Irish Antiquities Division: topographical files of Ireland;
- Dublin County Council: Planning Section; and
- Historical and Ordnance Survey Maps.

12.2.5 Guidance and Legislation

The following legislation, standards and guidelines were consulted as part of the assessment:

- National Monuments Act, 1930 to 2014;
- The Planning and Development Acts, 2000 (as amended);
- Heritage Act, 1995 (as amended);
- Draft Advice Notes on Current Practice (in the preparation of Environmental Impact Statements), 2015, EPA;
- Guidelines on the Information to be contained in Environmental Impact Assessment Report 2022, EPA;
- Frameworks and Principles for the Protection of the Archaeological Heritage, 1999, (formerly) Department of Arts, Heritage, Gaeltacht, and Islands; and
- Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 2000 and the Local Government (Planning and Development) Act 2000.

12.2.6 Difficulties in Compiling the Assessment

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

12.3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

12.4 RECEIVING ENVIRONMENT

The proposed development area is located at St. Vincent's Hospital Fairview, Dublin 3. There is one recorded monument within the proposed development area, the site of a castle DU018-017, which is marked within early 19th century mapping but does not possess any above ground remains. The zone of notification for this monument encloses a large portion of the southern extent of the proposed development area. There are seven additional archaeological sites within 250m of the proposed development (Figure 12.1). None of these sites are further protected as National Monuments in State Care or are subject to Preservation Orders.

The zone of archaeological potential associated with the historic core of Dublin City is located c. 1.1km southwest of the proposed development area.

Figure 12.1 *Site location and surrounding recorded archaeological and DCIHR sites*

12.4.1 Archaeological and Historical Background

12.4.1.1 Prehistoric Period

Although recent discoveries may push back the date of human activity by a number of millennia (Dowd and Carden 2016), the Mesolithic period (c. 8000–4000 BC) is the earliest time for which there is clear and widespread evidence of prehistoric activity in this part of Ireland. During this period people hunted, foraged and gathered food and appear to have had a mobile lifestyle. There is no recorded evidence of prehistoric activity within the area surrounding the proposed development. However, the River Liffey would have made Dublin an attractive location for occupation given the resources available in riverine environments (Clarke 2002, 1). Mesolithic deposits have been identified within the former estuarine area associated with the River Liffey and along the shores of Dublin Bay, north and south (Mitchell 1972). Mesolithic fish traps were excavated at Spencer Dock, c. 1.7km to the south (McQuade and O'Donnell 2007).

During the Neolithic period (4000–2500 BC) communities became less mobile and their economy became based on the rearing of stock and cereal cultivation. This transition was accompanied by major social change. Agriculture demanded an altering of the physical landscape; forests were rapidly cleared and field boundaries constructed. There are no previously recorded archaeological sites dating to this period within the vicinity of the proposed development, however; the River Tolka would have still remained as a major resource to be exploited during this period.

Evidence for Bronze Age (2500–800 BC) activity in the environs of Dublin City is similarly focused upon the River Liffey and remains of a burnt spread dating to the Early Bronze Age have been excavated on the northern shore of the Liffey at Hammond Lane, c. 2.8km southwest of the proposed development area (Licence Ref.: 16E0080, Bennett 2003:535). This activity may relate to domestic or industrial activity and suggests nearby settlement. Further evidence for early Bronze Age activity was uncovered at Kilmainham in the form of a small cremation cemetery located on a gravel ridge overlooking the Liffey. The cemetery comprised six burial pits, each of which contained cremated human bone (Licence Ref.: 02E0067, Bennett 2006:665).

12.4.1.2 Early Medieval Period (AD 500–1100)

Settlement across County Dublin advanced during the early medieval period when the area now known as County Dublin straddled the ancient kingdoms of Brega (north of the river Tolka) and *Laigin* (south of the Tolka). The first steps towards urbanisation in Dublin date to AD 841 when Vikings established a *longphort* (a semi-permanent Viking encampment), which then developed over the next 60 years into a commercial centre and was an important market place for slaves and luxury goods. The precise location of this initial settlement has remained somewhat elusive. It has been suggested that it was located next to the River Poddle and the Liffey, close to the current Dublin Castle.

This first phase of settlement only lasted until AD 902, when the Annals of Ulster recorded that the Vikings were driven away from Dublin. The Vikings returned to Dublin in AD 917 and established themselves in a new location overlooking the confluence of the Liffey and the Poddle in an area that stretches today from Dublin Castle to Christchurch Cathedral, c. 2.8km southwest of the proposed development area. This settlement differed in form as it appears to have been founded as a trading town, with archaeological evidence suggesting the presence of individual property plots, a street layout and earthen defences (Bradley 1992, 45).

During this period, Dublin became one of the most important economic centres in the Viking world. Goods traded included hides, furs, iron, salt, and most lucratively, slaves. In the 11th century, Dublin became Europe's largest slave market. After 200 years of Viking settlement, people of Scandinavian descent living in Dublin were embedded in the local landscape. They were bilingual speakers of Norse and Gaelic, had largely converted to Christianity, and had blended culture and politics with those of their Irish neighbours. This mixed culture is referred to as 'Hiberno-Norse.' It is also clear that the influence of Viking Dublin extended far into the hinterland of Dublin city and beyond.

The Battle of Clontarf (AD 1014) was a key event in the history of Dublin; the Annals of the Four Masters say it was fought 'from Tulcainn to Ath Cliath'. *Tulcainn* was the River Tolka and *Ath Cliath* was probably located at the *Droichet Dubhgaill*, the bridge that crossed the Liffey at this time (possibly close to Augustine Street). It has been suggested (De Courcy 1996) that the main action of the battle took place in the area bounded by O'Connell Street, Dorset Street, Drumcondra Road, the River Tolka, Ballybough Road and the North Strand. Further references to the battle from Cosgrove (Dillon-Cosgrove,1909) also suggested that the Battle of Clontarf took place at nearby Ballybough Bridge (DU018-022), c. 332m southeast of the proposed development area. Cosgrove refers to 'many a Danish man killed at the fish weir of Ballybough Bridge'. Ball (1906) also describes an 'engagement between insurgents and forces of the crown at Ballybough Bridge' in reference to the Battle of Clontarf.

However, a letter to The Irish Builder (Traynor 1897) states *"… there were other discoveries made some ten years previously of bones, swords and spears when excavations were being made for the foundations of houses in North Great George's Street, Summerhill, Gardiners Row, Mountjoy Square …From the frequent reoccurrence of such discoveries in the surrounding district during the laying out of streets etc …there is every reason to believe the Battle of Clontarf commenced somewhere between the site of Capel Street and the right bank of the Tolka."*

An extract from Dublin Magazine (1763) concurs with this stating *"Vast quantities of bone were discovered behind New Gardens (Rotunda Gardens) in Britain Street. They were found 2-3ft beneath surface and were also present on Cavendish Row. They are thought to relate to the Battle of Clontarf as the area was consistent with the Battle of Clontarf and the bodies that were found had been covered in quick lime, which was typical of Danish practice."*

The early medieval period was also characterised by the foundation of a large number of ecclesiastical sites throughout Ireland, in the centuries following the introduction of Christianity in the 5th century AD. These early churches tended to be constructed of wood or post-and-wattle. Between the late 8th and 10th centuries, mortared stone churches gradually replaced the earlier structures. Many of the sites, some of which were monastic foundations, were probably originally defined by an enclosing wall or bank similar to that found at the coeval secular sites. This enclosing feature was probably built more to define the sacred character of the area of the church than as a defence against aggression. An inner and outer enclosure can be seen at some of the more important sites; the inner enclosure surrounds the sacred area of the church and burial ground and the outer enclosure provides a boundary around living quarters and craft areas. Where remains of an enclosure survive, it is often the only evidence that the site was an early Christian foundation.

The parish church of Drumcondra at All Hallows College (c. 368m northwest of the proposed development area) is thought to have been constructed on the site of an earlier medieval church (DU018-013001). The church and enclosure are marked on

Rocque's 1760 map of County Dublin. However, excavations undertaken in the vicinity of the church revealed no archaeological material.

12.4.1.3 Medieval Period (AD 1100–1600)

The beginning of the medieval period is characterised by political unrest that originated from the death of Brian Borumha in 1014. Diarmait MacMurchadha, deposed King of Leinster, sought the support of mercenaries from England, Wales, and Flanders to assist him in his challenge for kingship. Norman involvement in Ireland began in 1169 when Richard de Clare and his followers landed in Wexford to support MacMurchadha. Two years later de Clare (Strongbow) inherited the Kingdom of Leinster through marriage to Aoife MacMurchadha, Diamait's daughter. By the end of the 12th century the Normans had succeeded in occupying much of the country (Stout and Stout 1997). The initial stage of the invasion of the country is marked by the construction of motte and bailey castles that were often later replaced with stone-built castles.

This time period is synonymous with the creation of new towns and the enlargement of older urban centres. The Norman tenurial system more or less appropriated the older established land units known as *túaths* in the early medieval period but renamed the territories as manors (MacCotter 2008). At this time, the Anglo-Normans were focused on re-enforcing the defences of Dublin City, with the medieval city located c. 2.5km to the southwest of the proposed development area.

After the dissolution in 1539, the lands associated with All Priors were leased by Dublin Corporation to middlemen and led to the settlement of a branch of the Bathe family on lands in Drumcondra in the middle of the 16th century. In 1560 an Elizabethan Castle was constructed where the later regency villa was to be built (DU018-015001). The castle was built by John Bathe, who held the office of Solicitor General, Attorney General and Chancellor of the Exchequer. Lands at Drumcondra stayed within the family until they were confiscated by Cromwell in the 17th century. In the Civil Survey of 1654–6, the 200-acre premises is described as consisting of a castle, a barn and gate house and three thatched houses. In 1702 Drumcondra Castle was purchased by Captain Chichester Phillips. At this time, it was described as containing a castle with a brick dwelling house, stables, a coach house, a malt house, one brick house and five cabins (Redundant records DU018-015002-4).

It is unclear what date Richmond Castle (DU018-017) was constructed or what form it took. Taylor's map of 1816 marks the 'castle of Richmond' within the southern portion of the proposed development area, on the site of the later Richmond House. No trace of this castle survives above ground and there are no known documentary references to the structure.

12.4.1.4 Post-Medieval Period (AD 1600–1800)

The ending of the Williamite Wars saw the beginning of a comparatively politically calm era, which allowed the country's landowners the security to experiment with the latest styles of architecture without the need to refer to defensive matters. Initially, constraints on available resources resulted in mansions of a relatively modest scale and relatively plain appearance. However, as the Irish aristocracy's sense of security grew over the following decades, their greater access to wealth helped foster a shift towards more ostentatious buildings, often set within extensive demesne landscapes. A significant proportion of the proposed development area incorporates portions of such demesnes, and is bordered by others.

In the late 17th century, the area surrounding Ballybough/Fairview, stretching from Drumcondra through Clontarf and on to Raheny, entered a new phase with a significant movement of gentry into this region of north Dublin. This development and alteration in the landscape of north Dublin is illustrated in cartographic recordings of the period.

Burial ground DU018-040, situated c. 234m southeast of the proposed development area, also provides insight into the residents of the Fairview environs. This burial ground at Fairview Strand is a Jewish cemetery which was founded in 1718. This cemetery remained the only Jewish cemetery for the entire Dublin region until the creation of Dolphin's Barn Cemetery in c. 1900. A formal lease on the land where the cemetery is located was obtained in 1718 and the land lease was bought outright for 1,000 years at the annual rent of one peppercorn in 1748 (SMR file).

During the post-medieval period, the former agricultural lands of north Dublin experienced industrial regeneration. The Ballybough district is listed in 1787 as containing a mill for making iron implements and from the early 18th century a glass factory. Greater access to the region emerged upon the building of Annesley Bridge in 1797, which provided better access to Dublin City.

The Dublin City Industrial Heritage Record (DCIHR) records the rich industrial heritage of Dublin City and the survey includes one record as being located within the proposed development area, a gravel pit in the south-western corner. A further four records are located within the study area including the Distillery Lofts on Richmond Road, opposite the main entrance to St Vincent's Hospital.

12.4.1.5 St. Vincent's Hospital

The hospital at St. Vincent's was originally established in 1857 by Dr Thomas Fitzgerald and Fr. James Taylor at the site of Richmond House; which was purchased along with 8 acres of surrounding land. Within several years of the hospital's foundation, further room was required; as a result, the school and convent building of the Presentation sisters was purchased and the hospital moved to its current location. In 1895 the hospital buildings were expanded once more to include a block of buildings in red-brick with granite facing. Further alterations and expansion took place at St. Vincent's Hospital in the 1930s, 1950s, 1970s and 1990s.

The expansion of the St. Vincent's Hospital complex is illustrated within the cartographic resource of the 19th century (see also 12.4.3 below). The present location of St. Vincent's Hospital is illustrated to the north of Richmond House, depicted as a single square structure with formal gardens to the north. At the northeast limit of the formal gardens a single structure, marked 'Convent' is shown. This U-shaped structure is the first building of what would later form the St. Vincent's Hospital complex. The hospital, labelled as 'St. Vincent's Lunatic Asylum' is shown on the OS map of 1871-5 as a long rectangular building with formal gardens located to the rear. The 1911 OS map shows several alterations to the main building of St. Vincent's Hospital, comprising an expansion to the rear of the building in the form of a T-shaped extension, as well as the addition of a chapel beyond the old convent building to the east. The hospital at St. Vincent's is still titled 'St. Vincent's Lunatic Asylum (Female)'.

The St Vincent's Hospital complex includes a number of buildings and structures recorded on the Record of Protected Structures (RPS) within the development plan and/or the National Inventory of Architectural Heritage (NIAH). The architectural heritage of the proposed development area is assessed in detail in Chapter 13 (Architectural Heritage).

12.4.2 Summary of Previous Archaeological Excavations

A review of the Excavations Bulletin (1970–2022) and the available excavation reports have revealed a number of previous archaeological investigations in the study area.

A programme of archaeological monitoring was carried out north of the proposed development area (Licence Ref.: 09E0234). Archaeological monitoring was carried out for all topsoil stripping of the site access and compound as well as the development area. Nothing of archaeological significance was revealed as much of the substrate under the temporary access road and compound comprised 19–20th century material that had been imported into this area and used as filling. A 19th century stone-built box drain was present in a backfilled east-west oriented field boundary, which ran across the southern portion of the development area. It was also necessary as part of the construction works to remove a c. 6m portion of the boundary wall, which was recorded in detail as part of the monitoring works (Bennett 2009:335).

Archaeological testing was carried out at Drumcondra Castle in 2009, to the immediate northwest of the proposed development area (Licence Ref.: 09E0437). Ten trenches were excavated within the former demesne parkland. A number of post-medieval features were identified including field boundaries, drains and furrows, in addition to a backfilled pond. The trenches excavated to the south of the Drumcondra House, identified a ring ditch, the fill of which contained cremated bone. A number of large pits and ditches, which were interpreted as pre-historic burial monuments of Iron Age date were also revealed (Bennett 2009:306). A second programme of test-trenching was carried out on the same site under licence 16E0167. A total of 17 trenches were excavated across the site revealing extensive post-medieval cultivation, drainage and landscaping to the south of castle DU018-015001. Pits, gullies and a large east-west oriented ditch were identified at 0.7–1.4m below present ground level. Several 18th/19th century drains, culverts and garden features were also recorded. A feature identified in the 2009 testing programme interpreted as a possible ring ditch was identified as a curving garden wall. No archaeological features were identified within the eastern half of the site (Bennett 2016:231).

Excavation at DCU All Hallows Campus took place in 2019, with further monitoring taking place in 2020, c. 293m northwest of the proposed development area (Licence 19E0279). The excavation uncovered a cluster of small structures situated at the edge of a former watercourse, likely to be prehistoric in date. The settlement was situated on a ridge overlooking the Tolka Valley. The excavation also uncovered evidence of medieval and post-medieval agricultural activity in the form of ditches. Evidence for 18th century farming and gardening was also found, dating to the period of use of Drumcondra House and gardens (Giacometti 2020:381).

Archaeological testing was carried out c. 90m west of the proposed development area under licence 06E0729. Two test trenches were excavated following the demolition of standing structures on site. Nothing of archaeological significance was revealed (Bennett 2006:597).

Archaeological testing was carried out c. 264m southeast of the proposed development area (Licence Ref.: 06E0868). The site was adjacent to an 18th Jewish burial ground. Nothing of archaeological significance was revealed (Bennett 2006:AD8).

Archaeological monitoring was carried out during the construction of a new entrance into Marino Institute of Education on Griffith Avenue, c. 180m southeast of the northern extreme of the proposed development area (Licence Ref.: 14E0423). The removal of part of the boundary wall and the topsoil strip associated with the new avenue wayleave was monitored. Nothing of archaeological significance was revealed (Bennett 2014:040).

12.4.3 Cartographic Analysis

12.4.3.1 John Rocque's Map of the City and County of Dublin, 1760 (Figure 12.2)

This map shows the proposed development area within undeveloped land to the north of the River Tolka. The Church of St. John the Baptist (DU018-013001) is depicted to the northwest. The settlement of Drumcondra is depicted around the church, although the castle (DU018-015001) is not shown. Similarly, the castle (DU018-017) within the proposed development area is not depicted. Another prominent feature in the landscape is the bridge across the River Tolka, which is shown to the southeast (DU018-022001).

Figure 12.2 *Extract from John Rocque's Map of the City and County of Dublin (1760)*

Figure 12.**3** *Extract from John Taylor's Map of the Environs of Dublin (1816)*

<u>12.4.3.2 John Taylor's Map of the Environs of Dublin 1816 (Figure 12.3)</u>

By the time of this map, the 'Castle of Richmond' (DU018-017) is annotated within the proposed development area. The site is also annotated as 'Richmond'. Drumcondra Castle is shown (DU018-015001) as is the church (DU018-013001) to the northwest of the castle. The routes of the current Richmond Road and Grace Park Road have been established. A number of small structures, possibly residential buildings are depicted along the north side of the road known as Richmond Road as are a number of alleyways or small roads. A number of mills are depicted along the River Tolka that runs to the south of the proposed development area.

<u>12.4.3.3 First Edition Ordnance Survey Map, 1844, scale 1:10,560 (Figure 12.4)</u>

This is the first accurate historic mapping covering the proposed development area. The north-western portion of the proposed development forms part of the demesne associated with Drumcondra Castle, including the southern demesne wall. A pond is depicted in the northernmost corner of the main area of the proposed development. A gravel pit (recorded on the DCIHR) is marked south of the Drumcondra Castle demesne wall extending into the site from the west within an area of planting, possibly an orchard. Richmond House and gardens are located in the southern portion of the site. A small building is visible to the west of the Richmond House complex at the western boundary wall, and an apparent pond is marked within the garden to the north of Richmond House. At the present location of St. Vincent's Hospital to the north of Richmond House, at the north-eastern limit of the formal gardens, the Convent building is depicted. The existing convent graveyard, immediately north of the main portion of the proposed development, appears to be depicted although is not labelled as such. There are also a number of smaller structures within the site fronting Richmond Road. The townland boundary between Richmond and Ballybough runs along the eastern edge of the main portion of the proposed development area and a small demesne associated with Annadale house lies immediately east of this.

The northern proposed service route of the proposed development runs through fields before joining Phillipsburgh Avenue immediately west of the small demesne of Croydon House, where two buildings are marked within the boundaries of the proposed development. It then continues north, skirting the edge of the much larger Marino House demesne. Several substantial structures are depicted on the western side of Phillipsburgh Avenue at this point.

A corn mill is marked to the south-southwest of the proposed development area, which is recorded on the DCIHR as a ‘printing works (corn mill)’.

<u>12.4.3.4 Ordnance Survey Map, 1871-5, scale 1:10,560 (Figure 12.5)</u>

By the time of this map, the most significant change to the proposed development area is that the convent buildings have been extended significantly and form ‘St. Vincent’s Lunatic Asylum’, including the R.C. Chapel and associated gardens, with a gate lodge marked at the entrance from Convent Avenue. The graveyard is now marked to the northeast of the main building and appears to fall partially within the proposed development area. Richmond House is also shown once more and a gate lodge is depicted in the southeast corner of the site. The demesne feature (a probable pond) associated with Drumcondra Castle is shown to the north of the site while the gravel pit in the southwest is no longer depicted. The pond shown in the garden of Richmond house on the preceding map is no longer present. A number of smaller structures are shown to the south of Richmond house, fronting Richmond Road. The distillery recorded on the DCIHR has now been established immediately south of Richmond Road and north of the River Tolka, and the corn mill is now marked ‘paper mill’. The demesne to the east of the main portion of the proposed development is now named ‘Annadale Park’. Similarly, the Croydon House demesne adjacent to the northern pipeline route is now named ‘Croydon Park’.

Figure 12.4 *Extract from First Edition OS map (1844) showing proposed development location*

Figure 12.5 *Extract from OS map (1871-5) showing proposed development location*

12.4.3.5 Ordnance Survey Map, 1889, scale 1:1560

Whilst these maps do not cover the whole area of the proposed development, the southernmost portion is depicted. The small building to the west of Richmond House is visible and to the north of this the laundry building is now present. A lodge at the entrance to Richmond House is marked as 'Benburb Lodge' and a building to the south of Richmond House is marked 'Woodbine Cottage', both within the proposed development area. The distillery is shown in detail, marked as the 'Dublin Whisky Distillery'. Southwest of the distillery the remaining DCIHR records within the study area are also depicted; a bridge, the printing works (now marked 'Clonliffe Paper Mill') and a bonded store.

A portion of the northern pipeline route of the proposed development is also covered by these maps, the buildings within the boundary as it joins Phillipsburgh Avenue are marked 'Ruth Villa' and the buildings along the west side of the road north of that are shown in more detail, slightly expanded.

12.4.3.6 Ordnance Survey Map, 1911, scale 1:2,500 (Figure 12.6)

This map shows that St. Vincent's Lunatic Asylum has been expanded and is annotated for female patients, with the associated convent and chapel still labelled. The burial ground to the northeast of the site is defined more accurately on this map. Both St Vincent's and Richmond House now closely match their current layouts, excluding the more modern additions to the hospital. Woodbine Cottage is now marked as 'Woodbine Lodge'. The gate lodge at the entrance from Convent Avenue is now marked simply 'Lodge'. To the west of Richmond House, the orchard is still depicted within the proposed development area. There appears to be a link depicted between Richmond House and the main asylum buildings indicating that Richmond House was in use by the institution at this time. In the wider vicinity, a large number of terraced houses have been constructed to the immediate east of the site, occupying the former Annadale Park. Annadale House remains marked at the eastern edge of this development. Drumcondra Castle is now 'St. Joseph's Male Blind Asylum' and the former demesne features including the pond within the site are no longer shown.

The building complex on the eastern side of the pipeline route along Phillipsburgh Avenue has expanded and is now marked 'Sally Park', a large house to the south of this is marked 'Park Villa'.

12.4.3.7 Ordnance Survey Map, 1953, scale 1:10,560

This map is less detailed than the preceding map but there is little significant change to the proposed development area itself. St. Vincent's Lunatic Asylum has been extended slightly to the north. The possible orchard no longer appears to be planted and depicted simply as undeveloped, as is the rest of the western portion of the proposed development area. The three lodges previously depicted within the proposed development area remain, although no longer labelled. In the wider area, significant residential development has occurred, covering the former demesne landscapes to the east.

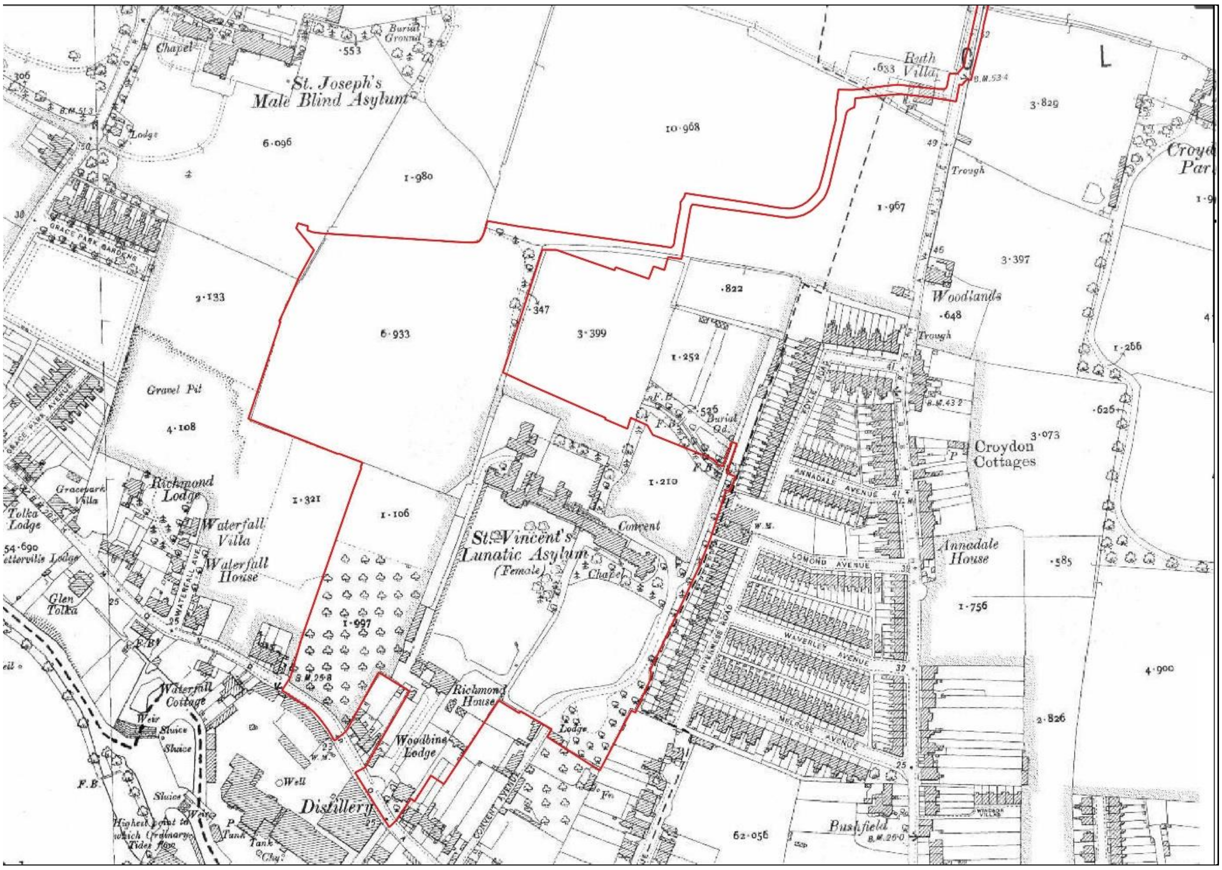


__Figure 12.6__ Extract from OS map (1911) showing proposed development location

12.4.4 City Development Plan

The Dublin City Development Plan (2022-2028) recognise the statutory protection afforded to all Record of Monuments and Places (RMP) sites under the National Monuments Legislation (1930–2014). The plan lists a number of aims and objectives in relation to archaeological heritage (Appendix 12.2). It is a policy of the Development Plan to promote the in-situ preservation of archaeology as the preferred option where development would have an impact on buried artefacts. Where preservation in situ is not feasible, sites of archaeological interest shall be subject to archaeological investigations and recording according to best practice, in advance of redevelopment.

There is one recorded monument within the proposed development area, the site of a castle (DU018-017). The zone of notification for this monument encloses a large portion of the southern extent of the proposed development area. There are seven additional archaeological sites within 250m of the proposed development (Table 12.1; Figure 12.1; Appendix 12.1). Out of the eight sites, five are included on the RMP. None of these sites are further protected as National Monuments in State Care/Guardianship nor are any subject to Preservation Orders.

__Table 122.1__ Recorded archaeological sites within the study area

SMR. No.	Status	Location	Classification	Distance from proposed development
DU018-017	RMP	Dublin North City	Castle - unclassified	Within proposed development area

DU018-015001	RMP	Richmond	Castle - unclassified	c. 118m NW
DU018-015002	SMR	Richmond	House - 16th/17th century	c. 165m N (exact location unknown)
DU018-015003	SMR	Richmond	Barn	c. 155m N (exact location unknown)
DU018-015004	SMR	Clonturk	Gatehouse	c. 110m NW (exact location unknown)
DU018-030	RMP	Dublin North City	Water mill - unclassified	c. 165m SW
DU018-040	RMP	Dublin North City	Burial ground	c. 234m SE
DU018-019001	RMP	Clonliffe West	House - 17th/18th century	c. 250m SW

12.4.5 Cultural Heritage

The term ‘cultural heritage’ can be used as an over-arching term that can be applied to both archaeology and architectural sites; however, it also refers to more ephemeral aspects of the environment, which are often recorded in folk law or tradition or possibly date to a more recent period. The archaeological sites discussed above should also be considered cultural heritage and the townlands and placename analysis detailed in the following sections also form part of the cultural heritage landscape context.

Within the area of the proposed development itself there are six sites that have been identified to possess cultural heritage significance. A further four are located outside the proposed development area, within the study area (Figure 12.7).

In the western portion of the area substantial remains of a section of stone walling survive, dividing the two fields that form this portion of the proposed development. The wall (CH01) corresponds to the southern wall of the demesne landscape associated with Drumcondra Castle, as depicted on historic OS mapping.

West of Richmond House at the southern end of the laundry building is a derelict structure (CH02), largely built of stone, which corresponds to an outbuilding visible on the first edition OS map and apparently associated with Richmond House.

Two smaller structures (CH03) to the southwest of Richmond House correspond to small outbuildings visible on the 1871-5 OS map and again apparently associated with the main house.

At the junction of Griffith Court and Phillipsburgh Avenue, the northern pipeline route of the proposed development area passes through the site of the former Ruth Villa (CH06). A building is marked on this site on the first edition OS map, but not named as Ruth Villa until the 1871-5 map. Whilst no above ground elements survive and the area has been developed, there remains a potential for below ground remains of this structure to be encountered during works associated with the proposed development.

To the rear of the lodge within the southern-most tip of the proposed development area (Brooklawn) is a statue of a saint carrying a child (CH08). It seems likely that the statue is of St Vincent, although St Anthony and St Joseph are also commonly depicted carrying a child on one arm. The statue is damaged, missing the head of the child, and may have been removed from an original location at the convent/chapel.

Figure 12.7 *Site location showing cultural heritage sites*

In the garden to the rear of Richmond House a garden feature, probably a pond, is marked on the first edition OS map (CH10). The pond has been removed by the time of the 1871-5 OS mapping.

Outside the proposed development area, but immediately adjacent, are four further sites of potential cultural heritage value. Lying between the two protruding sections at the southern extent is a pair of semi-detached houses which correspond to buildings marked on historic OS mapping (CH07). At the northern tip of the proposed development, a cast-iron lamp post lies to the immediate east, the post appears to remain in use, with a modern lamp replacing the original (CH05). To the immediate east of the main portion of the proposed development Foyle Road, Inverness Road, Phillipsburgh Avenue and Annadale, Lomond, Waverly and Melrose Avenues are lined with late 19th-early 20th century terraced housing (CH04). The Dublin Port Stadium, home to the Stella Maris Football Club, as well as the Ierne Sports and Social Club lie to the immediate west of the proposed development (CH09).

Also of note is the streetscape of Richmond Road which, whilst heavily redeveloped in places, retains a degree of its historical industrial character. The distillery buildings (also recorded on the DCIHR) survive in varying levels of preservation, including the Distillery Lofts apartment conversion. Historic stone setts are also visible at various points along either side of the road.

Demesne Landscapes

Prior to the expansion of modern suburban development, the proposed development area occupied a landscape that was characterised by the presence of multiple demesne landscapes. These were ornamental landscapes that varied in size, which were established in association with a large house. Demesne landscapes are depicted as shaded areas on the first edition OS (1844) and 1871-5 OS mapping, a number of which are shown in and within the immediate surroundings of the proposed development area. These demesnes are associated with Richmond House and the convent (within the proposed development), Drumcondra Castle to the northwest (part of which forms the north-western portion of the proposed development), Annadale House to the east and Croydon House and Marino House to the east of the service route. In addition to these larger demesne landscapes three smaller demesnes or large gardens are also present, two shown only on the first edition map and all three on the 1871-5 map. On the former map, the two small demesnes are located either side of Phillipsburgh Avenue immediately west of the Croydon House demesne, the eastern associated with Woodbine Lodge and the western with an unnamed house. On the latter map the third small demesne is added, immediately north of the Richmond House gardens and associated with an unnamed house. The development of these landscapes during the latter half of the 19th century and early 20th century is shown on Figures (12.7a-12.7d).

The most significant changes to the demesne/gardens associated with Richmond House and the convent are focused on the development of the original convent building into the current St Vincent’s Hospital complex, which is well illustrated within the historic OS mapping. Aside from the structural development, the gardens and convent graveyard themselves appear today largely as they are depicted on the first edition OS map of 1844, the main exception being the infilling of the pond to the north of Richmond House (CH10) and the construction of a play area for the children’s unit of the hospital in the northwest corner of the garden (see also 12.4.11 Field Inspection). The small unnamed demesne immediately north of the Richmond House gardens shown on the 1871-5 map has been absorbed into the St Vincent’s Lunatic asylum complex by the time of the 1911 map (Figure 12.7c).

The most significant change to the demesnes outside the proposed development during this period is to Annadale House. The 1871-5 OS map indicates that two fields to the north of the original demesne are now included although there is little change to the original landscape, which is now named ‘Annadale Park’. A building to the immediate northeast of the demesne, previously marked ‘Eldon Lodge’, is now marked ‘Annadale Lodge’. By the time of the 1911 OS map, however, the whole demesne has been developed and is taken up by the currently existing streets of terraced housing, (CH04) and Annadale Lodge has now taken the name Annadale House. This building is simply marked ‘Club’ on the 1953 map (Figure 12.7d) and is now no longer present.

The two small demesnes/large gardens to the north and northeast of Annadale House/Park remain essentially unchanged from the first edition map to the 1871-5 map, barring their names. Woodbine Lodge becomes ‘Woodlands’ and the unnamed demesne to the west is now named ‘Union Lodge’ (Figures 12.7a and b). By 1911 the principle structure of Woodlands has expanded slightly, whereas Union Lodge has been removed, although a small building remains in the southeast corner of the garden (Figure 12.7c). By 1953 the Woodlands house has altered slightly again, and housing is shown as occupying the northern portion of the garden/demesne (Figure 12.7d).

Changes to the Drumcondra Castle demesne up until 1911 are focused on the principle structural complex. The complex remains largely unchanged between the first edition and 1871-5 OS maps, but has been extended significantly by the time of the 1911 map into the St Joseph's Male Blind Asylum and includes a chapel and burial ground (Figures 12.7a-c). By this point a pond previously depicted at the eastern edge of the demesne, within the proposed development, has also been filled in. The only change by the time of the 1953 map is the construction of Ierne Park within the southern extent of the demesne. Ierne Park is now Ierne Sports and Social Club (CH09). A section of the southern wall of the demesne survives within the proposed development area (CH01).

The demesne of Croydon House remains largely unchanged from the first edition to the 1911 map, with the exception of a boundary change between the first edition and 1871-5 depictions. The southernmost field of the demesne as depicted on the former is no longer included on the latter, but a smaller field to the west has been added, effectively inverting the southwest corner of the demesne (Figures 12.7a and b). The name of the house also changes from 'Croydon House' to 'Croydon Park'. By the time of the 1953 OS mapping the former demesne been entirely developed with housing (Figure 12.7d).

The demesne associated with Marino House is much larger than the others discussed here and only a section of its western boundary lies adjacent to the service route of the proposed development. The portion of the demesne which falls within the study area remains unchanged until the mid-20th century (by which point it is also covered by housing), with the exception of the construction of St Mary's College within the demesne. The core building complex of the college is depicted on the 1911 OS map and remains unchanged at the present, c. 200m northeast of the northern extreme of the service route of the proposed development.

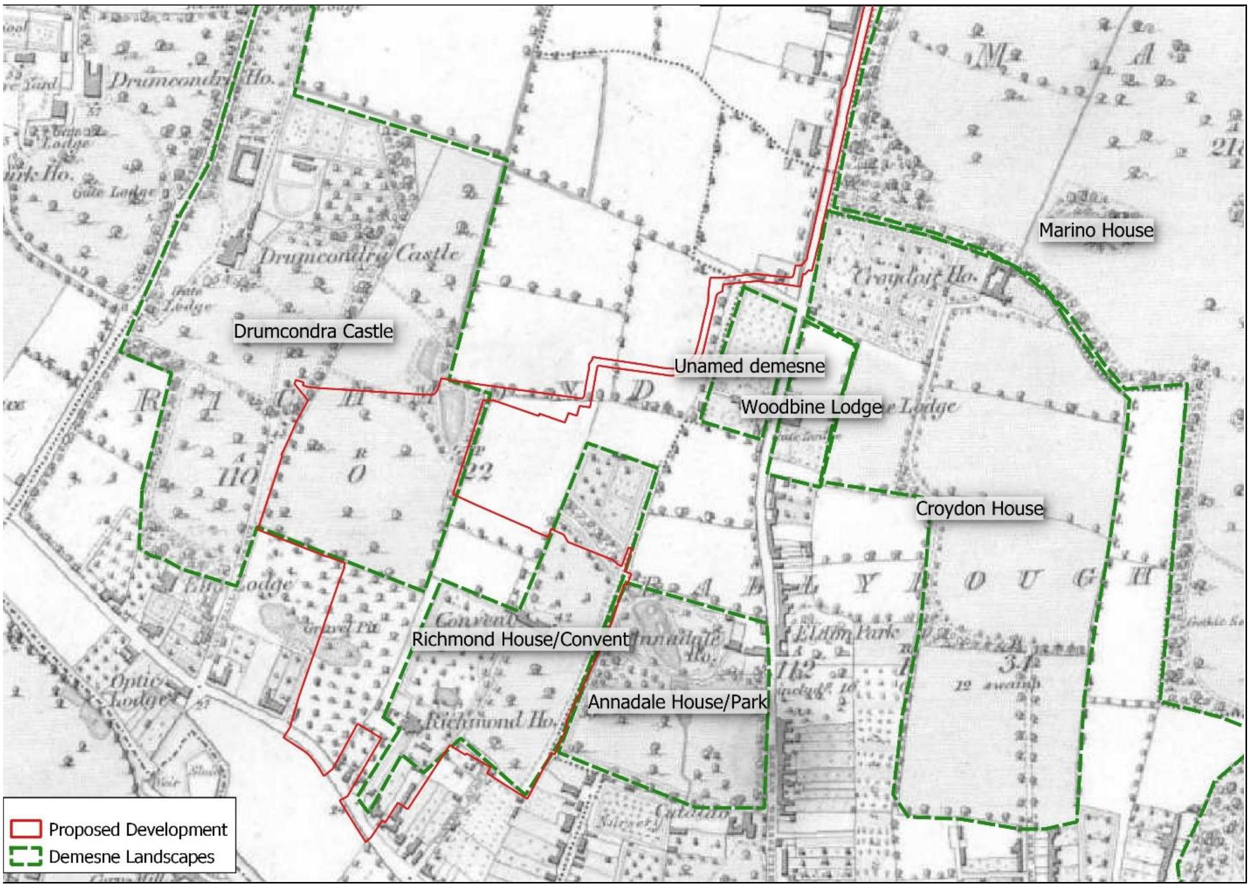


Figure 12.7a *Extract from First Edition OS map (1844) showing demesne landscapes*

Figure 12.7b *Extract from the 1871-5 OS map showing demesne landscapes*

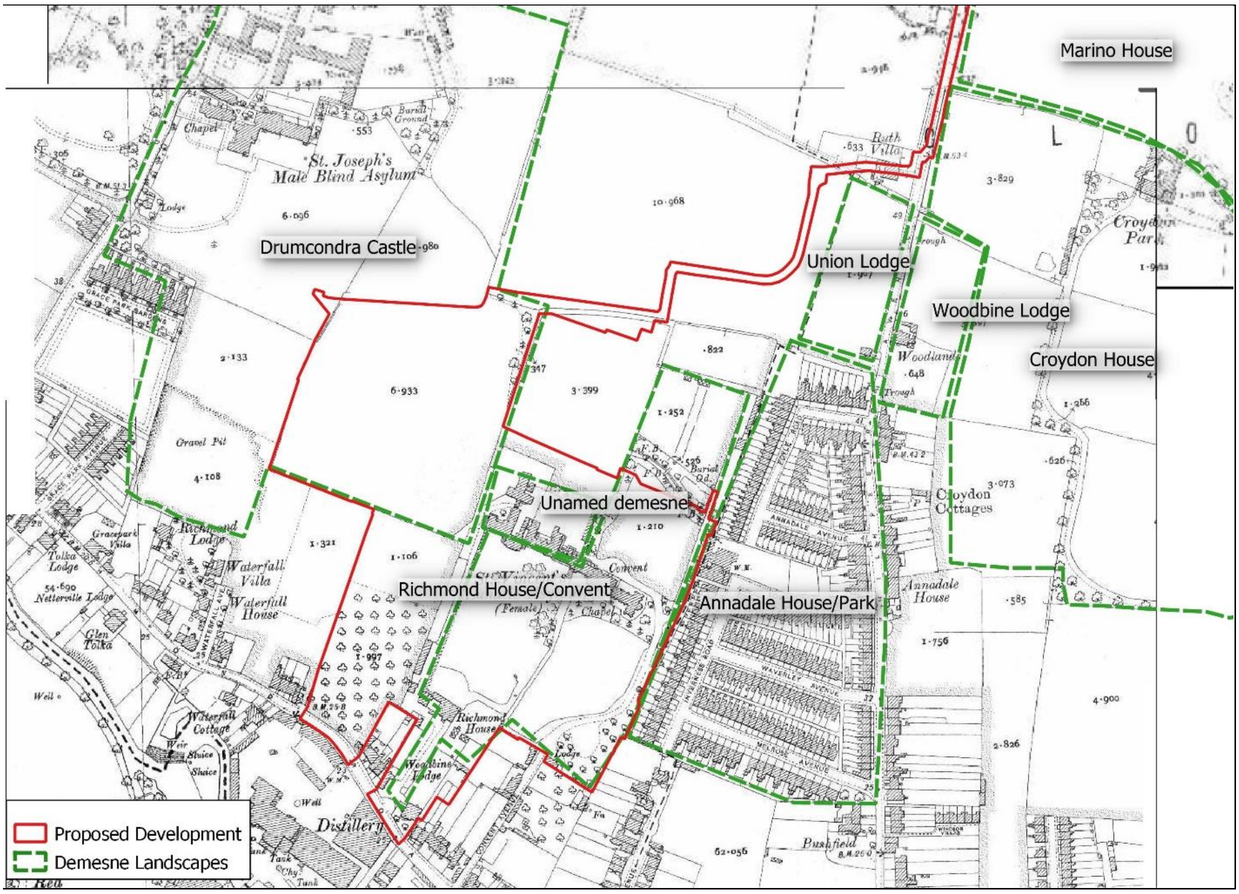


Figure 12.7c *Extract from the 1911 OS map showing demesne landscapes (extents as of 1871-5)*

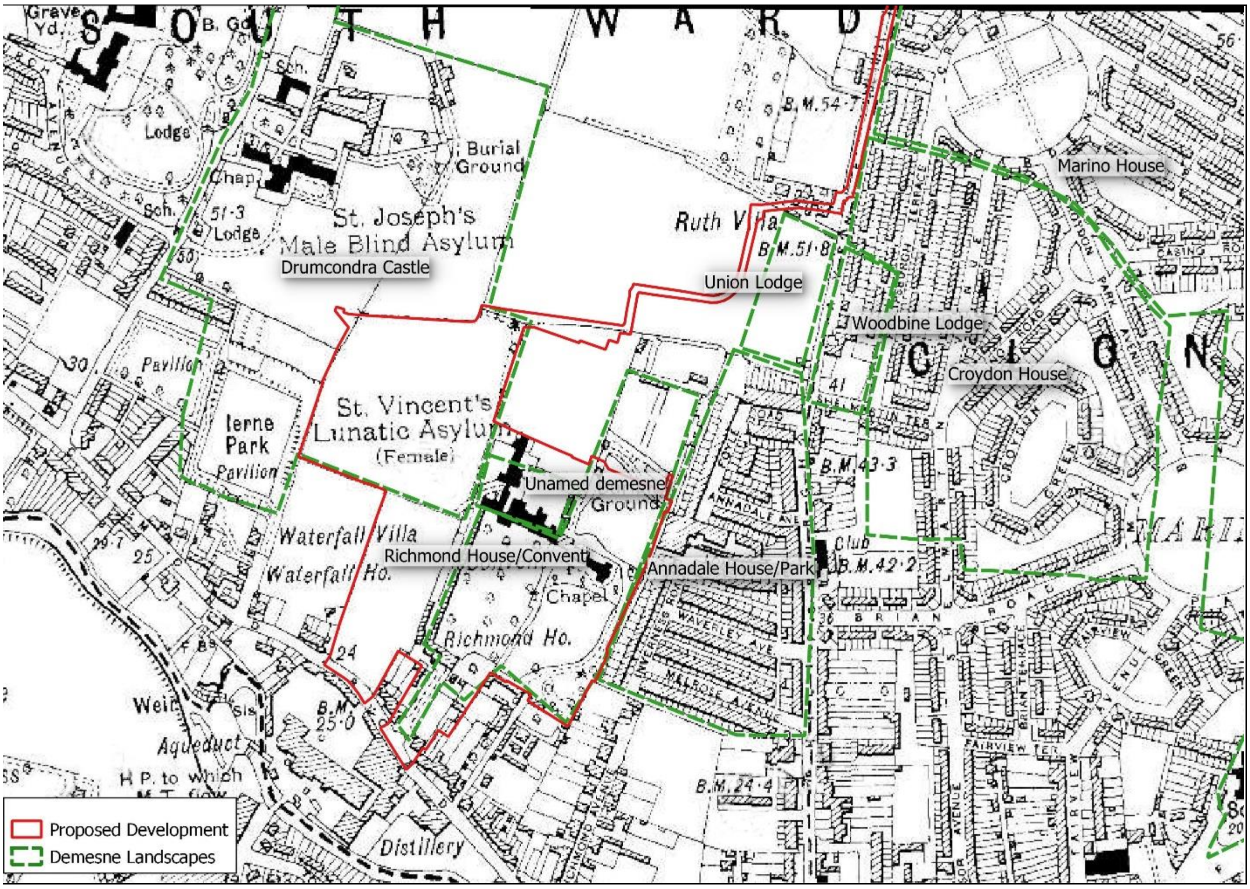


Figure 12.7d *Extract from the 1953 OS map showing demesne landscapes (extents as of 1871-5)*

<u>Place Name Analysis</u>

Townland and topographic names are an invaluable source of information on topography, land ownership and land use within the landscape. They also provide information on the history; archaeological monuments and folklore of an area. A place name may refer to a long-forgotten site and may indicate the possibility that the remains of certain sites may still survive below the ground surface. The Ordnance Survey surveyors wrote down townland names in the 1830s and 1840s when the entire country was mapped for the first time. Some of the townland names in the study area are of Irish origin and through time have been anglicised. The main references used for the place name analysis are Irish Local Names Explained by P.W Joyce (1870) and the Placenames Database of Ireland (www.logainm.ie).

A description and possible explanation of each place name in the environs of the proposed development area is provided in Table 12.2.

Table 122.1 *Place Name Analysis*

Name	Derivation	Possible Meaning
Dublin	*Bhaile Átha Cliath*	Ford of the Hurdles
Drumcondra	*Dhroim Conrach*	Conrach's Ridge
Fairview	*Fionnradharc*	Literal translation, 'a good/fair view'
Ballybough	*An Baile Bocht*	A poor townland
Richmond	Name	Derived from Old French, meaning 'rich hill'

Clonturk	*Cluain Torc*	Pasture/Meadow of the Boars
Marino	Name	Derived from Latin and meaning 'of the sea'
Clonliffe	*Cluain Life*	Meadow/Plain of the Liffey
Tolka River	*An Tulcha*	The Flood

12.4.6 Topographical Files of The National Museum of Ireland

Information on artefact finds from the study area in County Dublin has been recorded by the National Museum of Ireland since the late 18th century. Location information relating to these finds is important in establishing prehistoric and historic activity in the study area.

There are no recorded stray finds from within 250m of the proposed development area.

12.4.7 Aerial Photographic Analysis

Inspection of the aerial photographic coverage of the proposed development area held by the Ordnance Survey (1995–2013), Google Earth (2002–2022), and Bing Maps revealed that St. Vincent's Hospital has occupied the site since prior to 1995. The construction of the Fairview Community Unit (located in the northern extent of the proposed development area) is visible in aerial photography c. 2009. At the time of the construction of these structures, a temporary car park and compound were established to the immediate west of the construction site in the north of the proposed development area. During the construction of the development to the immediate north c. 2018, a haul road was established within the proposed development area. The haul road traverses the site in a north-northeast-south-southwest direction immediately west of St. Vincent's Hospital and the Fairview Community Unit. Variations in the vegetation cover in the undeveloped south-western portion of the proposed development visible on some photographs may correspond to the gravel pit marked on the first edition OS mapping and recorded by the DCIHR, although it is also feasible that this is a result of the aforementioned haul road.

No previously unknown features of archaeological or cultural heritage potential were identified.

12.4.8 Industrial Heritage

A review of the Dublin City Industrial Heritage Record (DCIHR) has shown that five sites are recorded within 250m of the proposed development (Table 12.3, Figure 12.1). One of these lies partially within the proposed development, a gravel pit visible on historic OS mapping in the western portion of the area.

Table 122.3 *DCIHR records within the study area*

Classification	Location	Upstanding remains	Distance from proposed development
Gravel Pit	Richmond	No	Partially within proposed development area
Distillery	Richmond Road	Yes	To the immediate south
Bridge	Tolka River	Original replaced	c. 110m southwest

Printing Works {Corn Mill}	Distillery Road	No	c. 140m southeast
Bonded Store	Distillery Road	Yes	c. 194m southeast

12.4.9 Geophysical Survey

A geophysical survey (Appendix 12.5) was undertaken in May 2021 in order to inform the redevelopment of the proposed development area. The survey took place within four greenfield areas of the proposed development area (Leigh 2021, Licence 21R0101; Figure 12.8).

Area A was dominated by modern magnetic disturbance, resulting from modern litter and ground disturbance. A modern pipe was identified running northeast to southwest through Area A. No responses of archaeological potential were identified.

Area B was entirely magnetically disturbed by modern activity and no anomalies of archaeological potential could be identified due to the disturbance.

Area C was also dominated by modern disturbance. Responses, indicative of service pipes, were noted in the south of the area, while two linear responses in the north of Area C represent two paths. A number of linear trends in the south of Area C were not considered to of archaeological potential and likely represent former landscape features or ground disturbance.

Area D was enclosed by a metal fence which resulted in magnetic disturbance. A spread of magnetic disturbance was identified in the northeast of this area. While the origin of this disturbance is unknown, it is considered to be modern. A faint trend was also recorded in the southeast of Area D, which may represent below-ground services or a former boundary and is not of archaeological potential.

Whilst no geophysical anomalies of archaeological potential were identified in any of the areas surveyed, it was noted that the extensive modern disturbance may mask more subtle responses and archaeological features may remain undetected.

Figure 12.8 *Results of geophysical survey 21R0101 (after Leigh 2021)*

12.4.10 Monitoring of Site Investigation Works

Archaeological monitoring of site investigations was carried out across the proposed development area in April and May 2021. The works were carried out by IAC Archaeology. A total of 49 test pits, foundation pits, slot trenches and soak away pits were excavated across the proposed development area (Figure 12.9).

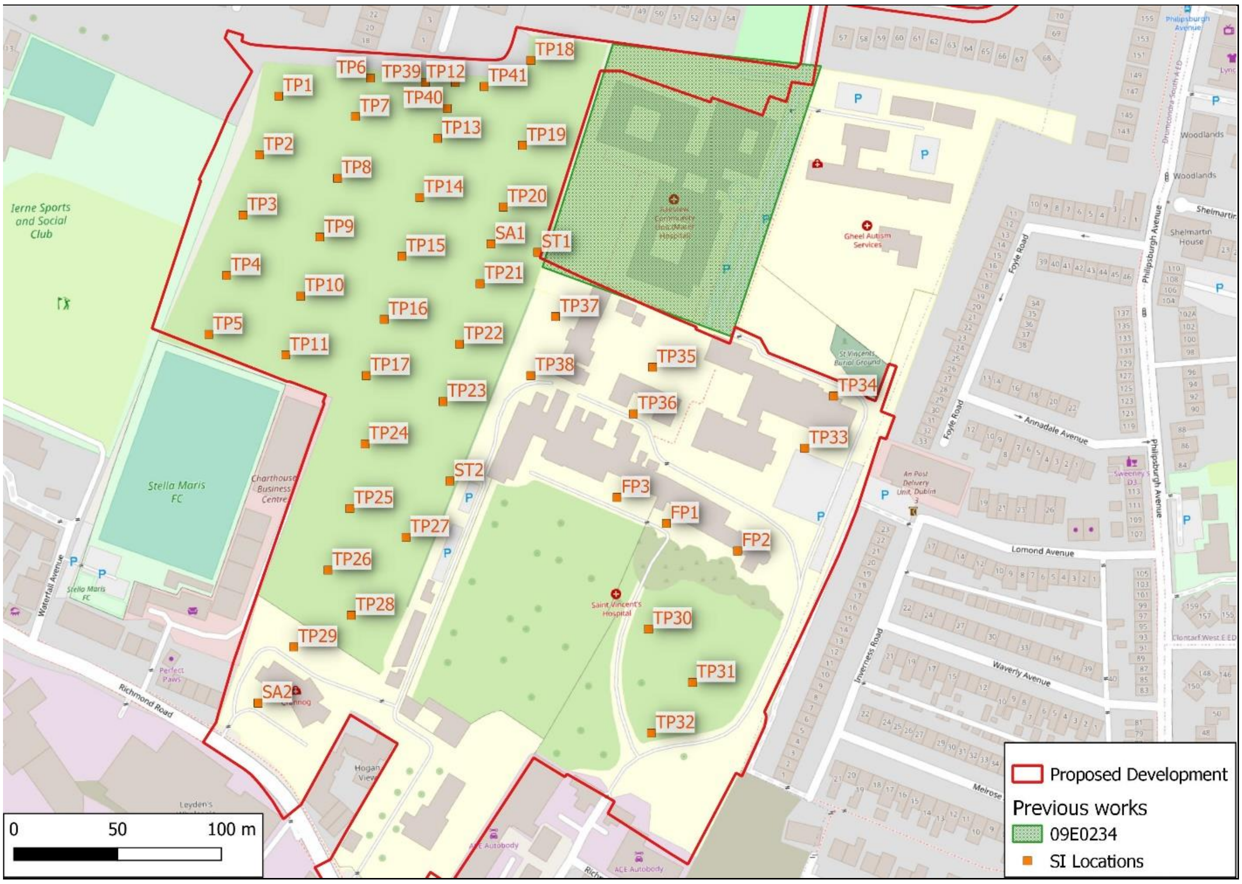


Figure 12.9 Previously monitored area within the proposed development area (09E0234) and locations of monitored SI works

While nothing of archaeological significance was uncovered, a possible limestone feature was noted in the base of TP19 (Plate 12.1). Slot Trench 2 encountered a modern concrete pipe, which passes through the proposed development area in a roughly north-south direction (Plate 12.2). The stratigraphy of some of the test pits confirmed that some areas of the proposed development area comprised made ground or demolition layers (Plate 12.3).

Plate 12.1 *Possible limestone feature in TP19, facing west*

Plate 12.2 *Concrete pipe in ST2, facing south*

Plate 12.3 *TP36, facing northeast*

Three foundation pits were excavated in the immediate vicinity of the standing buildings on the site. FP1 directly abutted the south face of the 3-storey link between the original house (2.5 storeys, bay windows) and the 5-storey red brick former school structure. The wall above this pit has a shallow foundation. Beneath the surface level, the wall steps in 0.05m, 0.22m below the surface the wall steps out again 0.1m where the foundation is formed by a small plinth of dark limestone calp over a roughly hewn limestone block, 0.12m thick (Plate 12.4). FP2 directly abutted the west face of the Chapel building. At surface level, a concrete slab extended from the wall 0.3m with a thickness of 0.15m, beneath this the wall is composed of roughly hewn limestone blocks which reaches 0.75m below the concrete slab, at this point there is a slight lip out which lip overlies a roughly hewn limestone block extending 0.15m out and 0.2m thick (Plate 12.5). FP3 directly abutted the red brick former school building's south face. The wall was rendered to 0.1m below surface level. Below this, the wall was composed of roughly hewn limestone blocks and calp bonded with course loose, lime mortar. Including the rendered segment, the wall reached a depth of 0.47m below surface level at which point it steps out 0.12m and is composed of to a limestone block 0.2m thick (Plate 12.6).

Plate 12.4 *FP1 facing north*

Plate 12.5 *FP2, facing north*

Plate 12.6 *FP3, facing northwest*

12.4.11 Field Inspection

The field inspection sought to assess the proposed development site, its previous and current land use, the topography and any additional information relevant to the report. During the course of the field investigation the proposed development site and its upstanding buildings were inspected (Figure 12.1, Plates 12.7-23).

The majority of the eastern half of the main area of the proposed development is occupied by the upstanding buildings associated with St Vincent's Hospital, many of which are protected structures and/or listed on the National Inventory of Architectural Heritage (NIAH). The built heritage of the proposed development area is assessed in detail in Chapter 13 (Architectural Heritage).

One such building, Richmond House (Plate 12.7), occupies the site of a recorded castle (DU018-017), of which no upstanding remains survive. A large garden associated with Richmond House remains to the rear of the building, extending north and sloping upwards to the main hospital complex and planted with mature trees (Plates 12.8 and 12.9). The north-western quadrant of the garden forms the garden and play area for the children's section of the hospital and has been more developed, with a tarmacked court and permanent play/exercise equipment. Although the southern half of the garden falls within the archaeological zone of notification for the former castle, no features of archaeological potential were identified in this area. Similarly, no remains were present of a pond (CH10) marked on the first edition OS map within the garden, although in both cases it remains possible that features survive below ground level. A series of cast-iron columns are present along the western side of the garden (See Chapter 13 (Architectural Heritage)). To the west of Richmond House are the ruins of a building visible on the 1911 OS map and possibly also on earlier mapping (CH02). The ruins now adjoin the long laundry building, now in use as workshops (Plates 12.10 and 12.11). Two smaller, lower outbuilding structures (CH03) also visible on historic OS mapping are present to the southwest of Richmond House, apparently rebuilt to some extent although the original fabric is visible in places (Plate 12.12).

Plate 12.7 *Richmond House, facing northeast*

Plate 12.8 *Garden to rear of Richmond House, facing northeast*

Plate 12.9 *Garden to rear of Richmond House, facing south*

Plate 12.10 *Structure CH02, facing northeast*

Plate 12.11 *Structure CH02 and laundry building/workshops, facing north-northeast*

Plate 12.12 *Original fabric of CH03, facing north*

At the entrance to the driveway leading to Richmond House off Richmond Road is a gate lodge (Brooklawn, see Chapter 13 (Architectural Heritage)). To the rear of the lodge is a statue of a saint holding a child (CH08), presumably of St Vincent. This does not seem likely to be the original location of the statue, it is damaged and it may be that it was removed from an original location at the convent (Plate 12.13).

Plate 12.13 *Statue to rear of gate lodge (Brooklawn), facing east*

To the east of Richmond House and its associated garden the forked driveway leading to the main hospital complex borders an area of green space south of the chapel enclosed by iron railings (Plate 12.14). The eastern fork corresponds to a driveway shown on the 1911 OS mapping, and a gate lodge (Rose Cottage, see Chapter 13 (Architectural Heritage)) is present at the main hospital entrance from Convent Avenue. The green space and the adjacent garden represent the only relatively undisturbed areas in the eastern half of the proposed development area and whilst no features of archaeological potential were noted during the field inspection in these areas it is possible that such features survive below ground, particularly garden/demesne features associated with Richmond House and the former convent.

The western half of the proposed development area remains largely undeveloped, with the exception of a modern hospital building ('Crannog') at the southern end, adjacent to Richmond Road. North of this, the remainder of the western half of the area is comprised of one large field. The southern, narrower portion of this field is significantly lower than the north, with a sharp slope separating it from the northern portion. This may be a result of the gravel pit marked on the first edition OS map in this area and recorded by the DCIHR. There is also a notable difference in the vegetation cover at this point which may be a result of the same (see also 12.4.7) (Plates 12.15 and 12.16).

Plate 12.14 *Greenspace and driveways south of chapel, facing south*

Plate 12.15 *Southern portion of field in western half of proposed development area, facing northeast*

Plate 12.16 *Southern portion of field in western half of proposed development area, facing southwest*

At the top of this slope, at the point where the field opens out in to the wider northern section, the substantial remains of a stone and mortar wall (CH01) run west-east across approximately three-quarters of the width of the field. The wall is heavily overgrown but survives to heights in excess of 1m (Plates 12.17-12.19). The wall corresponds to the southern wall of the former demesne of Drumcondra Castle.

Plate 12.17 *Demesne wall CH01, facing north-northeast*

Plate 12.18 *Demesne wall CH01 and overgrowth, facing southwest*

Plate 12.19 *Fabric of demesne wall CH01*

The northern, wider portion of the field is located within the former demesne landscape, being relatively level and covered by scrubby grass and vegetation (Plate 12.20). No features of archaeological potential were identified in this area.

Plate 12.20 *Northern portion of field forming western half of the proposed development area, facing south*

The northern linear service section of the proposed development runs along existing the carriageways of Griffith Court and Phillipsburgh Avenue, terminating on Griffith Avenue. The site of the former Ruth Villa (CH06), visible on historic OS mapping, falls within this route at the junction of Griffith Court and Phillipsburgh Avenue. No remains were visible above ground, although it is feasible that below ground remains survive in a small area of greenspace at this point (Plate 12.21). At the northern end of the route a cast-iron lamp post (CH05) is present immediately adjacent to the proposed development (Plate 12.22).

Plate 12.21 *Site of former Ruth Villa (CH06), facing northwest*

Plate 12.22 *Cast-iron lamp post (CH05), facing north*

At the southern extent of the proposed development, along either side of Richmond Road, a series of historic stone setts were noted (Plate 12.23).

Plate 12.23 *Richmond Road showing stone setts on either side, facing southeast*

12.4.12 Conclusions

The main portion of the proposed development area is bound by historic industrial buildings along Richmond Road and the Dublin Port Stadium to the south, by gardens to the rear of terraced residential properties along Inverness Road to the east, by buildings associated with the Fairview Community Unit, the convent burial ground and further residential properties to the north and by the Ierne Sports and Social Club to the west. The linear service section of the proposed development runs through residential areas along existing carriageways to the north.

A large portion of the proposed development is occupied by the historic and modern structures forming the St Vincent’s Hospital complex, including structures associated with the former convent on the site. The built heritage of the proposed development is assessed in detail in Chapter 13 (Architectural Heritage).

There is one recorded monument within the proposed development area, the site of a castle (DU018-017). The zone of notification for this monument encloses a large portion of the southern extent of the proposed development area. There are six additional archaeological sites within 250m of the proposed development. The zone of archaeological potential associated with Dublin City is located c. 1.1km southwest of the proposed development area.

A review of the Excavations Bulletin (1970–2022) and the available excavation reports have revealed that a programme of archaeological monitoring was previously carried out in the north of the proposed development area in advance of the construction of the Fairview Community Unit. Archaeological monitoring was carried out for all topsoil stripping of the site access and compound as well as the larger development area. Nothing of archaeological significance was revealed as part of the topsoil stripping for the site compound.

A geophysical survey was undertaken across the accessible portions of the site in May 2021. The four surveyed areas were dominated by modern magnetic disturbance and no anomalies of archaeological origin could be identified. It should be noted that this does not indicate that no archaeological features are present within the site, as it is possible that the high levels of magnetic disturbance could mask more subtle responses. However, extensive archaeological monitoring of site investigation works was carried out within the proposed development area in April and May 2021. The works were carried out by IAC Archaeology and nothing of archaeological potential was discovered during this investigation.

Analysis of cartographic sources depict the proposed development area through a transformation from a demesne landscape to institutional use. The development of St. Vincent’s Hospital can be traced through historic mapping. The historic maps also testify to the former presence of Richmond Castle (DU018-017) within the site, which is noted on Taylor’s map of 1816. The historic OS maps also show the extent of the burial ground that is partially within the proposed development, which is the burial place of nuns from a number of different orders, including the Daughters of Charity of St. Vincent de Paul, who were involved in the foundation of St. Vincent’s Asylum.

A field inspection, in conjunction with the paper survey, identified a number of sites of potential cultural heritage value, both within the boundaries of the proposed development and in the immediate surroundings. Of particular note is section of the southern demesne wall of Drumcondra Castle which survives, albeit it in a denuded state, in the western half of the proposed development area.

Analysis of the aerial photographic coverage of the proposed development area did note some disturbances within the proposed development area during adjacent construction (c. 2018), however; no previously unrecorded sites of archaeological potential were noted within the coverage.

12.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

12.5.1 Construction Phase

Archaeology

The recorded monument (DU018-017), Richmond Castle, does not possess any upstanding remains and is occupied by Richmond House, which will be retained as part of the proposed development. The zone of notification for this monument includes a portion of the southern extent of the proposed development area. There is a potential for previously unknown features associated with the castle to survive below ground within the relatively undisturbed green spaces in the southern portion of the site. In the absence of mitigation, there may be a direct ***moderate*** to very ***significant, negative impact*** on surviving archaeological remains caused by ground works associated with the proposed development in this area.

Geophysical survey and monitoring of site investigation works within the development area did not result in the identification of any archaeological remains. It does remains possible that archaeological remains may survive within the relatively undisturbed areas of the proposed development. These may include features associated with the former demesne landscapes and gardens, as well as earlier features. The site of the gravel pit is also located partially within the proposed development area, which is listed in the DCIHR. This feature has since been backfilled. In the absence of mitigation, there may be a direct moderate to very significant negative impact on surviving archaeological remains caused by ground works associated with the proposed development in this area.

Cultural Heritage

CH01 is a section of the southern demesne wall associated with Drumcondra Castle. In the absence of mitigation, there will be a direct ***moderate negative*** impact on this feature caused by its removal prior to the construction of new buildings in the western half of the proposed development.

CH02 is the remains of a ruined outbuilding once associated with Richmond House. The ruins will be demolished as part of the proposed development, representing a direct ***negative moderate*** impact.

The structures identified as CH03, incorporating earlier fabric, will be retained as part of the proposed development and as such will not be impacted upon at construction stage.

CH06 is the site of the former Ruth Villa. The linear service route of the proposed development runs partially through this site. In the absence of mitigation, there may be a direct ***moderate negative*** impact on any surviving below ground remains caused by ground works associated with the development.

CH08 comprises a damaged statue located to the rear (north) of Brocklawn Lodge. The statue will be retained in its currently position and will not be impacted upon by the construction of the proposed development.

CH10 comprises of the site of a pond, which has since been backfilled. The feature was located in proposed green space and will not be impacted upon by the proposed development.

The eastern portion of the original demesne landscape associated with Richmond House will be directly impacted upon by the proposed development, although much of the northern part of the demesne has already been development as part of the existing hospital complex. This represents a ***moderate negative*** impact. The western part of the landscape, which retains its mature demesne planting, will be retained as open green space.

The original southeast portion of demesne landscape associated with Drumcondra Castle will be directly impacted by the construction of the proposed development. This part of the landscape is no longer directly associated with Drumcondra Castle, nor under the same ownership and has lost its original designed elements. Furthermore, the demesne to the immediate north of the proposed development area has been subject to residential development. Construction will result in a direct slight negative impact.

12.5.2 Operational Phase

Archaeology

No negative impacts during operation are predicted upon the archaeological resource.

Cultural Heritage

No negative operational impacts are predicted upon the CH sites retained within the proposed development area.

A direct ***negative, moderate*** impact will occur during the operation of the development on the demesne landscape associated with Richmond House.

No operational impacts are predicted on the original demesne landscape associated with Drumcondra Castle, as this area is detached from the principal structure and residential development has occurred to the immediate north of the proposed development area (within the former demesne).

With regards to CH09 (Dublin Port Stadium and Ierne Sports and Social Club) CH04 (terraced housing to the east), ***slight indirect negative*** impacts are possible as a result of the alteration to setting arising from the operation of the proposed development. No operational impacts are predicted in relation to CH07.

12.6 REMEDIAL AND MITIGATION MEASURES

12.6.1 Construction Phase

Archaeology

Prior to the commencement of construction, a programme of archaeological testing will be carried out across all greenfield areas to be affected by the proposed development. This includes any ground disturbances proposed within the zone of notification associated with the recorded caste site (DU018-017). Archaeological testing will be carried out under licence from the National Monuments Service of the DoHLGH and in consultation with the Dublin City Archaeologist. If archaeological features or deposits are identified, further mitigation will be required, such as preservation by record or in situ. Any further mitigation will require agreement from the DoHLGH and the Dublin City Archaeologist.

Cultural Heritage

A full written and photographic record will be made of the remains of Drumcondra Castle demesne wall CH01 and the ruins of an outbuilding (CH02), prior to commencement of construction.

At CH06, the excavation of the proposed service trench will be subject to monitoring. This will be carried out by a suitably qualified archaeologist. If any features of archaeological potential are identified, further consultation will be required with the National Monuments Service of the DoHLGH, in consultation with the Dublin City Archaeologist.

A written and photographic record will be made of the existing Richmond House demesne and section of the Drumcondra Castle demesne to be affected by the construction of the proposed development.

12.6.2 Operational Phase

Archaeology

No mitigation is required for the archaeological resource at the operational phase of the development.

Cultural Heritage

As a record of Richmond House demesne will be made prior to the development going ahead, no additional mitigation is required as part of the operation of the proposed development.

It is not possible to mitigate the slight indirect negative impacts on CH04 to the east and CH09 to the west of the proposed development area.

12.7 MONITORING OR REINSTATEMENT

The mitigation measures detailed above would also function as a monitoring system during construction to allow the further assessment of the scale of the predicted impacts and the effectiveness of the mitigation measures.

12.8 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

Following the completion of the above mitigation measures there would be no significant residual impacts on the archaeological or cultural heritage resource resulting from the proposed development.

12.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

The following proposed and permitted developments, which have yet to be constructed and therefore do not form part of the receiving environment, have been reviewed in order to ascertain the potential for cumulative impacts upon the archaeological and cultural heritage resource:

- *SHD ABP Ref.: 310860-21 - Clonliffe Road Holy Cross College, Clonliffe Road, Dublin 3 and Drumcondra Road Lower, Drumcondra, Dublin 9 (permission since quashed by the High Court following Judicial Review)*
- *Richmond Road SHD ABP Ref.: 312352-21 - No. 146A and 148-148A Richmond Road, Dublin 3*
- *DCC Reg. Ref.: 2945/15 - No. 144 Richmond Road, Drumcondra, Dublin 3*
- *Reg. Ref.: 2957/02 and 5224/05 - Unit 1.1,1.2,1.3,1.4,2,3,4a Richmond Rd., Unit 4A,4B,5B,5C Richmond Rd. Ind. Est., Richmond Road, Dublin 3*

No negative cumulative impacts upon the archaeological or cultural heritage resource have been identified, when considering the proposed development and the surrounding permitted and proposed developments.

12.10 REFERENCES

Ball, E.F. 1906. (1979). *The History of County Dublin*, Gill and Macmillan, Dublin.

Bennett, I. (ed.) 1987-2010. *Excavations: Summary Accounts of Archaeological Excavations in Ireland*. Bray. Wordwell.

Bradley, J. 1992. 'The topographical development of Scandinavian Dublin.' In F. H. A. Aalen and K. Whelan (eds). *Dublin City and County: from Prehistory to Present*. Dublin: Geography Publications.

Chartered Institute for Archaeologists 2020a. Standards & Guidance for Field Evaluation.

Chartered Institute for Archaeologists 2020b. Standards & Guidance for Archaeological Excavation.

Chartered Institute for Archaeologists 2020c. Standards & Guidance for an Archaeological Watching Brief (Monitoring).

Clarke, H. 2002. Historic Towns Atlas of Dublin. Part 1

De Courcy, J.W. 1996. *The Liffey in Dublin*, Gill and MacMillan, Dublin.

Department of Arts, Heritage, Gaeltacht and the Islands. 1999a. *Framework and Principles for the Protection of the Archaeological Heritage*. Government Publications Office, Dublin.

Department of Arts, Heritage, Gaeltacht and the Islands. 1999b. *Policy and Guidelines on Archaeological Excavation*. Government Publications Office, Dublin.

Dillon-Cosgrove. 1909 (reprint 2005). *North Dublin City and Environs*. M.H. Gill Limited. Dublin.

Dowd, M., Carden, R., 2016. 'First evidence of a Late Upper Palaeolithic human presence in Ireland.' *Quaternary Science Reviews* **139**: 158-163.

Dublin City Development Plan 2022-2028.

Environmental Protection Agency. 2015. *Draft Advice Notes on Current Practice (in the preparation of Environmental Impact Statements).* Government Publications Office, Dublin.

Environmental Protection Agency. 2022. *Guidelines on the Information to be Contained in Environmental Impact Statements.* Government Publications Office, Dublin.

Halpin, A. 2000. *The Port of Medieval Dublin*. Four Courts Press.

Kyle, J. 2009. Archaeological Monitoring of St Vincent's Hospital, Fairview, Dublin 3. Licence 09E0234. Unpublished report prepared by IAC Archaeology.

Leigh, J. 2021 Geophysical Survey Report- St. Vincent's Hospital, Fairview, Dublin City North/ Richmond, Dublin 3. Licence 21R0101. Unpublished report prepared by J.M. Leigh Surveys Ltd.

MacCotter, P. 2008. *Medieval Ireland: Territorial, Political and Economic Divisions*. Dublin. Four Courts Press.

McQuade, M. and O'Donnell, L. 2007. 'Late Mesolithic fish traps from the Liffey estuary, Dublin, Ireland,' *Antiquity* **81**:313, pp. 569-584.

Mitchell, G. F. 1972. 'Further Excavation of the Early Kitchen-Midden at Sutton, Co. Dublin,' *The Journal of the Royal Society of Antiquaries of Ireland*, **102**:2, pp. 151-159.

National Monuments Service, Department of Housing, Local Government and Heritage. *Sites and Monuments Record*. County Dublin.

National Museum of Ireland. *Topographical Files*. County Dublin.

Joyce, P.W. 1870. *Irish local names explained*. HM Gill

Stout, G. and Stout, M. 1997. Early Landscapes: from Prehistory to Plantation. In F.H.A. Aalen et al. (ed.), *Atlas of the Irish Rural Landscape*. Cork. Cork University Press.

Traynor, P. 1897. Where was the Battle of Clontarf Fought? *The Irish Builder* **39**:899, pp. 106

<u>Cartographic Sources</u>

John Rocque's Map of the City and County of Dublin, 1760

John Taylor's Map of the Environs of Dublin, 1816

Ordnance Survey maps of County Dublin, 1844-1953

Electronic Sources

www.excavations.ie – Summary of archaeological excavation from 1970-2022.

www.archaeology.ie – DoHLGH website listing all SMR/RMP sites.

www.heritagemaps.ie – The Heritage Council web-based spatial data viewer which focuses on the built, cultural and natural heritage.

www.googleearth.com – Satellite imagery of the proposed development area.

www.bing.com– Satellite imagery of the proposed development area

www.logainm.ie –Placenames Database of Ireland launched by Fiontar agus Scoil na Gaelige and the DoHLGH.

CHAPTER 13

ARCHITECTURAL HERITAGE

awnconsulting
A Trinity Consultants Company

CHAPTER 13 CONTENTS

13.0 ARCHITECTURAL HERITAGE

13.1 INTRODUCTION

This chapter will assess the architectural and historic environment impacts potentially arising from the proposed development on the lands of St. Vincent's Hospital complex, Fairview, Dublin 3.

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

This report describes the buildings and other features of heritage significance on the proposed development site, appraises the relationships between heritage assets and their settings, and assesses potential impacts from the site's proposed development for their respective fabric, character and settings.

This report also includes an analysis of the exceptional circumstances applicable to the project which justify, in accordance with Section 57(10) of the Planning and Development Act 2000 (as amended), the proposed demolition of certain curtilage structures and features of protected structure RPS Ref.: 2032.

Section 57(10)(b) of the Planning and Development Act 2000 (as amended) states:

> *"A planning authority, or the Board on appeal, shall not grant permission for the demolition of a protected structure or proposed protected structure, save in exceptional circumstances."*

The purposes of this analysis it to assist the Planning Authority, or the Board on appeal, in its consideration of exceptional circumstances in the context of the requirements to justify demolition contained in section 57(10)(b) of the Planning and Development Act 2000 (as amended).

This document has been prepared by Carrig Conservation International. Assessments of sites, structures and buildings adhere to the following guidelines and standards:

- Architectural Heritage Protection, Guidelines for Planning Authorities (2011)
- Irish Standard EN 16096-2012: Conservation of cultural property - Condition survey and report of built cultural heritage.
- ICOMOS Charters
- Technical Guidance Documents
- Department of Housing, Local Government and Heritage Advice Series

This assessment has been conducted by Caitriona O'Connor; M.Arch, M.Sc, PgDip, MRIAI, RIBA accredited Conservation Architect (Grade II).

13.2 METHODOLOGY

13.2.1 Basis of Assessment

The architectural heritage component of the EIAR will describe and evaluate the heritage values of the structures and features within the application site and its immediate context, which are considered to be of heritage value. It will then anticipate the potential impacts on those structures and places arising from the proposed development. The following sources have been consulted to understand the development of the site and the significance of the affected assets:

- Dublin City Development Plan 2022-2028 [CDP]
- Record of Protected Structures [from Dublin City Development Plan 2022-2028]
- National Inventory of Architectural Heritage [NIAH]
- Record of Monuments and Places [RMP]
- Historic area maps

The assessments of the design team consultants have been reviewed in preparation of this heritage appraisal with respect to relevant mitigation measures which have informed the design proposals. Findings which interact with the architectural heritage-related research and assessment were reviewed and will be summarised in Section 13.10. This chapter should be read in conjunction with the following related documents:

- Chapter 11 of EIAR, Landscape and Visual, prepared by Model Works Ltd.

The Landscape and Visual Impact Assessment Chapter provides an appraisal of the key landscape sensitivities and receptors. Visual impacts have been categorised based on verified montages which are at appendix 11.1 to the chapter, and their impact on the landscape and receiving historic environment. This study has influenced the development of the design in relation to the new landscaping proposals and the retention of historic trees.

- Chapter 12 of EIAR, Archaeology and Cultural Heritage, prepared by IAC Ltd.

This chapter includes appraisals of below ground structures and features as well as the wider cultural and social context. These appraisals have informed the development of the proposals in the vicinity of the protected structures and the conservation strategy in relation to the protection and enhancement of social and historical values.

- Chapter 7 of EIAR, Biodiversity, prepared by Altemar Ltd.

This biodiversity impact assessment addresses the potential presence of bats in the historic structures and proposes the appropriate protection and mitigation strategies which are incorporated into the conservation works and sequencing.

There were no significant difficulties in compiling the specified information for this EIA chapter.

13.2.2 Scope of the Assessment

This chapter will appraise the existing heritage buildings and features on the proposed development site based on visual inspections and available historical mapping data. The setting of the buildings and the significant external features such as boundary walls and railings have been inspected on a visual basis. No ground investigations have been undertaken.

The St Vincent's Hospital Fairview Complex includes the following Protected Structures:

RPS Ref.	Address	Description
8788	Richmond Road, Dublin 3	Richmond House (in the grounds of St. Vincent's Hospital), to include former chapel and courtyard with outbuildings - see *Convent Avenue*
8789	Richmond Road, Dublin 3	'Brooklawn' (within the grounds of St. Vincent's Hospital), bow-fronted House, with 19th century red brick wall to its western boundary and two gate piers - see Convent Avenue
2032	Convent Avenue, Dublin 3	St. Vincent's Hospital old house/convent, including plastered extension to the west, including entrance porch to convent. Two-storey over garden level brick building (with granite steps and entrance door surround) on south front. Four-storey pedimented brick pavilion, with stone trimmings, to the west (including granite balustrading at parapet level). Railings in front of convent building on north side

The designated and significant heritage buildings are described in summary form in this chapter and a detailed external and internal description is available in the following Volume 4 Architectural Heritage Report and Appendices prepared by Carrig Conservation:

- Architectural Heritage Impact Assessment Historic Buildings & Protected Structures at St Vincent's Hospital
- Appendix 1: Architectural Inventory, History and Appraisal of Historic Hospital Buildings and Complex
- Appendix 2: Condition Assessment of Historic Hospital Buildings and Complex
- Appendix 3: Conservation Repair Recommendations for Historic Hospital Buildings and Complex
- Appendix 4: Conservation Repair Drawings of Historic Hospital Buildings and Complex
- Appendix 5: Conservation Specifications for Historic Buildings
- Appendix 6: Brooklawn Conservation Report [and Drawings]
- Appendix 7: Richmond House Conservation Report [and Drawings]
- Appendix 8: Conservation Assessment of Historic Boundaries and Garden Walls [and Drawings]
- Appendix 9: St Teresa's Ward and Auditorium: Architectural Inventory & History, Condition Report and Salvage Strategy [and Drawings]
- Appendix 10: DCC Section 57 Declaration D0737/17 [06 Dec 2018]

The proposed development includes the reuse of the existing hospital building (part of which is a protected structure under RPS Ref.: 2032) and other existing buildings and ancillary structures on the site, including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the laundry building and Rose Cottage.

The proposed development also includes the demolition of the following structures, which form part of/are within the curtilage of the protected structure RPS Ref.: 2032 namely:

- The western range of the Hospital Building [Phase 2]
- St. Teresa's Ward
- The Freeman Wing
- A series of later additions to the Convent and Hospital Buildings [Phase 1] including the conservatory extension, toilet block extension, an external corridor, toilet core, lift core, and stair core

Figure 13.1 Aerial image showing buildings proposed for demolition highlighted in red [Source: STW Conservation Report]

These structures are described, from a heritage perspective, in Carrig's reports [Refer to AHIA in a Volume 4 which accompanies this application] and the architectural and site planning considerations which drive the need for demolition are elaborated in Scott Tallon Walker's Conservation Report. We have collated and summarised these circumstances in Section 13.6.5 and 13.7.2 of this chapter.

There are several low-rise buildings located to the north of the main Convent and Hospital complex array which are not considered to be of significant heritage value, nor contributing to the character of the setting of the designated structures and as such are not described in detail in this suite of reports. These buildings accommodate the Nurses Training school and outbuildings for services and storage. They are also proposed for demolition but do not form part of the architectural recording and appraisal exercise.

If permission is granted for the proposed development, those parts of the historic structures and landscape features which are proposed to be demolished will be vacated and a revised inventory and architectural record will be carried out. This will ensure the accurate archival representation of the buildings and their features and will further inform a comprehensive salvage strategy.

13.3 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development comprises the construction of a new hospital for mental health to the south of the existing linear hospital complex at St Vincent's Fairview, the provision of apartment blocks on lands to the north and northwest and the conservation and adaptation of existing historic buildings at for use as Community space, café, co-working space, creche and gym. The new scheme will provide a much-needed purpose-built hospital for St Vincent's patients and will dramatically improve upon the existing facilities, while also creating a modern functional use for the historic structures, thereby ensuring their conservation and maintenance for future generations. The proposed works on the site are:

- Provision of a new part two and part three storey hospital building, providing mental health services, accommodating 73 no. beds, associated facilities, a single storey facilities management building, plant rooms and service areas, associated car and cycle parking, access roads, and open space, all on a proposed hospital site of c. 2.67 ha.
- Refurbishment and repurposing of existing buildings on site including Brooklawn (RPS Ref.: 8789), Richmond House, including chapel and outbuildings (RPS Ref.: 8788), the Laundry building and Rose Cottage for ancillary uses associated with the new hospital. The existing gate lodge building will remain in residential use and used by visiting members of staff to the new hospital.
- Change of use, refurbishment, alterations and extensions, to the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a library, a childcare facility, and a community hall (referred to as Block K).
- The proposal includes the demolition of existing structures on site with a GFA of 5,872 sq.m, including the (1) westernmost range of the hospital building, which includes St. Teresa's and the Freeman Wing, (2) extensions to the south and north of the main hospital building, including the conservatory extension, toilet block extension, an external corridor, toilet core, lift core, and stair core (which are all part of / within the curtilage of RPS Ref.: 2032), (3) hospital buildings and outbuildings located to the north of the existing main hospital building, (4) St. Joseph's Adolescent School located in the southeast of the site, (5) Crannog Day Hospital located in the southwest of the site, and (6) extensions to the Old Laundry Building and Rose Cottage.
- Provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L) providing a total of 811 no. residential units, including 494 no. standard designed apartments (in Blocks A, B, C, G, H, J, and L) and 317 no. Build to Rent apartments (in Blocks D-E and F). Residential amenities and facilities are proposed in Block C, D-E, J and K. A retail unit is proposed in Block A and a café in Block F. Block J is proposed as an extension of the existing hospital buildings (protected structure RPS Ref.: 2032- referred to as Block K).
- The building heights of the proposed residential blocks range from part 2 to part 13 storeys. A proposed basement / lower ground level, containing car and cycle parking and plant areas, is located below and accessed via Blocks C, D-E and F.

- Access to the new hospital and associated grounds is provided from Richmond Road and Convent Avenue, with separate internal access points. A separate vehicular access to the residential development is provided from Richmond Road. The development includes a proposed pedestrian / cycle connection to Griffith Court, requiring alterations to the service yard of the Fairview Community Unit, pedestrian / cycle connections to the Fairview Community Unit campus to the north (providing an onward connection to Griffith Court), a pedestrian / cycle connection to Grace Park Wood, and makes provision internally within the site for a potential future connection to Lomond Avenue / Inverness Road.
- The proposal includes public open space, including allotments, children's play areas, a central park, a linear park and an entrance plaza, with a set down area at Richmond Road, and communal open space at surface level. The proposal includes communal roof terraces on Block C and Blocks D-E and private balconies / terraces for the apartments.
- The proposal also includes provision of internal access roads, car and cycle parking, pedestrian and cycle infrastructure, associated set down areas, alterations to existing landscape features, landscaping, boundary treatments, lighting, telecommunications infrastructure at roof level of Block B, green roofs, lift overruns and plant at roof level, site services, including a watermain connection / upgrade via Griffith Court, Philipsburgh Avenue and Griffith Avenue, site clearance, and all associated site works.

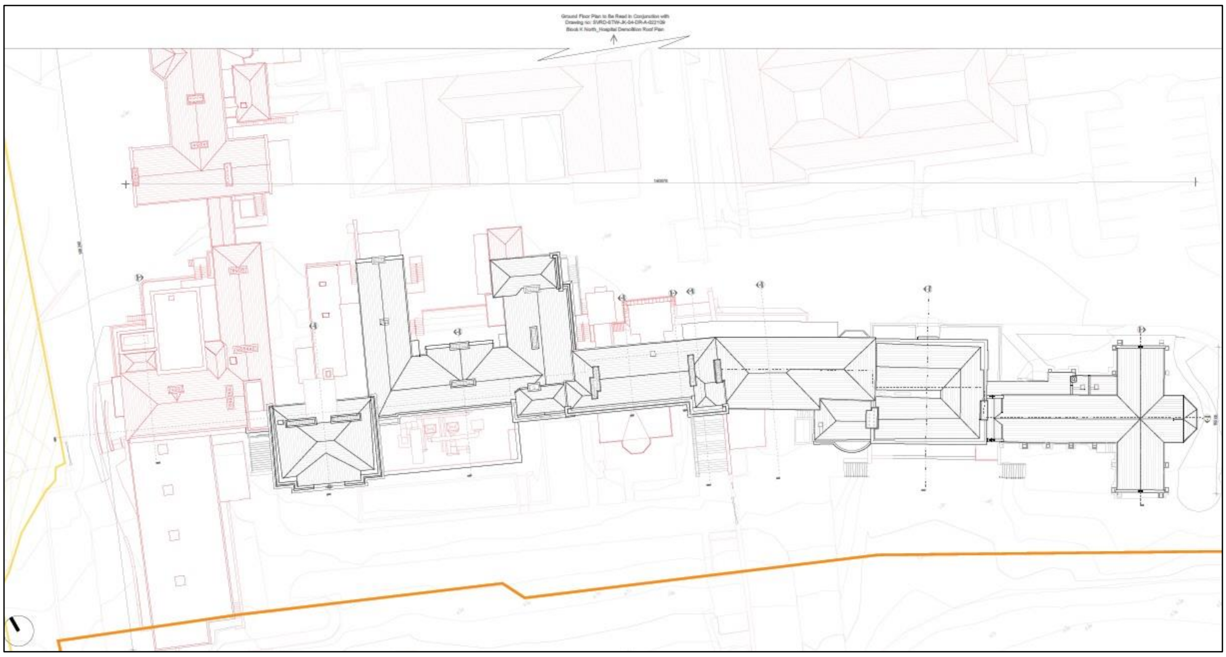


Figure 13.2 Proposed demolition plan of linear hospital complex, areas to be demolished are shown in red [Refer to drawing no SVRD-STW-JK-04-DR-A-022106 in the Architect pack].

Figure 13.3 Proposed site and landscaping plan of new mixed-use development on the lands at St. Vincent's Hospital, Fairview.

13.4 RECEIVING ENVIRONMENT

13.4.1 Outline Description of the Site

The subject site is located at and surrounding St. Vincent's Hospital, Richmond Road and Convent Avenue, Fairview, Dublin 3. The site contains protected structures under RPS Ref.: 2032 (St. Vincent's Hospital old house/convent, including plastered extension to the west, including entrance porch to convent. Two-storey over garden level brick building (with granite steps and entrance door surround) on south front. Four-storey pedimented brick pavilion, with stone trimmings, to the west (including granite balustrading at parapet level). Railings in front of convent building on north side), RPS Ref.: 8788 (Richmond House including former chapel and courtyard with outbuildings) and RPS Ref.: 8789 (Brooklawn, a 'House', including red brick wall and two gate piers). The application site includes an area of the public road / footpaths (extending for approximately 0.8km) to facilitate service connections via Griffith Court, Philipsburgh Avenue and Griffith Avenue, part of the open space within Grace Park Wood to facilitate a pedestrian / cycle connection, and part of Richmond Road to facilitate service connections and associated upgrades.

The site is bound by the Grace Park Wood residential development to the northwest; Griffith Court, the 'Fairview Community Unit' nursing home, Fairview Day Centre, Gheel Autism Services and a graveyard to the north; the An Post Fairview Delivery Service

Unit on Lomond Avenue and properties on Inverness Road, Foyle Road and Richmond Avenue to the east; existing residential and commercial properties on Richmond Road and Convent Avenue to the south and Charthouse Business Centre, Dublin Port Stadium / Stella Maris FC, and Ierne Sports and Social Club to the west of the site.

The subject site comprises a series of buildings which have been developed to support or have become associated with the hospital complex of St. Vincent's, Fairview. The key historic components of the site are the three 18th Century properties of Richmond Convent, Richmond House, Brooklawn and their garden grounds. These and the other remaining buildings and features on the site date from between 1760 and 1994 and are listed as follows:

A. Richmond Convent [former private house, then convent, now hospital] RPS Ref. 2032 [St. Vincent's Hospital old house/convent, including plastered extension to the west, including entrance porch to convent. Two-storey over garden level brick building (with granite steps and entrance door surround) on south front. Four-storey pedimented brick pavilion, with stone trimmings, to the west (including granite balustrading at parapet level). Railings in front of convent building on north side - description applies to C and D below]. Earliest parts dating from between 1770 and 1790 and extended in 1830s.
B. Convent Chapel, built circa 1856.
C. Hospital Building [Phase 1] RPS Ref: 2032 [refer to A above for full description]. Designed by John Sterling Butler in 1860 with later additions c. 1900 and in 1994.
D. Hospital Building [Phase 2] part of which is under RPS Ref: 2032 [refer to A above for full description]. Possibly designed by W.H. Byrne c. 1880, extended in 1960 and 1979 to form the Freeman Wing.
E. Laundry Building, built to support the hospital c. 1880 and extended c. 1930 [older out buildings in this location visible on 1867 folio map].
F. Rose Cottage and Entrance Gate, built c. 1910 on the site of an earlier gate lodge. Gate piers date from later 20th C.
G. Richmond House RPS Ref: 8788 [to include former chapel and courtyard with outbuildings], built 1760, possibly on or near the site of an earlier 'castle' [RMP Ref: DU018-017] but not confirmed by any surface archaeological remains.
H. Brooklawn [Also 193 Richmond Road] RPS Ref: 8789 [bow-fronted House, with 19th century red brick wall to its western boundary and two gate piers], built c. 1760 and altered during 19th and 20th centuries.
I. Boundary walls and railings relating to historic plot boundaries and enclosures dating from 1780s to early 1900s, referred to in NIAH Ref: 50120275 for the hospital complex.
J. Sister's Burial Ground, dating from c. 1820.
K. Cast Iron Colonnade, Richmond House Garden dating from early 20th C.
L. Statuary dating from c. 1880 of St. Vincent De Paul; house in 20th C shelter.
M. Outbuildings to the north of the hospital, early 1900s [proposed for full demolition].
N. St. Teresa's Ward, designed by W.H. Byrne c. 1900 [proposed for full demolition].
O. Nurses Training School, built in 1983 [proposed for full demolition].

The open area to the northwest of the hospital complex is owned by the hospital and will form part of the development site. It is currently a greenfield site and not in use.

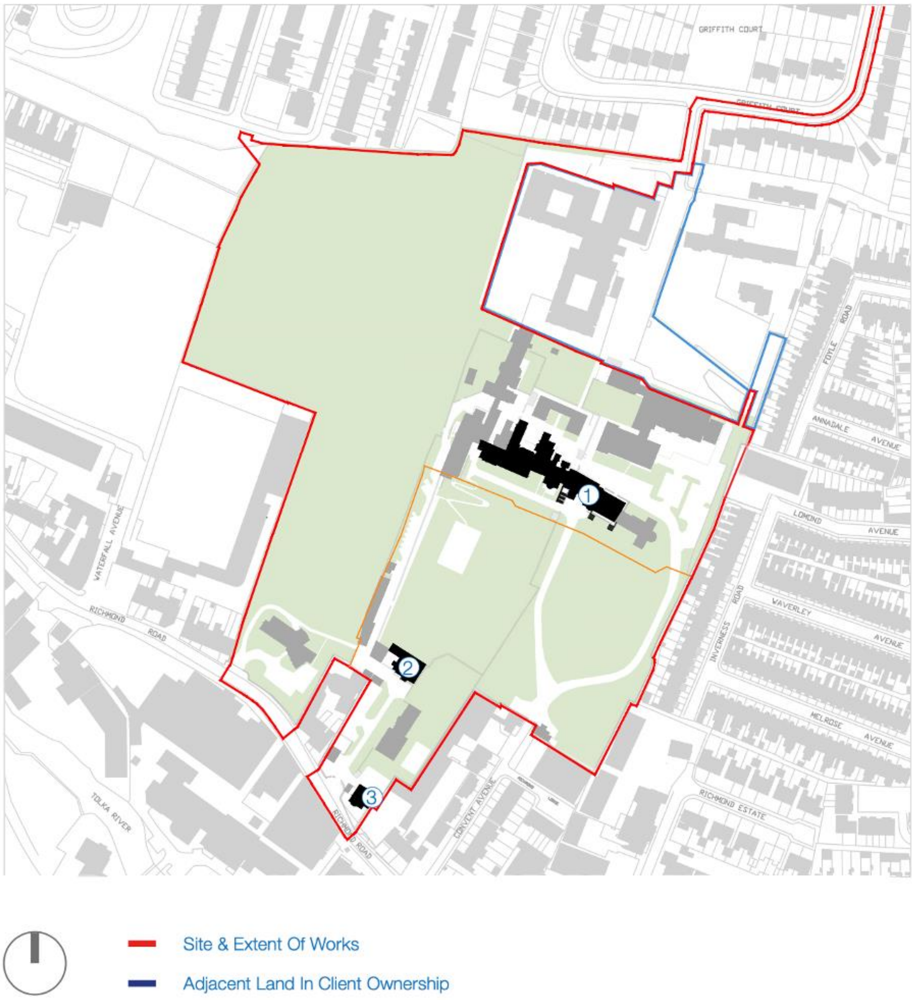


Figure 13.4 Diagram of Protected Structure: [1] RPS Ref. No. 2032 Richmond Convent, Hospital Building Phase 1 and 2; [2] RPS Ref. 8788 Richmond House; [3] RPS Ref. 8789 Brooklawn. [Source: STW Conservation Report]

13.4.2 Historical Development of the Site and its Environs

Early maps show how the St Vincent's Hospital complex has evolved over the centuries. One of the earliest accurate surveys of the locality was produced by French cartographer John Rocque in 1757. An extract of the map below shows the newly laid out Richmond Road which provided access between Drumcondra Castle in the west and Ballybough Bridge in the east. The survey also illustrates the area's rural form and character prior to urbanisation. Soon after the publication of this map, development intensified, and many middleclass homes were erected along Richmond Road and in the environs.

Figure 13.5 Extract of a Survey of the City, Harbour, Bay and Environs of Dublin by John Rocque, 1757. The line of Richmond Road is indicated by a red arrow

Taylors map of 1816 shows the Castle of Richmond (now the approximate site of Richmond House) located at the north end of its avenue. Named after the townland in which it is located, Richmond House is one of three 18th-century houses, including Brooklawn and Richmond Convent, which now form part of the St Vincent's Hospital complex.

Figure 13.6 John Taylor's map of the environs of Dublin extending 10 to 14 miles from the castle, by actual survey, on a scale of 2 inches to one mile, 1816.

The first edition Ordnance Survey Map was published in 1844. When surveyed, Richmond Convent was occupied by the Presentation Order who had founded a school in a former private residence (red arrow on Figure 13.7 below). The Presentation Sisters added a school and accommodation block to the west side of the convent building. To the northeast of the convent was a quadrangular walled garden, divided into sections by paths. To the south of the convent was an additional pleasure garden with mature trees. Today, there are large parts of the early gardens and their associated walls and railings remaining.

The convent and associated buildings were approached from the southwest via Convent Avenue off Richmond Road. At the entrance gate to the site the avenue split into two branches. That to the west led to the southside of the convent buildings, passing a linear structure that is no longer standing. The avenue branch to the east followed the townland boundary northwards and led to the east and north sides of Richmond Convent and the walled garden to the north-eastern end of the grounds.

The 1844 map also shows Richmond House (blue arrow on Figure 13.7) with a wooded lawn to the north containing a small pond. Today the pond has been drained but the land in this immediate area remains waterlogged. A pedestrian pathway followed the line of the garden walls.

Richmond House was approached by its own avenue directly from Richmond Road. Brooklawn, though unnamed on this map, is shown adjacent to entrance gates to Richmond House (green arrow on Figure 13.7).

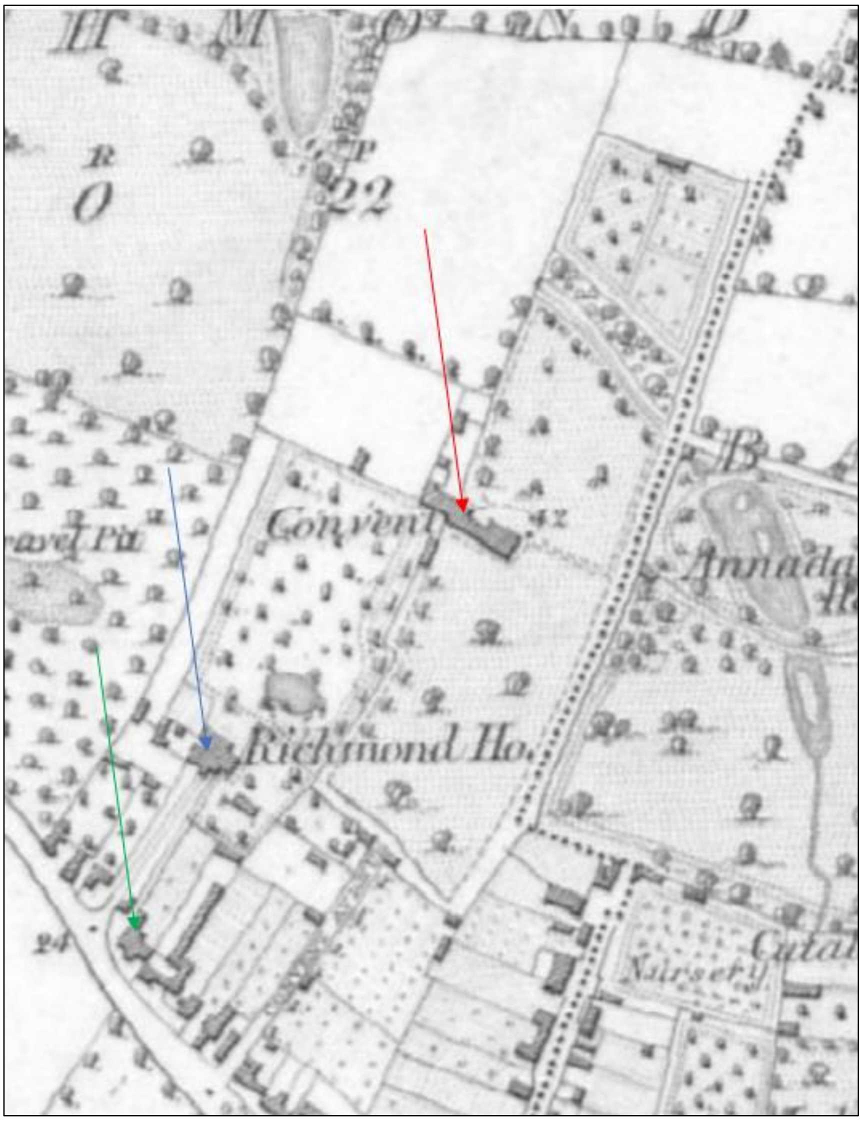


Figure 13.7 First Edition Ordnance Survey Map DN018, Published 1844. Source OSI. Green arrow shows Brooklawn, blue arrow Richmond House and red arrow Richmond Convent.

In 1857, the Presentation Sisters vacated Richmond Convent and moved their school to Terenure. The Daughters of Charity moved their newly founded hospital at Richmond House to Richmond Convent and expanded the complex by building a new U-plan block to accommodate a women's asylum in 1861. In 1850, Griffiths Valuations published the primary valuation of properties in the area. The accompanying map, which post-dates the valuation, shows the new U-plan asylum wing to the west of the convent. The Ordnance Survey map (from askaboutireland.ie) also illustrates the Presentation Sisters' graveyard that had been established in the 1820s just to the south of the walled garden, and the new Roman Catholic chapel, built onto the eastern end of the convent c.1856/7. In addition, the map also documents that a small, enclosed garden with paths had been developed on the north side of the asylum. Furthermore, it illustrates that large garden to the north of Richmond had been drained and pathways laid out.

Figure 13.8 *Ordnance Survey Map Dn018 which was annotated by the Valuations Office. Source askaboutireland.ie*

Figure 13.9 *An inscribed memorial in the burial ground. The earliest recorded internment is dated 1827.*

The 1867 map below illustrates clearly the layout and form of the asylum complex in the 1860s. The footprint of buildings indicates that the chapel had a series of buttresses on the south elevation. A pathway led from the north side of the chapel around to the east and south and was bounded by a wall or railings. The plan also shows that the U-plan asylum building was at this time connected to the western outbuilding, which is today in use as boiler houses. This map also shows a new formal gateway with sweeping walls forming the entrance to Richmond House from Richmond Road.

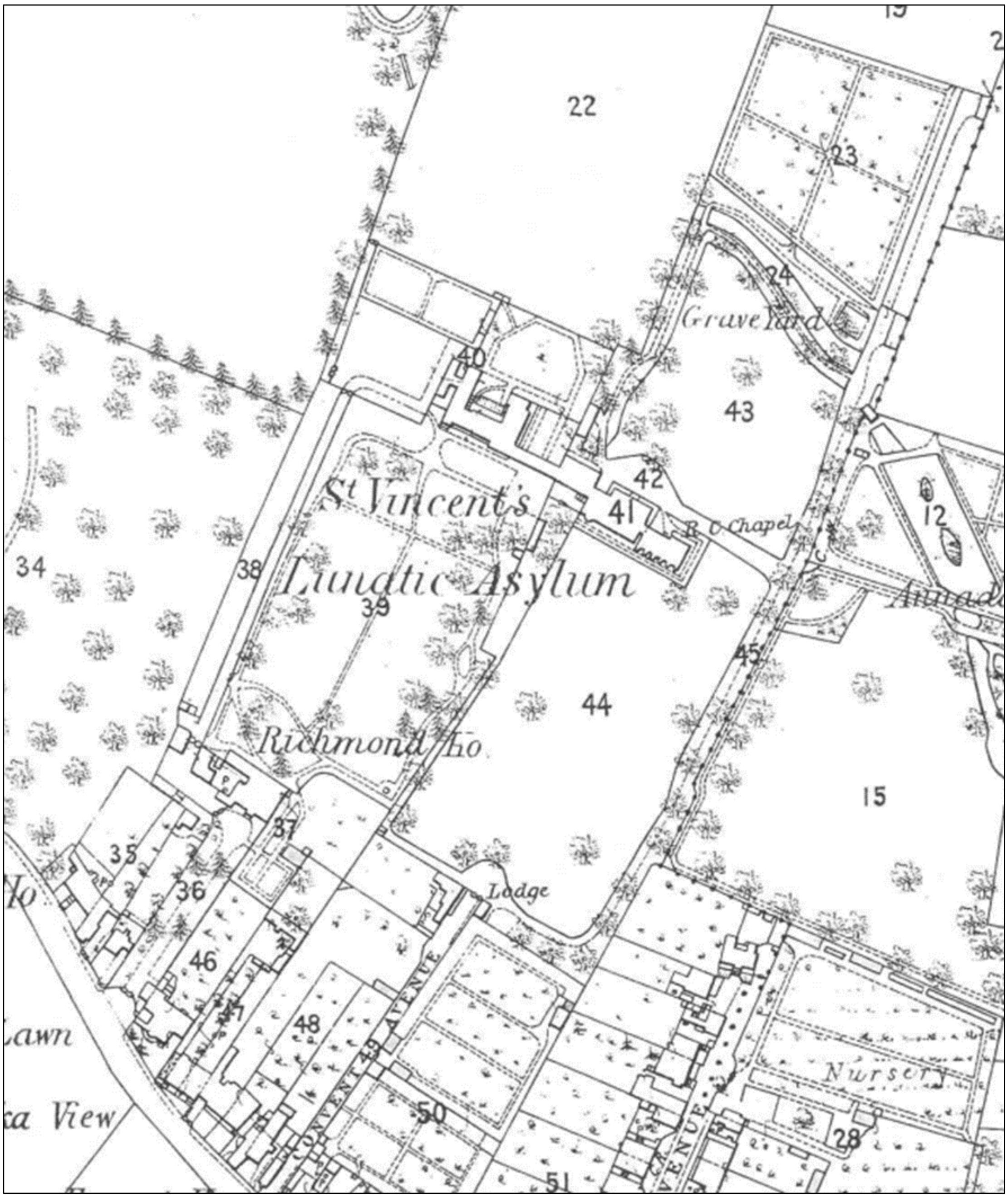


Figure 13.10 Ordnance Survey Map DN018, 1867. Source Trinity College Map Library

The 1889 Ordnance Survey map in Figure 13.11 and Figure 13.12 below is presented in two parts as it straddles two OS sheets. An extract of the northern sheet documents the new red-brick hospital block which was added to the west of the earlier U-plan asylum. The pediment-fronted block and L-plan wing to the west were designed by the architectural practice of W.H. Byrne. The map extract also shows that at this point the convent's chapel remained a single-cell structure.

The second 1889 OS map below shows the structures and features of the southern end of the hospital complex. Richmond House is shown with its enclosed courtyard to the west. Brooklawn, which had been recently remodelled, is marked just to the east of the entrance gate at Richmond Road. The laundry building, which is presently used as maintenance staff offices, had been erected to the west of the enclosed garden to the north of Richmond House.

Figure 13.11 Extract of OS map of D18-18, Scale 1:1056, published 1889. Source Trinity College Map Library.

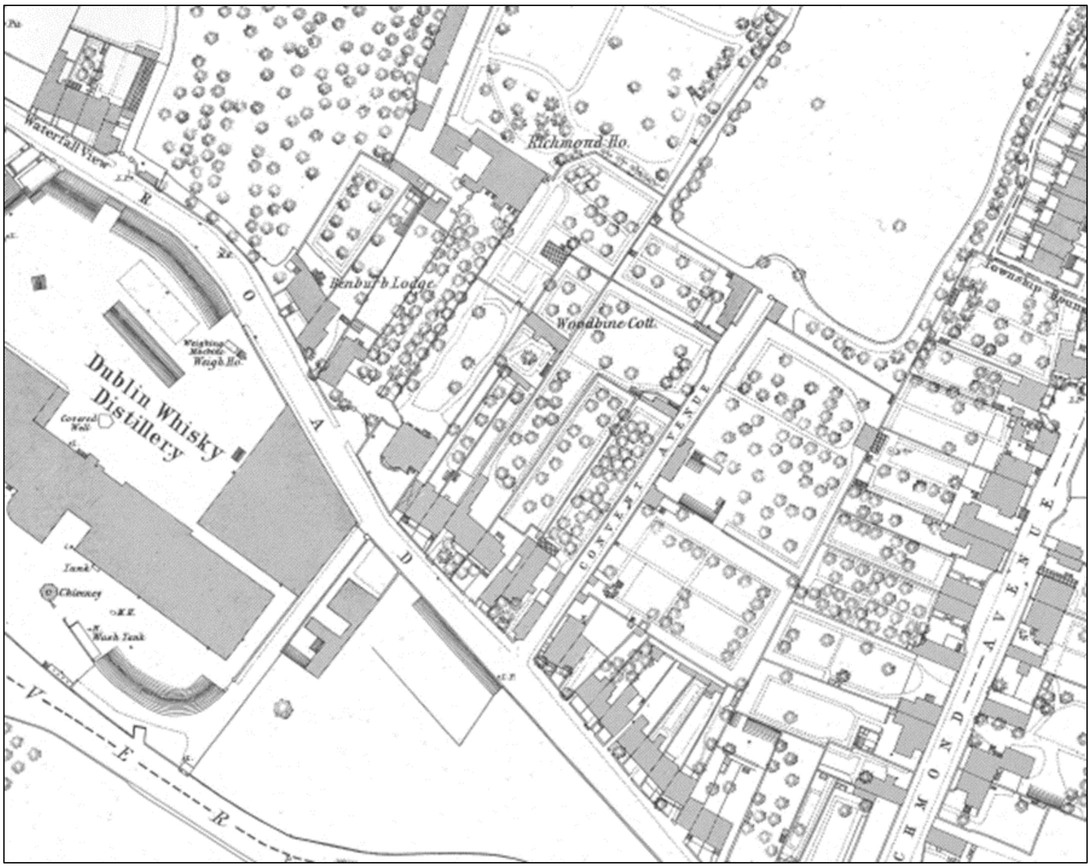


Figure 13.12 Extract of OS map of D18-28, Scale 1:1056, published 1889. Source Trinity College Map Library.

The next edition OS map was surveyed in 1907 and published in 1911. The extract below shows that by this time, the wing known as St Teresa's had been built to the north of the existing hospital. Further expansion from this period includes the red brick three-story hospital structure with T-plan toilet return and glazed corridor situated between the existing convent building and U-plan asylum wing. The south side of the hospital building was shown to be accessed via a grand staircase. Stylistically similar, these structures (indicated by red arrows in Figure 13.13) were designed by the practice of W.H. Byrne.

During this period, the canted-bay window to the north elevation of the Richmond Convent's western extension was constructed as part of the infilling of an open bay. Today, the bayed infill section accommodates the phlebotomy office at first floor and an office at ground floor.

By this time, the chapel had been enlarged with the construction of the north and south transepts, an apse to the east and a tribune to the west. The tribune was a small room accessed from the first floor of the convent and overlooked the chapel's nave through a stained-glass window which could be opened and shut.

The revised map also shows the covered walkway running along the inner side of the western boundary garden wall between the hospital and Richmond House. Today, the paired cast-iron columns of the supporting colonnade are extant, but the roof has perished.

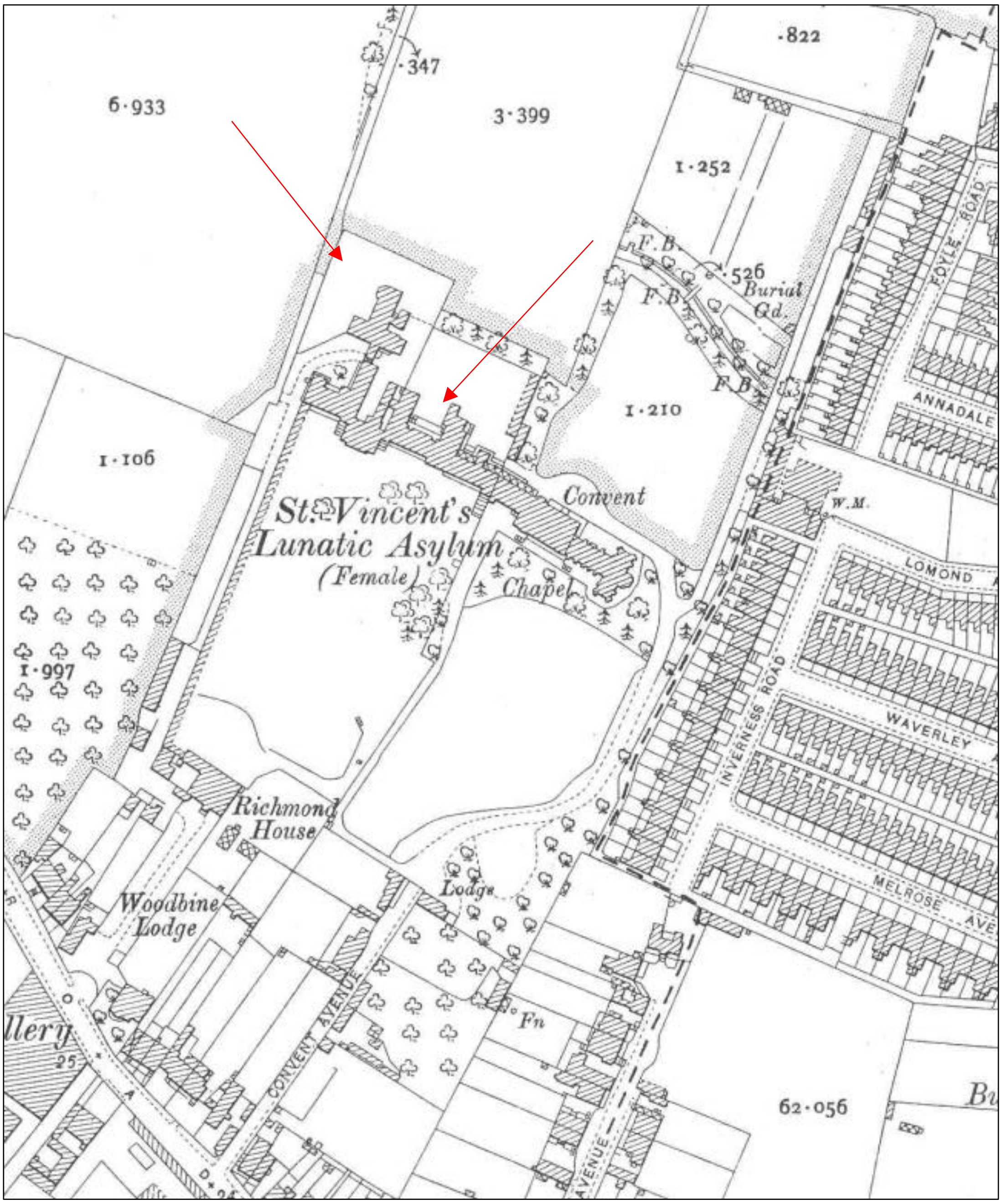


Figure 13.13 Extract of OS map of D18-04, Scale 1:2500, surveyed 1907, pub 1911. Source Trinity College Map Library.

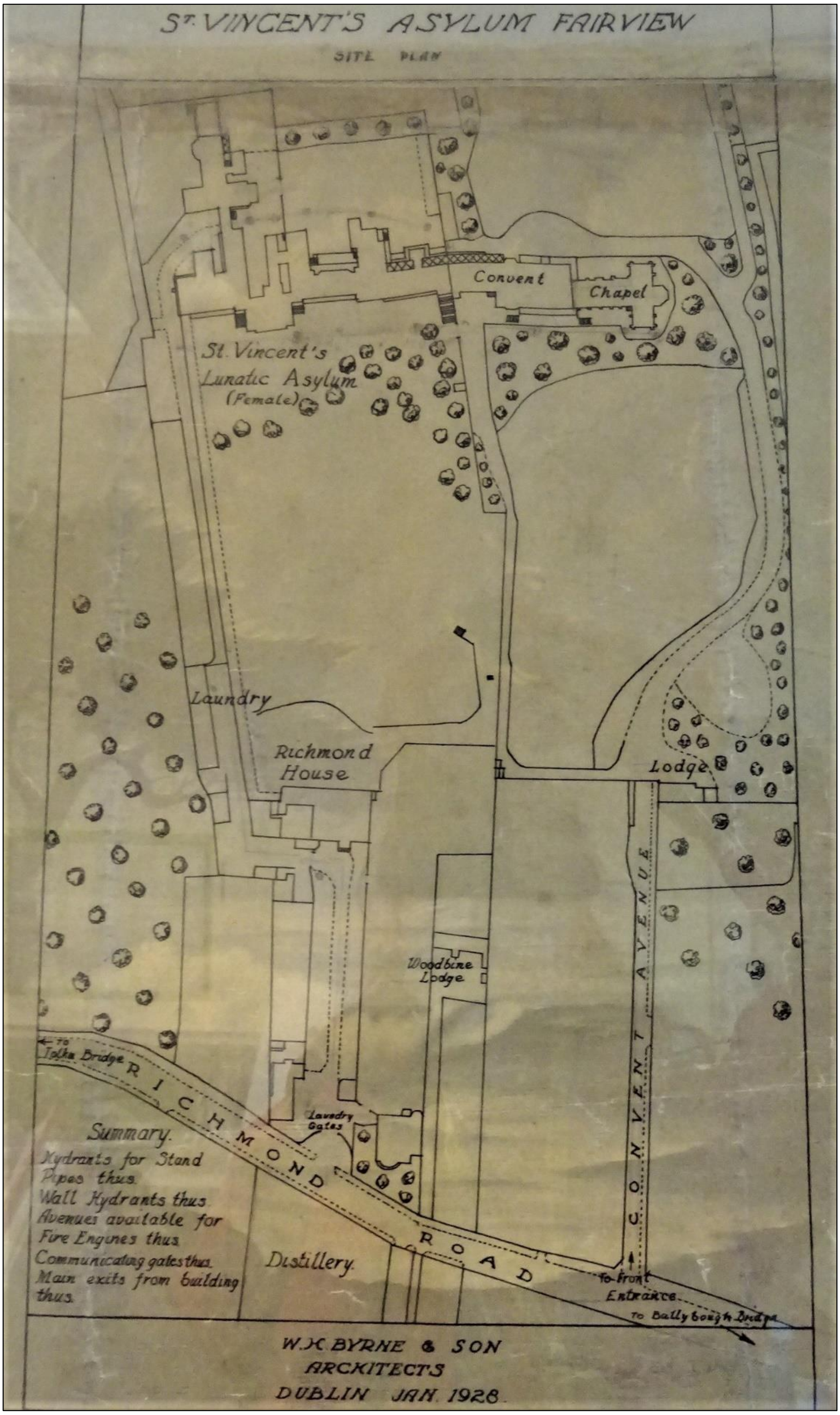


Figure 13.14 Photograph of a manuscript plan that is framed and wall mounted in an office in the hospital. Plan was drawn by WH Byrne & Sons Architects, Dublin, 1926.

The 1930's OS map is the last of the historic series to show the significant changes to the complex which occurred over the course of the 19th and 20 centuries. The maps capture the expansion and infill building works which were required to accommodate the growing population of the hospital. The plan below shows the addition of the auditorium, erected at the north of St Teresa's (red arrow in Figure 13.15).

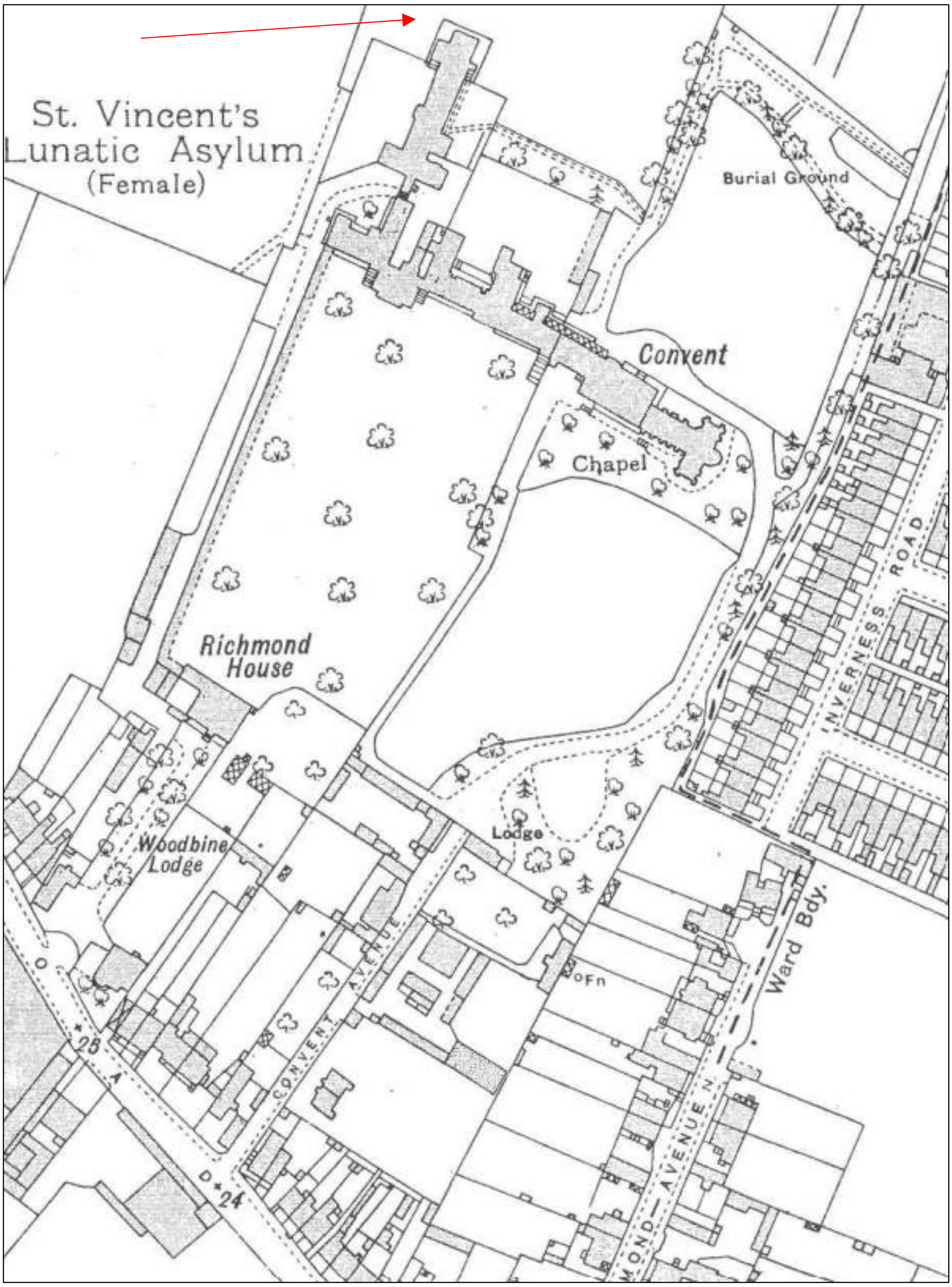


Figure 13.15 Extract of OS map of D18-04, Scale 1:2500, sur. 1935-36. pub 1938. Source Trinity College Map Library.

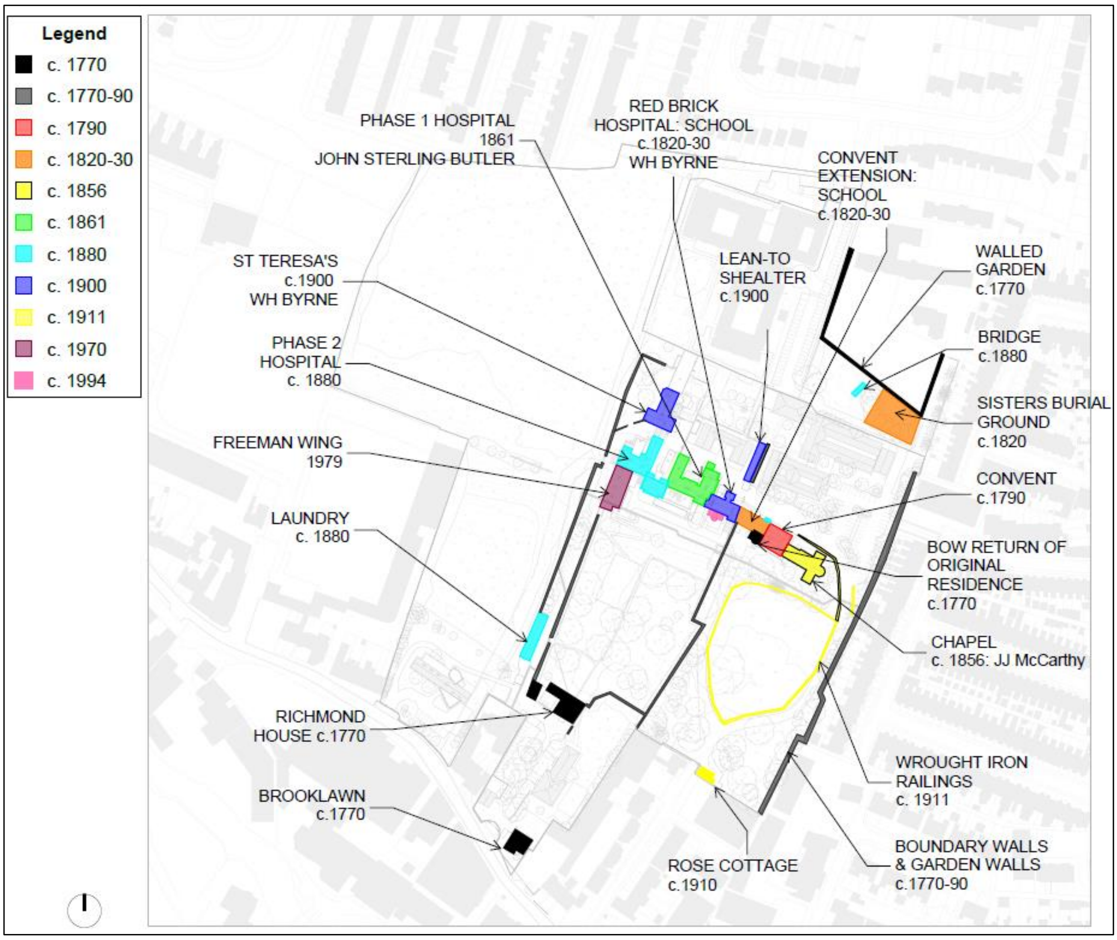


Figure 13.16 Map of site today showing historic structures and features on the proposed development site.

13.4.3 Summary Appraisal of Structures Within the Site

In the following section we will summarise the description and appraisal of the key structures and features on the proposed development site. The reference location for the detailed description is also provided for each.

Table 13.1 Table of Summary Appraisal of Structures within the Site

Ref	Structure	Description	Summary of Significance
A	Richmond Convent RPS Ref: 2032 *[Full description at Volume 4, Appendix 7]*	*RPS description: St. Vincent's Hospital old house/convent, including plastered extension to the west, including entrance porch to convent. Two-storey over garden level brick building (with granite steps and entrance door surround) on south front. Four-storey pedimented brick pavilion, with stone trimmings, to the west (including granite balustrading at parapet level). Railings in front of convent building on north side [RPS description applies to C and D below]* Five-bay three-storey over basement former private house, built c.1790,	The plan, form and materials used in the construction of the original house and its decorative features are typical of this period and contribute to the architectural importance of the Convent and speak to the fashion and tastes of the early occupants. The original convent building was used by the Presentation Sisters and later by the Daughters of Charity, representing their social and cultural historical significance. The 1830s extensions have been altered significantly but those original parts are refined in nature. The 1900 glazed corridor

Ref	Structure	Description	Summary of Significance
		incorporating portion of earlier house with bow-bay at southwest corner of structure, c.1770. Northeast-facing convent building with rear elevation overlooking gardens. Open basement well at front of building is protected by decorative railings mounted on plinth wall. The convent extension, also known as St Anne's Ward, was built as a school building by the Presentation Sisters in c.1830. Other later additions date from 1900.	added to the north has some fine internal finishes and details including art nouveau inspired motifs.
B	Convent Chapel *[Full description at Volume 4, Appendix 1]*	Chapel built c.1856/7 adjoining east-facing side elevation of main convent building. Cruciform-plan chapel with a five-bay nave. Lean-to corridor/cloister running along north-facing side elevation of chapel, leads to former sacristy and is part of the original chapel. Small toilet addition to corridor, the apse and transepts were added to the chapel c.1899 and were possibly designed by John Loftus Robinson, architect.	Roman Catholic convent chapel in the Decorated Gothic style, Designed by J.J. McCarthy who became a founding member of the Irish Ecclesiological Society whose association with the chapel at St. Vincent's Hospital contributes to the social and architectural significance of the structure. The additions to the chapel represent developments in the ecclesiastical design and use of chapels during its lifetime as well as specific use requirements relating to the hospital's needs.
C	Hospital Building [Phase 1] RPS Ref: 2032 *[Full description at Volume 4, Appendix 1]*	*[Refer to A above for RPS description]* Three-story U—plan hospital building, built in 1861. Southwest-facing front elevation overlooks gardens and Richmond House to south.	First purpose-built hospital building at St. Vincent's Hospital complex. Designed by John Sterling Butler. Built in 1861 by contractors Messers Beardwood and Sons. As the first purpose-built hospital on the St. Vincent's Hospital complex, it is of social and historical significance and the design of the building was regarded as playing a role in the curative care of the patients. The design, use of quality building materials such as redbrick and granite and association with architects John S. Butler and W.H. Byrne all contribute to the architectural importance of the buildings.
D	Hospital Building [Phase 2 and Freeman] RPS Ref: 2032 Note: RPS designation does not include the westernmost hospital wing or Freeman	*[Refer to A above for RPS description]* Three-bay four-storey block with five bay three-story wing forming pedimented hospital building built c.1880, with toilet block at rear. Three-storey extension added to northwest corner of structure, c.1960, to accommodate a dining room, dormitories and sanitary block.	The four-storey pedimented block projects forwards from its neighbouring structures and forms a significant and prominent feature in the linear range of hospital buildings overlooking the garden landscape. Probably designed by W.H Byrne, architect, who was architect to the Sisters of Charity. The design, use of quality building materials such as redbrick and granite and association with architects W.H. Byrne contribute to the architectural importance of the buildings. The 1960s extension is now in use as the Education Block and was also designed by W.H Byrne & Sons.

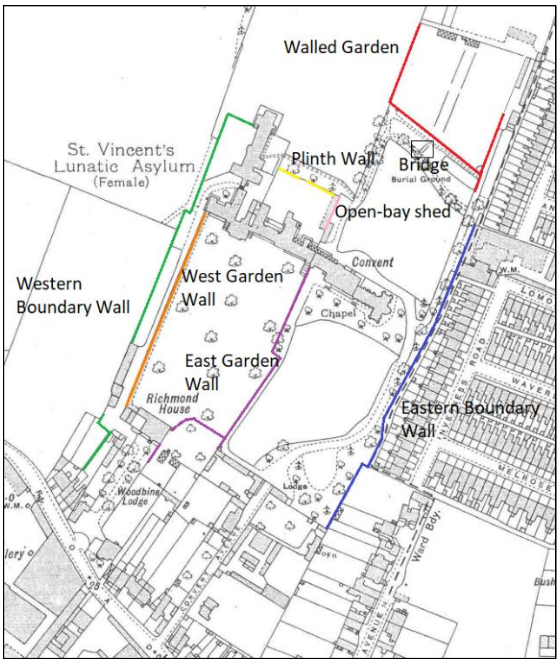
Ref	Structure	Description	Summary of Significance
	Wing. Ref: S.57 Declaration dated 6.12.18 *[Full description at Volume 4, Appendix 1]*	Freeman Unit was built onto front elevation of three-storey, in 1979.	Freeman Unit was built onto the front elevation of the three-storey northwestern extension in 1979, obscuring its relationship to the 1880s development.
E	Laundry Building *[Full description at Volume 4, Appendix 1]*	Detached 11-bay single-storey former yellow-brick hospital laundry, built c.1880, with three-bay flat-roofed single-storey extension, which breaks forward, added to south, c.1930.	This laundry building built c.1880 is of social and historical significance. The yellow brick English garden wall bond denotes its functional status, and the building is intact and still contains its timber floorboards two cast iron fireplaces and pulley system which provide a physical link to its original use. The use of quality building materials and good proportions all contribute an architectural importance of the building.
F	Rose Cottage and Entrance Gate *[Full description at Volume 4, Appendix 1]*	Detached three-bay two storey gate lodge, built c.1910 on the site of an earlier lodge, with flat-roofed full-height extension to front (north) and lean-to kitchen extension to east.	Rose Cottage built c.1910 is a fine, well-proportioned red brick building. It has a later flat roof extension and the interiors have undergone refurbishment in recent history resulting in the loss of much of its architectural character. The quality of building material and its proportions contribute to its significance.
G	Richmond House RPS Ref: 8788 *[Full description at Volume 4, Appendix 7]* Richmond Castle: RMP Ref: 018.017	*RPS description: Richmond House (in the grounds of St. Vincent's Hospital), to include former chapel and courtyard with outbuildings - see Convent Avenue.* Richmond House is located set back off the Richmond Road and is accessed up a long straight avenue with extensive gardens to rear site and east. Detached five-bay two-storey over basement former private house, built c.1760, with a projecting central entrance bay on front elevation. Rear half of building is a mid-nineteenth century addition to the earlier eighteenth century house. Chapel added to northwest of house c.1860 by the Daughters of Charity. Southwest-facing front elevation of Richmond House was remodelled c.1906 and a portico added. Enclosed courtyard and additional buildings adjoining to northwest. Richmond Castle RMP description: *Duncan's map (1821) has 'castle' marked here. Taylors map of the Environs of*	Richmond House began life as a private residence with an architectural style typical of the period in which it was built. The front pile is laid out on a symmetrical plan with the principal rooms mirroring each other. The building retains a number of architecturally significant features. Later additions including the brick-built chapel with timber roof trusses are of also of architectural interest. It was sold 1856 to the Board of Governors of St. Vincent's Lunatic Asylum from which time it was home to the French Sisters, who arrived in Ireland in May 1857 to run the hospital for female patients. The evolution of the house from home to hospital and its significance as the original location of St. Vincent's Hospital adds historical and social interest to the building. Any remains of an earlier castle on the site would be of archaeological and historical significance.

Ref	Structure	Description	Summary of Significance
		Dublin (1816) has 'castle of Richmond' marked on the site. Today there is a two-storey, 5 bay house on the site. There are no surface remains of the castle.	
H	Brooklawn RPS Ref: 8789 *[Full description at Volume 4, Appendix 6]*	*RPS description: 'Brooklawn' (within the grounds of St. Vincent's Hospital), bow-fronted House, with 19th century red brick wall to its western boundary and two gate piers - see Convent Avenue.* Detached two-storey over basement house, built c.1760, with bow-bay on southwest-facing roadside elevation. Open-basement well at southwest-facing roadside elevation. Single-storey projecting bay on southwest-facing roadside elevation is part of original eighteenth century house. Three-storey late-nineteenth century redbrick addition to southeast-facing elevation of earlier house.	Brooklawn is a unique building with two distinctive building phases. The western part was originally a private residence that dates from c.1760 whilst the eastern part is an extension from the late 19th century. The former has notable mid-18th-century features including corner-sited fire openings within the basement and lugged-and-kneed architraves within a hallway and bow-fronted rooms. The Victorian addition has machine-cut red brick, run-in-situ cornices, geometric floor tiles and a glazed timber porch on the northern elevation. Brooklawn contributes greatly to the architectural character of Richmond Road and is a legacy of the early development of the area. Although partially concealed behind a modern boundary wall, the red-brick façade with its river-facing bow-bay, is a notable Georgian feature of the streetscape.
I	Historic Boundary Walls and Railings NIAH Ref: 50120275 *[Full description at Volume 4, Appendix 8]*	Four principal boundary walls running in north-south direction - all erected when Richmond House and Richmond Convent were private residences in the later 18th century. Further wall features include the three extant walls of the walled garden, parapet walls of a bridge, a section of a garden plinth wall to the north of the hospital building, a section of party wall to the north of the hospital against which shelter erected c.1900 and wrought iron railings enclosing the grass area to the south of the convent buildings.	The historic walls and boundary treatments of the hospital site are generally modest features in their architectural significance, but they define the historic landscape which was first developed in the later 18th century and are a physical remnant of this earlier phase of the site. The iron railings are referred to in the NIAH description for the hospital complex highlighting their significance in the context of the historic landscape setting to the building.
J	Sisters Burial Grounds *[Full description at Volume 4, Appendix 1]*	Burial ground situated to the north-east of the original convent building and dating from c. 1820.	Significant both historically and socially as burial ground of the sisters who established the convent in this location.
K	Cast Iron Colonnade *[Full description at Volume 4, Appendix 1]*	Row of paired cast-iron columns running parallel to western boundary wall of garden to north of Richmond House. Formerly supported a roof structure over a sheltered walkway.	The paired columns are an architectural feature within the garden of Richmond House and are part of the historic landscape of the hospital complex. As indicated by the Ordnance Survey's 1911, the colonnade dates from around the turn of the 20th century.

Ref	Structure	Description	Summary of Significance
L	Statuary *[Full description at Volume 4, Appendix 1]*	Painted statue of St Vincent de Paul produced c.1880 by a French manufacturer. Statue is housed within a 20th-century brick-built shelter to the north of the hospital building. Shelter has copper-clad barrel-vaulted roof. Brick is laid to stretcher course.	The 19th-century statue is an item of artistic and technical interest. The piece venerates St Vincent de Paul, founder of the Daughters of Charity who established the hospital. The shelter that houses the statue is not considered to be of architectural significance.
N	St. Teresa's Ward *[Full description at Volume 4, Appendix 9]*	T-plan two-storey hospital wing built c.1900, with passageway connecting to main hospital and toilet block adjoining southeast-facing side elevation. Concert Hall added to north end of St. Teresa's Ward, c.1930. Modern uPVC and glazed conservatory added to southeast-facing elevation c.1990.	St Teresa's and its auditorium are structures of architectural interest in both design and materials. The distinctive palette of red brick, cut-stone granite dressings, multiple-pane sashes and parquet flooring reflects the fabric and style of the later 19th and early 20-century sections of the main hospital.

13.4.4 Outline Character Assessment of the Surrounding Landscape

The significant boundary treatments, features and walls within St Vincent's Hospital complex have been recorded, photographed and evaluated in full in Volume 4, Appendix 8 to this chapter. In this section we will provide a high-level appraisal of the landscape surrounding the buildings and the historic features, for the purposes of assessing the impact of the development on this historic setting.



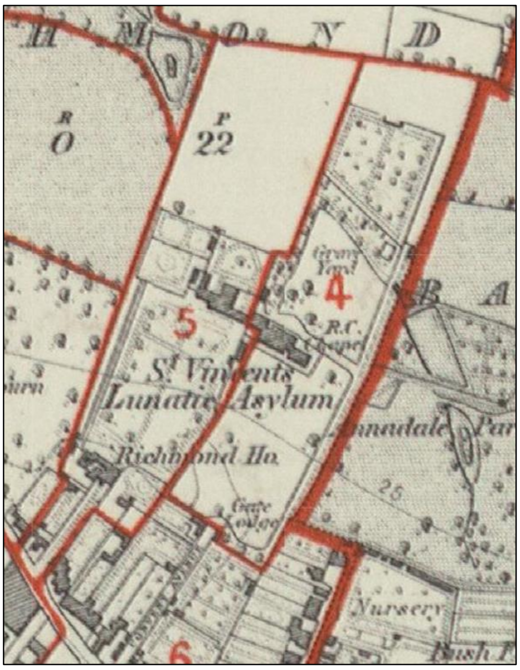


Figure 13.17 [Right] Extract of 1938 OS Map with the site's historic walls within the historic landscape.

Figure 13.18 [Left] Ordnance Survey Map Dn018 annotated by the Valuations office. Source: askaboutireland.ie.

The 1938 map above shows each of the recorded boundary walls which form a key part of the layout and development of this historic landscape. The four principal walls that run in a general north-south direction predate the hospital and were erected to delineate the plots of Richmond House and the former private residence at Richmond Convent in the late 18th century. This is illustrated on the Griffith's Valuations map [Figure 13.17] which accompanies the valuations survey of 1850.

As the site became more interconnected through expansion and acquisitions, these boundaries have become perforated to some degree. While the north-south axes remain tangible the walls themselves appear to have been reconstructed in parts at varying stages. They are modest features in their architectural significance but define this 18th century landscape form. There are several other remaining landscape features such as plinth walls, railings and gate piers which relate to its functional use as a hospital landscape and former connection to the walled gardens and as such contribute to the landscape's historical and social character. The walled garden of Richmond Convent and the associated bridge today lie outside of the proposed development site [See Volume 4, Appendix 8 for full descriptions].

It is a relatively flat landscape which falls gently towards the Tolka river although development of the lands around the site and the boundary walls conceal most visible topographical changes. Today, mature trees and grassed meadow define the character of the former residence gardens to the south. A dense row of trees and planting screens the southern elevation of the chapel and former convent from the enclosed meadow beyond. A paved and fenced sports pitch is accessed by a modern meandering pathway from the central block of the 1880s wing. Much of the area to the north has been infilled with 20th Century development and car parking although some small areas of garden and tree planting soften this setting.

Figure 13.19 Aerial view of the linear Convent / Hospital complex viewed from the northeast showing the infill development of the area to the north of the hospital.

Figure 13.20 Aerial view of the linear Convent / Hospital complex viewed from the southeast showing mature planning, green meadow and modern sportsgrounds and pathway paving treatments.

13.4.5 Statutory Context

13.4.5.1 Zoning

The proposed development site is located in Dublin 3 and is indicated as a red line on the map below, extracted from the Dublin City Development Plan 2022-2028, Map E. The site covers three land use zoning objectives namely, Z1: Sustainable Residential Neighbourhoods, Z12: Institutional Land (Future Development Potential) and Z15: Community and Social Infrastructure.

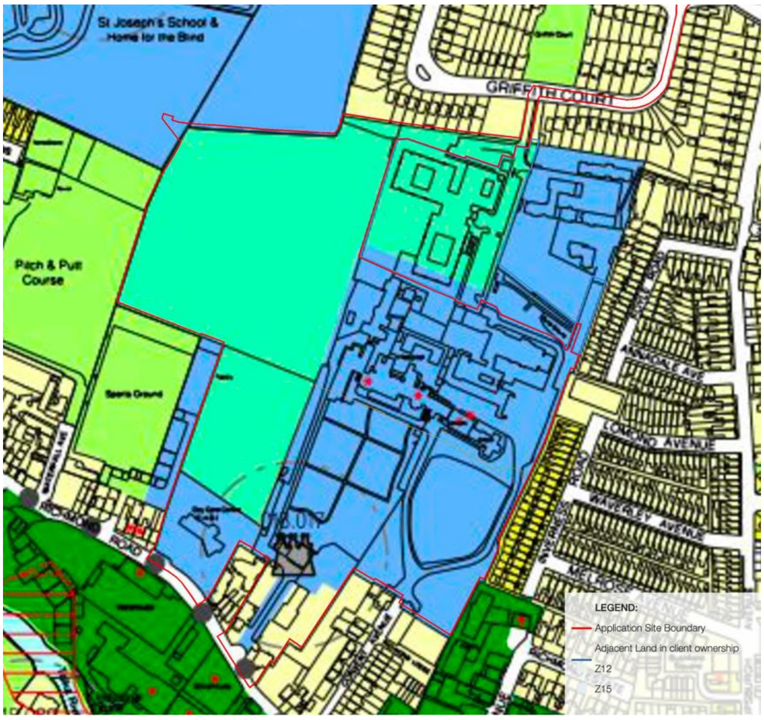


Figure 13.21 Extract from Map E- Land Use Zoning Map from the Dublin City Development Plan 2022-2028 showing proposed development site boundary [red line]

The site is not within or adjacent to an Architectural Conservation Area. The Tolka River to the south is a designated conservation area. Richmond House [Castle] is on the Record of Monuments and Places and as such is a Zone of Archaeological Interest. A row of houses along Inverness Road at the eastern boundary of the site form a Residential Neighbourhood Conservation Area Z2.

13.4.5.2 Designated Structures on the Site

The heritage structures and features on the proposed development site and their respective designations are scheduled on the table below.

Table 13.2 Table listing identified heritage structures and their designation details. Yellow rows denote structures on the RPS and Blue rows denote structures on the NIAH.

Ref:	Name of Structure	Construction Date	RPS Ref.	NIAH Ref.	Special Interest Categories (Assigned by NIAH)	RMP
A	Richmond Convent	c.1770 & c1790-1810, extension c.1830	2032	50120043	Architectural, Artistic, Social	Not on RMP
B	Chapel	1856/7	Not on RPS	50120044	Architectural, Artistic, Social	Not on RMP
C, D	Hospital	1861 &c.1900	2032	50120275	Architectural, Artistic, Historical, Social	Not on RMP
E	Laundry	c.1880	Not on RPS	N/A	N/A	Not on RMP
F	Rose Cottage (Gate Lodge)	c.1910	Not on RPS	50120275	Architectural, Artistic, Historical, Social	Not on RMP
G	Richmond House	c.1760	8788	50120046	Architectural, Historical, Social	DU018-017---- (Scheduled for inclusion in next revision.)
H	Brooklawn	c.1760	8788	50120047	Architectural, Artistic, Social	Not on RMP
I	Boundary Walls and Railings	c.1780	Not on RPS	50120275 [railings referred to in NIAH description for the hospital]	Architectural, Artistic, Historical, Social	Not on RMP
J	Sisters	c.1820	Not on RPS	50120045	Artistic, Historical, Social	Not on RMP

	Burial ground					
N	St Teresa's	c.1900	Not on RPS	50120275	Architectural, Artistic, Historical, Social	Not on RMP

There are three structures listed on the Record of Protected Structures within the proposed development site and as such are affected by Part IV of the Planning and Development Act, 2000 (as amended) and subject to Policy BHA1 – BHA6 in Chapter 11 of the Dublin City Development Plan 2022-2028.

13.4.5.3 Designated Protected Structures Outside the Site

The following protected structures are situated nearby but outside the site's boundary:

- 137 Richmond Road, Elm Lodge [RPS Ref.: 7356]
- Unit 6a/6b Former Distillery Warehouse [RPS Ref.: 7359]
- 163 Richmond Road, House [RPS Ref.: 7357]
- 165 Richmond Road, House [RPS Ref.: 7358]
- 31 Richmond Avenue, House [RPS Ref.: 7348]

13.4.5.4 Demolition of Protected Structures and Curtilage Features

The CDP states in Section 11.5.1 / Policy BHA3, that planning permission for the demolition or substantial demolition of a protected structure will only be granted in exceptional circumstances. With regards to demolition, the plan states that it may be permitted where it will secure substantial public benefit or where there is no other viable option.

"It is accepted that in some circumstances, the loss of a protected structure may be the only option and this may be permitted where it will secure substantial public benefit or where there is no other viable option."

The plan further states in Policy BHA5 that there will be a presumption against demolition of Regional [or higher] Rated Buildings on the NIAH unless it is clearly justified through documented conservation assessment that the building has no special interest and is not suitable for addition to the Record of Protected Structures.

The existing buildings on the site are also subject to section 15.7.1 of the CDP which states:

'Where development proposal comprises of existing buildings on the site, applicants are encouraged to reuse and repurpose the buildings for integration within the scheme, where possible in accordance with Policy CA5, CA6 and CA7.'

Section 2(1) of the Planning and Development Act 2000 (as amended) defines "protected structure" as follows:

"protected structure" means –

a. a structure, or

b. a specified part of a structure,

which is included in a record of protected structures, and, where that record so indicates, includes any specified feature which is within the attendant grounds of the structure and which would not otherwise be included in this definition.

The term “structure” is defined as follows:

“structure” means any building, structure, excavation, or other thing constructed or made on, in or under any land, or any part of a structure so defined, and –

a. where the context so admits, includes the land on, in or under which the structure is situate, and
c. In relation to a protected structure or proposed protected structure, includes –

i. the interior of the structure,
ii. the land lying within the curtilage of the structure,
iii. any other structures lying within that curtilage and their interiors, and
iv. all fixtures and features which form part of the interior or exterior of any structure

or structures referred to in subparagraph (i) or (iii).

Section 57(10)(b) of the Planning and Development Act 2000 (as amended) states:

“A planning authority, or the Board on appeal, shall not grant permission for the demolition of a protected structure or proposed protected structure, save in exceptional circumstances.”

Accordingly, as the proposed development includes a proposal for the demolition of certain curtilage structures and features of protected structure RPS Ref.: 2032, the Planning Authority must consider and determine whether exceptional circumstances exist which allow the granting of planning permission, in accordance with section 57(10)(b) of the Planning and Development Act 2000 (as amended). The analysis contained in section 7.5 of this chapter will assist the Planning Authority with that determination.

13.4.5.5 Protection of Historic Environment

Table 3 of Appendix 3 of the Dublin City Development Plan refers to the protection of historic environments from insensitive development. The section notes that development proposals resulting in enhanced density and scale should:

- Not have an adverse impact on the character and setting of existing historic environments including ACAs, Protected Structures and their curtilage and National Monuments
- Be accompanied by a detailed assessment to establish the sensitivities of the existing environment and its capacity to absorb the existing environment proposed
- Assess the potential impacts on key views and vistas related to the historic environment.

13.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

13.5.1 Introduction and Overview

The objective of the Architectural Heritage Impact Assessment (AHIA) is to analyse all potential impacts of proposed development on the historic fabric, character and setting of the historic buildings, structures and grounds of St Vincent's Hospital. The assessment is presented below in table format where fields detail the rationale for each change, a description of potential impacts and proposed mitigation strategies.

The Architectural Heritage Impact Assessment adheres to the government publication *Architectural Heritage Projection, Guidelines for Planning Authorities.*

This Architectural Heritage Impact Assessment is based on the design presented in this planning application. This chapter should be read in conjunction with the architects drawing package, the archaeological consultant's chapter, the Landscape Visual Impact assessment chapter, and the other chapters in this EIA report.

13.5.2 Impacts of Proposed Works on Structures Within the Site

Visual and material impact on historic fabric is categorised as follows:

Loss or obstruction of historic fabric:	Rationale and impacts will be described in table below and method to mitigate any negative impacts will be detailed.
Neutral Impact:	The impact of the work has no significant effect to historic fabric.
Positive Impact:	Impact is considered an improvement on the existing condition. General mitigation listed above is to be implemented.

13.5.3 General Works

GENERAL				
	PROPOSED WORKS	RATIONALE	IMPACT	MITIGATION
EXTERIORS				
13.5.3.1	Roof: Re-slate roofs as specified with existing undamaged salvaged slate and new natural slate to match. Existing historic rainwater goods will be refurbished. New cast-iron rainwater goods will be provided. New copper and lead flashing will be installed. Localised timber repairs will be carried out to roof structure.	The roofs are in poor condition and water ingress is causing damage to the interiors and structure.	Positive Impact overall: water ingress discontinued. Structures allowed to dry out. Inappropriate plastic rainwater goods removed and replaced using high quality cast iron to match original design. General repairs to slates, flashings, chimneys will be undertaken. Minor Negative impact: Some localised loss of historic fabric where approved alterations are undertaken.	Contractors with prior experience with historic structures to be appointed. As much sound material as possible is to be salvage for reuse. Any new materials to suitably match existing and to be approved by conservation consultant. Salvage materials to be used as much as possible. Use salvaged slates to most visible roof slopes.
13.5.3.2	Elevations: Open joints and localised cement pointing will be raked and repointed with lime mortar as per specification.	Whilst past repair work has been undertaken in good faith at the time, our knowledge and understanding of the adverse effects of inappropriate cement mortars on traditional stonework has hugely increased over the last 20-30 years, and it is now widely acknowledged in the conservation profession that limestone and other porous stonework performs extremely poorly if it is repointed and patched with modern cementitious mortars1.	Positive impact: removal of hard modern cement and repointing with lime mortar will allow moisture to evaporate through the mortar rather than the brick and prevent further brick erosion and extend the lifespan of the building.	Contractors with prior experience with historic structures to be appointed. Hand tools only to be used to remove cement mortar.
13.5.3.3	Drainage: New French drain to be formed around the external footprint of historic external walls. New concrete gullies to be installed with metal grates where missing. Where soil levels are artificially high adjacent to the walls, the soil should be reduced and a drainable gravel should be laid for a width of 300mm around the whole church.	The lack of functioning stormwater drainage is causing saturation of the ground to the foot of the building, this is providing a constant source of moisture for rising damp within the core of the main walls.	Positive impact: The gravel base will allow evaporation for storm water from at the base of the walls to reduce the rising damp (and the temperature of the wall core), which in turn will assist in the reduction of internal condensation. The new drainage branch pipes from gullies will direct water from the roof away from the building. Grated gullies will allow easy access for regular maintenance to ensure blockages are avoided.	Form of gullies to be confirmed with conservation consultant to ensure minimal visual impact. Details and finishes of French drain to be confirmed with conservation consultant to ensure aesthetic and functional compatibility with the existing structure.
13.5.3.4	Removal of redundant external soil pipework.	Clarify elevations by removal of redundant fixtures.	Positive impact to elevation aesthetic. Openings will be left in elevation from removed pipework.	Openings left by removed pipework and brackets should be made good using salvaged bricks and lime mortar. Re-render using lime render if applicable.
13.5.3.5	M&E: Installation of new services.	The building required an upgrade of services throughout to bring it up to the required standards. The exact services routes and components will by agreed by the Design Team in collaboration with the conservation consultant.	Minor Negative impact: Some potential localised loss of historic fabric along new services routes.	Existing routes to be reused where possible. Necessary chasing or opening works will be made good to the highest conservation standards and with a view to re-instating the original details where possible. Surface mounted ducting will be reversible and routes set out to minimise harm.

[1] The dense impervious cement prevents evaporation at the joints and also introduces soluble salts to the masonry. Because the water can no longer evaporate at the joint, where it is meant to, it evaporates at the surface of the brick and in the process produces precipitation of soluble salts at the surface of the stone or around the joint (efflorescence). As these salt particles form, they expand and cause the brick to burst at the surface.

13.5.4 Chapel

CHAPEL [Ref: B refer to Table 1]				
	PROPOSED WORKS	RATIONALE	IMPACT	MITIGATION
13.5.4.1	**New stair and railing to south access.**	New stair required to meet regulations and to not step out directly to step from the chapel.	Minor negative impact: Form of stair will change. New railing will change appearance.	Reuse granite. Salvage railings and reuse if possible. If salvage not possible; Materials for new railing to be high qual. And design and provided to conservation consultant for comment.
INTERIORS				
13.5.4.2	Remove paint to window surrounds.	Unbreathable paint is trapping moisture and causing paint to bubble and eroding stone. Removal will reduce ongoing damage to stone and improve aesthetics.	Positive impact of removing damaging finish to historic fabric.	Only use poultice and methods approved by conservation consultant.
13.5.4.3	Corridor access closed off to west.	Access is closed off to reduce fire escape risk by compartmentalising the space and allow for the enlargement and new configuration of the interior of the convent room to the west.	Neutral Impact: Loss of through access to convent.	Doors to be locked and retained in situ. Blocked opening is reversible.
13.5.4.4	Sacristy to rear to be used as a servery: Installation of kitchenette.	Improvement of services for users of chapel and located in a logical position to serve.	Minor Negative Impact: Minimal loss of historic fabric due to new installations.	Retain stairs to gallery. Retain timber floorboards. New penetrations to be kept to a minimum number and size. New introduced materials to be of high quality. Workmanship to be of high quality.
13.5.4.5	Existing WC to renovated: Existing door between hall and internal door removed.	Upgrade of facilities and increased space.	Minor negative impact: Loss of one timber door.	Timber door to be stored and used elsewhere on site if suitable. Reversible. Historic herringbone left in situ.
13.5.4.6	New accessible WC: Install Disabled WC and store in room to north. New partition wall running N-S in the north room to created storeroom and disabled WC.	Improve accessibility and inclusivity of users.	Minor negative impact: Original room divided in two.	New wall to align with existing rafters and to fit around timber cornicing. Reversible and minimised loss of historic fabric. Reuse door elsewhere if practical.
13.5.4.7	Marble altar to be removed: includes removal of chancel steps.	The building is required to adapt to new uses. The removal of the alter will allow for increased flexible floor space.	Minor negative impact: Loss of historic timber steps and character of the chapel interior.	Floor to be repaired using salvaged parquet flooring from St Teresa's. Hospital to relocate alter piece appropriately.
13.5.4.8	Remove suspended ceiling in sacristy.	Reveal original ceiling.	Positive impact.	Finishes to be using breathable paint. Detailing to be presented to conservation consultant for comment.
13.5.4.9	Stations of the cross will be removed.	To create a non-denominational community space and encourage flexible use.	Minor negative impact: Loss of contemporary chattels. Creates a less religious space and improve inclusivity.	To be recorded and appropriately stored by the hospital onsite (gallery/new reflection space).
13.5.4.10	Pews to be removed.	Increased flexible floor space.	Minor negative impact: Loss of contemporary chattels. Creates a less religious space and improve inclusivity. Allows flexibility and more room for activities to take place.	A small number should be retained in the chapel. Others to be used in public spaces for seating. Surplus: Hospital to store the rest securely and appropriately within the complex.
13.5.4.11	Replace all services: replicate existing single pipe heating system. Replace all modern radiators.	Corrosion around joints of modern radiators and inefficient system.	Minor negative impact: Potential damage due to removal of modern fabric. Potential loss of fabric due to new installation.	Reuse routes to avoid chasing. New heating system with improve interior environment of chapel for users.

13.5.5 Richmond convent & Extension [Part of RPS Ref. 2032 – St Vincent's Hospital Old House/Convent]

RICHMOND CONVENT & EXTENSION [Ref: A refer to Table 1]				
	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
EXTERIORS				
13.5.5.1	Remove existing render and apply new lime render to convent elevations. (if budget doesn't allow: repaint – cream/off white)	Improve performance of walls and aesthetic. The existing hard render is inappropriate for the traditional construction.	Positive impact. Water will be able to evaporate more easily from the external elevations to reduce internal issues with damp and improve appearance of the building.	Lime render to be specified by conservation consultant. Any new paint finishes to be breathable and approved by conservation consultant. Paint colour scheme to be provided to conservation consultant for approval. One tone overall is discouraged: features such as window returns and sills should be picked out and painted in another colour. Or stone details left unpainted (i.e.. Stringcourse, parapet cappings and sills.)
13.5.5.2	New entrance lobby to new reception (G125): Remove infill bay window, widening of opening and construction of new lobby.	Provision of purpose-built modern entrance and circulation to the refurbished complex. Refer to Architects drawings for details.	Minor negative impact: Loss of some historic masonry fabric to allow for widened opening.	Bay window is not original and in very poor condition, requiring complete renewal in its current condition. Its loss is mitigated by the provision of a new fit-for purpose entrance which facilitates the use of the historic buildings in their new function. Brass window latches to be salvaged for reuse.
13.5.5.3	Removal of flat-roofed northern corridor and plinth wall: Re-render the elevation.	Improve circulation of site and adjust access levels. Refer to Architects drawings for details.	Negative Impact: Loss of c.1900 corridor addition that was erected as part of purpose-built hospital building. Roof and glazed timber superstructure are late 20th century. Removal of decorative historic tiled walls, herringbone glazed tiled floor and steps, cast-iron radiators and oak handrails.	Details of any alterations to openings and new doors/windows will be in keeping with proportions of the original finishes and specifications to conservation consultant for comment. Adjusted levels will improve overall site accessibility. Cast iron radiators to be relocated to a new location withing historic structure for reuse.
13.5.5.4	Demolition of south single storey modern extension and low plinth wall.	Modern extension is not considered to have heritage, architectural or aesthetic value and represents a negative impact to the character of the existing building.	Positive impact: original openings to be reinstated. Improved circulation of external landscaping.	Any scarring to the heritage building will be made good using salvaged bricks and lime mortar and finished with lime render. Any paints used are to be breathable.
13.5.5.5	Stair boundary wall to south main entrance to be dropped and new bottom step inserted to rationalise levels.	Lower wall to visually open up site and views and invite circulation. To	Positive impact to views of historic buildings. Minor negative impact: Loss of historic fabric where walls lowered.	Wall to be altered but maintained in place to retain the story of the building's history. Salvaged granite or new Leinster granite to be used for lower step. Remove and reinstate granite capping to wall at new lower level. Detailing and new handrails to be presented to conservation consultant for comment.
13.5.5.6	Installation of new double doors to southwest of extension. Reinstate window opening and window to southwest of convent extension.	Openings reinstated to provide new access to south.	Positive impact: original design intention restored and south elevation visually improved. Increased natural light to room.	Details of openings and new double doors to be in keeping with proportions of the original finishes. Architect to provide specifications to conservation consultant for comment.
INTERIORS: GROUND FLOOR				

RICHMOND CONVENT & EXTENSION [Ref: A refer to Table 1]	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
13.5.5.7	Remove internal glazed lobby screens to central entrance hall (G119): Reopen the main/original entrance hall by removing the modern internal lobby and reception desk.	Return room to its original layout.	Positive Impact: Remove modern negative intervention and returns entrance lobby to its original form.	Floor tiles an internal joinery to be carefully repaired. Tiles to be covered and protected during works to avoid damage.
13.5.5.8	Installation of kitchenette to G119.	Provide adequate modern facilities to serve to new users of the property.	Minor negative impact: Block original opening to chapel corridor.	Door to south already blocked, fabric to be retained in situ.
13.5.5.9	Installation of new lift shaft and lift to new reception (G125/123): Removal of internal partition walls and installation of new lift shaft and partition wall with door. Localised lowering of floor level.	To provide adequate and appropriate accessibility for the building users.	Minor negative impact: Loss of historic fabric where increasing window openings to create doorways. Loss of existing historic floor if lowered.	Opening details and finishes to be provided to conservation consultant for comment. Salvage and reuse the existing floorboards once floor lowered.
13.5.5.10	Installation of access ramp from new reception (G125/123) to previous reception (G119).	To provide adequate accessibility and appropriate accessibility for users of the buildings and meet Part M of the Building Regulations. Room to south is now accessible.	Minor negative impact: Floor to be modified/ lowered.	Potential negative impacts mitigated through good design, regular design team meetings and discussions. Floor finished to be agreed.
13.5.5.11	Removal of south corridor partition wall: The corridor will be opened up and will act as one space with the room to south (G112).	Create open plan space for co-working. Allow room for new services.	Minor negative impact: Loss of historic internal wall and thoroughfare.	Demolition to be carried out carefully as to not damage adjacent historic fabric. Where wall has been removed: Floor finishing details to be provided to conservation consultant for comment. Any cornicing to be made good.
13.5.5.12	Block west door (access to original reception hall) of chapel corridor.	Access is closed off to reduce fire escape risk and allow for the enlargement and new configuration of the interior of the convent room to the west.	Minor negative impact: Loss of historic opening and thoroughfare.	Retain door in situ, works will be reversible.
13.5.5.13	Reinstate doors between rear room east and west.	One opening has the door in situ but the door is blocked up behind. Improve circulation and reinstate openings.	Positive impact of re-opening blocked doorway.	New doors to be approved by conservation consultant. Design to respect proportions of existing doors and hardware to be of high quality. Compatible hardware to be salvaged from St Teresa's.
13.5.5.14	Installation of new facilities to south (G112) room: Two new WC's, one accessible WC and a kitchenette to be installed.	To provide adequate accessibility and appropriate accessibility for users of the buildings and meet Part M of the Building Regulations.	Minor negative impact: Door from corridor to be blocked. Some loss of historic material. Pipework and penetrations.	The necessary improvements to facilities is essential to create a viable reuse of the historic buildings.
13.5.5.15	Reinstate north opening between board room and south corridor room (G112)	Improve circulation and reinstate openings.	Positive impact: Reopen earlier blocked up door.	Opening to be in proportion with the original design intent and details and finishes provided to conservation consultant for comment.
13.5.5.16	Box in Fireplace: White marble fireplace in board room (G118) to be boxed in.	Protection from activities of new use.	Minor negative impact: Visual loss of fireplace detail.	Reversible. Fireplace to be protected before covering.
13.5.5.17	Remove partition wall and WC to G129 and install new partition wall.	To allow room to create new accessible WC.	Neutral - removed materials are not historic.	Improvement of facilities and accessibility.
13.5.5.18	Create new west door opening between the bowed room (G127) and new buggy store. Block door to north.	Improve and rationalise storage requirements to new childcare centre.	Minor negative impact: Some loss of historic wall fabric.	Opening to be in proportion with the original design intent and details and finishes provided to conservation consultant for comment. Use of salvage material where feasible. .
13.5.5.19	Install new WC to southwest store from bow room.	Need for purpose built accessible WC for users and accessibility.	Minor negative impact: Some loss of historic fabric resulting from new penetrations.	Reuse any existing service routes where possible, improved facilities.

RICHMOND CONVENT & EXTENSION [Ref: A refer to Table 1]	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
13.5.5.20	Upgrade internal timber doors to increase fire rating.	To improve fire escape times and safety of the building to meet Part B of the regulations.	Minor negative impact: Alterations to fabric of original historic doors.	Work to be carried out by specialist with demonstrated experience working on historic joinery.
13.5.5.21	Fire rated door to be locked to east of 18th stairs.	Access is closed off as part of fire strategy and to allow for the enlargement and new configuration of the convent room to the west.	Minor negative impact: Loss of historic opening and thoroughfare.	Retain door in situ, works will be reversible.
13.5.5.22	New openings in transverse walls. New door from entrance hall to stairs. Open up early doors that had been blocked up. These doors will be fire rated.	To improve fire escape times and safety of the building to meet Part B of the regulations.	Minor negative impact: Some loss of historic fabric.	Details for doors to be presented to Conservation Consultant for comment. Doors to be high quality timber and opening sizes to reflect proportions of existing building.
13.5.5.23	Removal of convent west extension interior partition walls complete.	Create flexible space and return room to original plan.	Neutral impact. Removal of modern partition walls.	More flexible function space provided.
FIRST FLOOR				
13.5.5.24	New lift installed to where stationary office is and removal of partition walls and stairs.	Improved accessibility and circulation.	Minor negative impact: Door to be blocked and loss of historic opening. Loss of historic floorboards to allow for lift shaft.	Partition walls to be removed have no historic value. Removed door of historic value to be reused elsewhere in the site. Loss of floor finishes mitigated by the positive impact of improving accessibility.
13.5.5.25	Removal of internal partition walls to open up bow room.	The bowed section at first floor to the west of the lift will be part of the co-working space. The pharmacy will be part of co-working space. Opening up will allow for an open plan flexible space for users.	Minor negative impact: Loss of internal historic wall.	Demolition to be carried out carefully as to not damage adjacent historic fabric. Where wall has been removed: Floor finishing details to be provided to conservation consultant for comment.
13.5.5.26	Removal of existing kitchen and bathroom and internal partition walls to open up north rooms.	Return rooms to original layout and provide open space for new users.	Positive impact: Opens rooms up to their original layout. Partition walls to be removed have no historic value.	Retention of chimney stacks and surviving fireplaces. Where fireplaces have been lost – salvaged fireplace from St Teresa's will be used if feasible.
13.5.5.27	Install new accessible WC to east.	Improve accessibility for users.	Neutral impact.	
13.5.5.28	Open door from first floor corridor in direction of stairs. Swing to be hung around the other way.	Improve circulation and fire escape routes.	Neutral impact.	
SECOND FLOOR				
13.5.5.29	Remove all internal partition walls.	Return rooms to original layout and provide open space for new users.	Positive impact: Opens rooms up to their original plan.	Retention of chimney stacks and surviving fireplaces. Where fireplaces have been lost – salvaged fireplace from St Teresa's will be used if feasible.
13.5.5.30	Lift plant to be located in roof void	New lift requires lift plant to be installed.	Negative impact: Structural alterations to roof may be required, TBC with design team.	TBC with design team following detailed design stage.
BASEMENT				

RICHMOND CONVENT & EXTENSION [Ref: A refer to Table 1]	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
13.5.5.31	Lift shaft at basement level.	Space for lift mechanics required to allow for new circulation strategy for the building.	Negative impact: Loss of 18th-century panelled door and fanlight.	Access is currently disused and lift is necessary for accessibility strategy. Door to be used for salvage.
13.5.5.32	Remove N-S walls partition walls.	Return rooms to original layout and provide open space for new users.	Positive impact: Opens rooms up to their original plan.	Retention of chimney stacks and surviving fireplaces.
13.5.5.33	Remove N-S wall to accommodate lift and take out the 18th-century door.	Space required for lift shaft to make all floors accessible.	Loss of historic fabric.	Improved circulation and accessibility of building. Design to be presented to Conservation Consultant for comment.
SECOND FLOOR				
13.5.5.34	Remove all internal partition walls.	Return rooms to original layout and provide open space for new users.	Positive impact: Opens rooms up to their original layout.	Retention of chimneystacks and surviving fireplaces.
HEATING				
13.5.5.35	Potential installation of new heat pumps across scheme.	Improve heating system to a more efficient and effective system and lower the ongoing carbon footprint of the building.	Minor negative impact: Loss of historic fabric due to installation of new service pipes through historic walls/ ceilings/ floors.	Retain heritage cast-iron radiators; refurbish to working order. Reuse existing service runs as much as reasonably possible.

13.5.6 Hospital Phase 1 [Part of RPS Ref. 2032 – St. Vincent's Hospital Old House/Convent]

HOSPITAL PHASE 1 [Ref: C refer to Table 1]	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
EXTERIORS				
13.5.6.1	Demolition of north tiled corridor: Including external fire escape and boundary wall abutting. Two dining room windows to front dropped to form doors. Re-render the elevation.	New fit for purpose staircase being added in its position. Improve circulation on the site and adjust levels to improve accessibility.	Negative impacts: Loss of historic fabric. The sashes will have to be removed and the sills. Loss of Victorian decorative historic tiled walls, floor and steps.	Details of alterations to openings and new doors/windows to be in keeping with proportions of the original finishes. Architect to provide specifications to conservation consultant for comment. Improved accessibility is necessary for viable future use of the buildings.
13.5.6.2	Glazing unit – rolled glass: these will be removed as part of the demolition of the tiled corridor. The individual rolled glass panes will be stored as part of the salvage strategy.	As above.	Negative impact: Loss of decorative historic glass in this location.	The rolled glass panes will be stored for reuse as part of the wider salvage strategy. The architect will determine a location for reuse during the detail design phase.
13.5.6.3	Demolition bed lift, kitchen and toilet block complete: Remove the red brick toilet extension. Reinstate Window (second from west) on ground floor elevation. New exit door from co-working space.	New fit for purpose staircase and lift to be added in its position. Improve circulation on the site and adjust levels to improve accessibility.	Minor negative impact: Minor negative impact: Loss of historic fabric. The sashes will have to be removed and the sills. Loss of Victorian decorative historic tiled walls, floor and steps.	Details of alterations to openings and new doors/windows to be in keeping with proportions of the original finishes. Architect to provide specifications to conservation consultant for comment.
13.5.6.4	Demolition of north staircase.	High level of salt crystallisation has compromised structural integrity of the stairwell. Not fit for purpose as fire escape.	Minor negative impact: Loss of early but non-original stair, walls and roof.	Stair is in extremely poor condition and it would not be reasonably practical to adapt to fire escape stair. Scarring will be made good using salvaged brick with lime mortar and render.
13.5.6.5	Demolition of pebbledash-rendered single-storey garage/store and external fire escape stairs.	Poor condition not fit for purpose and its removal will improve site circulation.	Positive impact: Removal of non-original abutment will clarify aspect of elevation.	Careful demolition where store abuts heritage fabric and make good any scaring using salvaged bricks and lime mortar and lime render.
13.5.6.6	Demolition of conservatory to south.	Modern intervention is not of historic or architectural value.	Positive impact, though scarring will be left to the façade.	Scarring to elevation to be made good using salvaged bricks to match and lime mortar. Openings to be re-exposed and windows redecorated.
13.5.6.7	Construct new glazed tower to north of main stairs: Extension housing new lift and stairwell.	New fit for purpose staircase being added in its position. Improve circulation on the site and adjust levels to improve accessibility. Refer to Architects drawings for details.	Minor negative impact: Some loss of historic fabric. New modern connections to building and visual impact to north elevation.	The existing modern extension has a negative visual impact on the historic building and the new extensions will be an improvement on this through good design. The new extension design will be provided to the conservation consultants for comment and careful detailing at junctions will be required.
13.5.6.8	South side the rendered wall to the east of the external granite stairs lowered and a new metal banister will be installed.	Open views form east to west. Less oppressive.	Minor negative impact: Loss of boundary wall fabric.	Reuse coping stones to finish wall – detail to be agreed with conservation consultant. Detailing and wrought/Cast iron to match existing railing details.
INTERIORS: GROUND FLOOR				

HOSPITAL PHASE 1 [Ref: C refer to Table 1]	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
13.5.6.9	Removal of modern internal partition walls.	Return rooms to original layout and provide open space for new users.	Positive impact: Opens rooms up to their original layout.	Retention of chimney stacks and surviving fireplaces.
13.5.6.10	New door to separate café and gym. Fire door. Just to the west of the present door to the servery.	Improve circulation of the site and form fire compartments.	Neutral.	Details of any alterations to openings and new doors to be in keeping with proportions of the original finishes. Architect to provide design specifications to conservation consultant for comment.
FIRST FLOOR				
13.5.6.11	Internal partition walls to east to be removed: removal of existing bathrooms.	Modernise and improve facilities.	Positive impact.	
13.5.6.12	Window to stairs half landing and to window to east of existing T shaped toilet block will be opened to become doors.	Improve circulation of the site and form fire compartments.	Negative impact: Loss of window sills and historic fabric below windows. Change to character.	Details of any alterations to openings and new doors to be in keeping with proportions of the original openings and finishes. Architect to provide design specifications to conservation consultant for comment.
13.5.6.13	New fire rated door from stairs into the current adult ward.	Improve circulation and form fire compartments.	Minor negative impact: Loss of historic door.	Details of any alterations to openings and new doors to be in keeping with proportions of the original openings and finishes. Architect to provide design specifications to conservation consultant for comment. Upgrade existing timber door if reasonably practical.
13.5.6.14	Removal of all plant on flat roof of the kitchens: It will become a green roof.	Existing roof at the end of it's life.	Positive impact. Views to hospital improved by removal of plant equipment.	The existing roof is not of historic or architectural value. Careful detailing to new roof required where it abuts existing fabric.
13.5.6.15	Remove cupboard in hallway to be removed to open up the door to north room.	To open up the door to north room and improve circulation.	Positive impact.	Details of any alterations to openings and new doors to be in keeping with proportions of the original openings and finishes. Architect to provide design specifications to conservation consultant for comment.
13.5.6.16	A window will be dropped at first floor to the northeast corner of the lecture room. This is at the level that accesses St Annes at present.	To form a door that opens to the lift on the front elevation and allow for new circulation.	Negative impact: Loss of historic fabric where opening lowered.	Details of alterations to openings and new doors/windows to be in keeping with proportions of the original finishes. Architect to provide specifications to conservation consultant for comment.
SECOND FLOOR				
13.5.6.17	Remove all modern internal partition walls.	Return rooms to original layout and provide open space for new users.	Positive impact: Opens rooms up to their original layout.	Retention of chimney stacks and surviving fireplaces.
13.5.6.18	A window will be dropped at first floor to the northeast corner to access new lift from the third half landing.	To form a door that opens to the lift on the front elevation and allow for new circulation strategy.	Negative impact: Loss of historic fabric where opening lowered.	Details of alterations to openings and new doors/windows to be in keeping with proportions of the original finishes. Architect to provide specifications to conservation consultant for comment.
THIRD FLOOR				
13.5.6.19	Remove modern internal partition walls.	Return rooms to original layout and provide open space for new users.	Positive impact: Opens rooms up to their original layout.	Retention of chimney stacks and surviving fireplaces.

13.5.7 Hospital Phase 2 [Part of RPS Ref. 2032 – St. Vincent's Hospital Old House/Convent]

HOSPITAL PHASE 2 [Ref: D refer to Table 1]	PROPOSED WORKS	RATIONALE	IMPACT	MITIGATION
EXTERIORS				
13.5.7.1	Demolition of the westernmost wing complete.	Demolition of the existing buildings is required to allow for the construction of the new residential development and associated amenities. Refurbishing or retrofitting the existing buildings on the site would not result in the delivery in the sufficient quantum of units which is required to fund the new mental health facility. A reduction in unit numbers will have a financial impact for the development of the hospital and could jeopardise its development. The risk of the new mental health facility not being built will impact on patients and local community, and possibility of existing structures falling into further disrepair if existing Hospital is closed. The proposed scheme will conserve and rehabilitate approx. 4,800 sq.m of historic buildings on the site and provides for long term sustainable uses for them. The western wing, due to its layout cannot be easily adapted to residential apartment use which is required in this location. The demolition of these buildings will improve connectivity and permeability of the site. The existing site is located within a very large and highly impermeable urban block. the Masterplan proposal has the potential of becoming a key link at a pedestrian level that can support local amenities and creates the opportunity for the site to become a destination at a neighbourhood level. The conservation of the historic buildings will be a considerable cost and the developer is investing heavily in the reuse of Block J, the laundry, Richmond House, Brooklawn and the wider grounds.	Negative impact: Loss of L-shaped plan to northwest of phase 2 hospital building which mirrors the same wing on the opposite side when viewed from the south.	The loss of original fabric will be balanced against the provision of new high-quality residential facilities and a central public park for the benefit of the wider community. Its removal will allow the repair and regeneration of the rest of the site and facilitate the development of the mental health facility. The complex is large (4800m of historic buildings) and these structures pose a challenge as there is finite opportunities for viable reuse. The wing proposed for demolition is of historical and architectural value but is mirrored on the opposite side - so the demolition does not represent a permanent loss of architectural detail. This western side is physically obscured by the 1970s development of the Freeman wing and other later additions. Buildings proposed to be demolished are not in active use. Scarring to be finished using salvaged cut stone. Undamaged high-quality materials are to be salvaged for reuse either on this site or elsewhere.
13.5.7.2	Demolition of Freeman building complete.	SEE I – V ABOVE Provision of Public Open Space and parklands within the scheme for patients, tenants, and local residents. The existing buildings to be demolished currently divide the site creating an enclosed space that is counterintuitive to what the scheme is trying to achieve and compromises the quality of the shared open spaces. The westernmost hospital wing has been altered significantly and from the front is predominantly obscured by the Freeman Wing which was added in the 1970s, compromising its contribution to the group value of the range of hospital buildings.	Negative Impact: Loss of historic form and fabric of west wing and of 1970's wing.	1970's wing is considered to have low historic and architectural significance. The mitigation is to balance the loss of original fabric against the provision of newly designed high-quality facilities which allow for the practical upgrades to the majority of the historic structures and to ensure that the protected structures on the site can be afforded a sustainable future use.
13.5.7.3	Construction of new of Block to West: It will abut Block K, Phase 2 of the historic hospital.	Purpose-built new extension to facilitate new apartments.	Negative Impact: Change to character of the hospital complex and impact on long views towards the hospital from the landscape.	Overall design and use of materials to be high quality. Details to be carefully designed, particularly where the new structure meets the old. Designs to be provided to conservation consultant for comment.
INTERIORS:				

HOSPITAL PHASE 2 [Ref: D refer to Table 1]				
	PROPOSED WORKS	RATIONALE	IMPACT	MITIGATION
13.5.7.4	Demolition of transverse wall in adolescent common room/art room.	Rationalisation of circulation and provision of open space for flexible use.	Negative impact: Loss of historic internal walls.	Demolition to be carried out carefully so as to not damage adjacent historic fabric. Where wall has been removed: Floor finishing details to be provided to conservation consultant for comment. Any damage to cornicing to be made good.
13.5.7.5	Demolition of any modern existing internal walls as marked.	Return rooms to original layout and provide open space for new users.	Positive impact: Opens rooms up to their original layout.	Retention of any surviving chimney stacks and fireplaces.

13.5.8 Brooklawn [RPS Ref. 8789]

BROOKLAWN [Ref: H refer to Table 1]	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
EXTERIORS				
13.5.8.1	Roof: Roofs will be re-slated with salvaged existing slate and slate to match. Existing historic rainwater goods will be refurbished. New copper and lead flashing will be installed. Localised timber repairs will be carried out to roof structure.	The roofs are in poor condition and water ingress is causing significant damage to the interiors and structure.	Positive Impact overall: water ingress halted. Structure allowed to dry out. Inappropriate plastic rainwater goods removed and replaced using high quality cast iron to match original design. Minor negative impact: Some localised loss of historic fabric.	Contractors with prior experience with historic structures to be appointed. As much sound material as possible is to be salvaged and appropriately stored for reuse. Any new materials to suitably match existing and to be approved by conservation consultant.
13.5.8.2	New cast-iron rainwater goods will be installed.	Current rainwater system is failing and not of the appropriate material.	Positive impact: prevent water ingress and fabric deterioration. Enhance the visual character of structures.	Demolition of existing elements must be carried out in a sensitive way to protect the historic fabric. New pipework must be adequately tested once installed to ensure there are no leaks.
13.5.8.3	Drainage: New French drain to be formed around the external footprint of the chapel. New concrete gullies will be installed with metal grates.	The lack of functioning stormwater drainage is causing saturation of the ground to the foot of the building, this is providing a constant source of moisture for rising damp within the core of the main walls.	Positive impact: The gravel base will allow evaporation for storm water from at the base of the walls to reduce the rising damp (and the temperature of the wall core), which in turn will assist in the reduction of internal condensation. The new drainage branch pipes from gullies will direct rain water away from the building. Grated gullies will allow easy access for regular maintenance and avoid blockages.	Form of gullies to be confirmed with conservation consultant to ensure minimal visual impact. Details and finishes of French drain to be confirmed with conservation consultant to ensure aesthetic and functional compatibility with the existing structure.
13.5.8.4	New detailing to widen/alter outlet and improve rainwater disposal to north valley.	Poor detailing has led to significant and ongoing water ingress.	Positive Impact: efficiently direct water from the roof without failures at junction and allow building fabric to dry.	Detailing to be presented to conservation consultant for comment.
13.5.8.5	North Elevation: Removal of vegetation. Remove render to north elevation and re-render using lime render.	Inappropriate modern, hard cementitious render has been used. This is causing water to become trapped in the walls leading to internal damp issues.	Positive impact: Works to external elevations are intended to prevent water ingress, halt the growth and development of destructive vegetation, and enhance the visual character of structures.	Render removal must be carefully conducted so as not to gouge into the brick fabric during the process.
13.5.8.6	South Elevation: Rake out joints of south parapet brickwork and defective joints behind rainwater goods.	Inappropriate modern, hard mortar has been used to repoint the brick work of the south parapet. This is causing water that has become trapped in the walls to evaporate through the brick as opposed to the sacrificial mortar. The water has caused brick erosion and spalling.	Positive impact: Removal of hard modern cement and repointing with lime mortar will allow moisture to evaporate through the mortar rather than the brick and minimise brick erosion.	Only vulnerable areas requiring intervention to prevent water ingress will be repointed. Power tools will not be used during raking. A fine hacksaw blade may be used to remove vegetation or friable mortars.

BROOKLAWN [Ref: H refer to Table 1]	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
EXTERIORS				
13.5.8.7	Demolish external fire escape stair.	No longer used or fit for purpose.	Positive Impact: The removal of stair will leave a scar on the wall. It is proposed that the full elevation is rendered at this point to repair the scar and promote breathability of masonry. Minor negative impact: The removal process could damage the substrate if heavy handed. Rendering with lime render will improve the breathability of the masonry. The painting of the new render, once adequately cured, with mineral silicate paint will protect the fabric from general soiling.	Render removal must be carefully conducted so as not to gouge into the stone fabric during the process.
13.5.8.8	Block door at level 01: to demolished fire escape.	Not original and no longer in use.	Neutral impact.	New lime render to be flush with existing render.
13.5.8.9	Reroof cant bay window using rolled lead.	Membrane roof at the end of it's life and failing.	Positive impact using traditional materials and methods.	Detailing to be presented to conservation consultant for comment.

	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
INTERIORS: GROUND FLOOR				
13.5.8.10	Installation of bolt on stair lift: proposed to gain access to mezzanine floor.	Improve circulation and accessibility for users.	Minor negative impact: Loss of some historic fabric to install stair lift.	Reversible. The loss of fabric is limited and mitigated by the positive impact of improving accessibility.
13.5.8.11	Remove modern internal partition walls.	Reconfiguration of rooms for new users.	Neutral impact: Walls to be removed are not historic.	Reversible. Retention of any chimney stacks and surviving fireplaces where applicable.
13.5.8.12	Widening of opening and removal of door from south entrance lobby.	To allow for accessible access from new entrance ramp.	Minor negative impact: Loss of some historic fabric to widen new opening.	Detailing to be presented to conservation consultant for comment. The loss of fabric is limited and mitigated by the positive impact of improving accessibility.
FIRST FLOOR				
13.5.8.13	Remove modern internal partition walls.	Return rooms to a closer example of the original layout and provide a more open space for new uses.	Positive impact: Removes some modern partition walls and improves room usability.	Retention of chimney stacks and surviving fireplaces where applicable.

13.5.9 Richmond House [RPS Ref. 8788 – Richmond House]

RICHMOND HOUSE [Ref: G refer to Table 1]				
	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
EXTERIORS				
13.5.9.1	Roof: Roofs will be re-slated with salvaged existing slate and slate to match. Existing historic rainwater goods will be refurbished. New cast-iron rainwater goods will be provided. New copper and lead flashing will be installed. Localised timber repairs will be carried out to roof structure.	The roofs are in poor condition and water ingress is causing significant damage to the interiors and structure.	Positive Impact overall: water ingress halted. Structure allowed to dry out. Inappropriate plastic rainwater goods removed and replaced using high quality cast iron to match original design. Minor negative impact: Some localised loss of historic fabric.	Contractors with prior experience with historic structures to be appointed. As much sound material as possible is to be salvaged and appropriately stored for reuse. Any new materials to suitably match existing and to be approved by conservation consultant.
13.5.9.2	New cast-iron rainwater goods will be installed.	Current rainwater system is failing and not of the appropriate material.	Positive impact: prevent water ingress and fabric deterioration. Enhance the visual character of structures.	Demolition of existing elements will cause no harm to the historic fabric. New pipework must be adequately tested once installed to ensure there are no leaks.
13.5.9.3	Elevations: Remove render to north elevation. Rake out joints of parapet brickwork and defective joints behind rainwater goods.	Inappropriate modern, hard mortar/render has been used to render and repoint the brick work and north façade. This causes water that has become trapped in the walls to evaporate through the brick as opposed to the sacrificial mortar. The water has caused brick erosion and spalling.	Positive impact: removal of hard modern cementitious mortar and repointing with lime mortar will allow moisture to evaporate through the mortar rather than the brick and minimise brick erosion.	Contractors with prior experience with historic structures to be appointed. Hand tools only to be used to remove cementitious mortar.
13.5.9.4	Drainage: New French drain to be formed around the external footprint of the chapel. New concrete gullies will be installed with metal grates.	The lack of functioning stormwater drainage is causing saturation of the ground to the foot of the building, this is providing a constant source of moisture for rising damp within the core of the main walls.	Positive impact: The gravel base will allow evaporation for storm water from at the base of the walls to reduce the rising damp (and the temperature of the wall core), which in turn will assist in the reduction of internal condensation. The new drainage branch pipes from gullies will direct water from the roof away from the building. Grated gullies will allow easy access for regular maintenance to ensure blockages are avoided.	Form of gullies to be confirmed with conservation consultant to ensure minimal visual impact. Details and finishes of French drain to be confirmed with conservation consultant to ensure aesthetic and functional compatibility with the existing structure.
INTERIORS: GROUND FLOOR				
13.5.9.5	Remove E-W partitions in two front rooms.	Return rooms to the original layout and provide a more open space for new uses.	Positive impact: Removes some modern partition walls and improves room usability.	Retention of chimney stacks and surviving fireplaces where applicable.

13.5.10 St Teresa's

ST TERESA'S [Ref: N refer to Table 1]	PROPOSED WORKS	RATIONALE	IMPACT	MITIGATION
13.5.10.1	Demolition Complete	Refurbishment is not possible as some areas within buildings and entire buildings are currently obsolete, disused, and dilapidated. St Teresa's was last used as hospital accommodation in 2014. Demolition of the existing buildings is required to allow for the construction of the new residential development and associated amenities. Refurbishing or retrofitting the existing buildings on the site would not result in the delivery in the sufficient quantum of units required to fund the new mental health facility. A reduction in unit numbers will have a financial impact for the development of the hospital and could jeopardise its development. The risk of the new mental health facility not being built will impact on patients and local community, and possibility of existing structures falling into further disrepair if existing Hospital is closed. The proposed scheme will conserve and rehabilitate approx. 4800 sq.m of historic buildings on the site and provides for long term sustainable uses for them. The demolition of buildings is required in phase 1 of construction to allow for access to the hospital complex buildings for their refurbishment.	Negative impact: Loss of entire historic structure.	Some fabric from St Teresa's will carefully salvaged for repair of the main hospital. Fabric may include timber parquet flooring, fireplaces, internal window joinery. Allows for progression of wider masterplan providing significant public and social benefit through allowing for the building of a new mental health facility and housing scheme. Allows hospital to stay on the existing site but requires new development to provide funds needed to build new purpose-built hospital and improve services to the users. Analysis was undertaken by STW to asses viability of incorporating this building into the scheme but it cannot be easily adapted to good quality, functional apartment accommodation due to the scale and form of the existing spaces. Refer to Salvage Report for full details.
		The demolition of buildings will improve connectivity and permeability of the site. The existing site is located within a very large and highly impermeable urban block. Masterplan proposal has the potential of becoming a key link at a pedestrian level that can support local amenities and creates the opportunity for the site to become a destination at a neighbourhood level. The conservation of the historic buildings will be a considerable cost and the developer is investing heavily in the reuse of Block J, the laundry, Richmond House, Brooklawn and the wider grounds. This wing, due to its form and layout cannot be easily adapted to residential apartment use which is required in this location to ensure the viability of the overall scheme. Provision of Public Open Space and parklands within the scheme for patients, tenants and local residents. The existing buildings to be demolished currently divides the site creating an enclosed space that is counterintuitive to what the scheme is trying to achieve and compromises the quality of the shared open spaces.		

13.5.11 Laundry Building

LAUNDRY [Ref: E refer to Table 1]	PROPOSED WORKS	RATIONALE	IMPACT	MITIGATION
13.5.11.1	Demolish concrete structure and stone ruin to south of laundry.	Remove structurally unsound non-original concrete addition to laundry.	Minor negative impact: Loss of historic boiler house which heated water for laundry. Removal of remains of ruined stone and brick outbuilding to south. Positive Impact: The disused building will be refurbished and brought back into use.	Originally proposed to be demolished. The revised scheme has facilitated for the buildings' retention and refurbishment. Contractors with prior experience with historic structures to be appointed. Any new materials to suitably match existing and to be approved by conservation consultant.
13.5.11.2	New access to north gable.	To be repurposed as a new FM building workshop and laundry .	Neutral: The gable wall is pebble dashed with no significant architectural features. Cast iron rainwater disposal system to be reconfigured.	Retain original single flat arch entrances. New door to be timber and in keeping in proportion and style with the rest of the building.
13.5.11.3	Two new internal walls running east to west to separate space.	Space requires separation to form compartmentalised areas.	Neutral.	Internal walls can be reversed. Walls to meet at ceiling and not cause damage to original timber tongue and groove ceiling. Internal pully system to be retained.
13.5.11.4	New level access to south gable elevation.	New double door access required to allow for access of equipment.	Minor negative impact: Some loss of historic material to widen door opening.	Rationalised location of opening to gable where concrete structure will be demolished.

13.5.12 Rose Cottage

ROSE COTTAGE [Ref: F refer to Table 1]	PROPOSED WORKS	RATIONALE	IMPACT	MITIGATION
13.5.12.1	Retain remove lean to and extend to west to introduce purpose-built drug storage and office space.	To provide new purpose-built secure drugs store and meet the needs of the hospital.	Positive impact: The disused building will be refurbished and brought back into use.	Originally proposed to be demolished. The revised scheme has facilitated for the buildings' retention and refurbishment. Contractors with prior experience with historic structures to be appointed. Any new materials to suitably match existing and to be approved by conservation consultant.
13.5.12.2	New concrete flat roof to north extension.	Roof to later extension failing, concrete spalling.	Neutral.	

13.5.13 Landscape & Site Features

LANDSCAPE & SITE FEATURES [Ref: I, J, K, L refer to Table 1]	PROPOSED WORKS	RATIONALE	IMPACT	MITIGATION
13.5.13.1	Removal of northwest granite steps and railings.	Consolidation of heights is required for the circulation strategy.	Minor negative impact: Loss of historic fabric and entrance.	Reuse of good stone elsewhere on the site landscape.
13.5.13.2	Removal of wrought iron railings to southern lawn.	To allow for the site of new purpose-built hospital. Railings are a ligature risk on the hospital site.	Negative impact: Loss of historic railings.	The need for an open site for the new mental health facility outweighs the justification to keep railings in situ and the railings pose a health and safety risk within the hospital grounds. Reuse sections elsewhere on the north west residential portion of the site - under review. Surplus undamaged railings to be made available for salvage.
13.5.13.3	Removal of portions of the boundary and garden walls.	Required to allow for new safe road access and permeability of the site.	Negative impact: Loss of historic fabric and plot forms.	Retaining as much as practically possible. Reuse of good quality cut stone elsewhere on site for repairs and new/refurbished entrances – locations tbc with Design Team. Where possible, boundary lines will be honoured through landscaping.
13.5.13.4	The Shrine to St Paul Vincent is to be relocated.	Its current location is not suitable for the circulation of the site.	Positive impact: The current shelter is not of historical or architectural quality. To move the statue to a more suitable position on the site would be of benefit to the presentation of the shrine.	Under responsibility of hospital - Recommended to provide a new purpose-built shelter for the statue within the grounds – potentially the burial ground.
13.5.13.5	Relocation of Gate Piers to the West of the Hospital [Phase 2] to proposed future pedestrian connection at northeast.	The piers and the protected structures beyond will be appreciated by pedestrians accessing the site from. Removing the gate piers and walls opens up the east-west route. The piers will be relocated.	Minor negative impact: Loss of landscape feature and fabric in its original location.	A method statement for careful recording, disassembly and relocation has been included in the St. Teresa’s Salvage Report appendix.

13.5.14 New Hospital Building to South East of Hospital

Refer to Architects design statement for further detail.

	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
13.5.14.1	Construction of new purpose-built hospital on site of southeast lawn.	No other site within the grounds is appropriate for the building of the new mental health facility. The building's proposed size is determined by the current hospital's needs and this is the only location which can accommodate it. The landscape to the south of the current hospital is a pleasant garden landscape which has the potential to create a successful therapeutic environment for future patients.	Negative impacts: Loss of historic mature garden, boundary walls and plot layout. Loss of long views towards the protected structure from south east. Infilling, increased density and loss of curtilage landscape character to the protected structures.	The new mental health facility has been carefully designed to respect the protected structures. A thorough process of analysis, investigation and discussion has been carried out by the design team before arriving at the conclusive form and location: Visual renders, design statements, planners report and arborists report have been carried out as part of the design development. Appropriate assessment and recording of boundary conditions has been carried out and as much original fabric will be retained as reasonably practicable. Much of the garden walls are not original have been rebuilt using cement materials

13.5.15 Residential Blocks to North & West

Refer to Architects design statement for further detail.

	PROPOSED CONSERVATION WORKS	RATIONALE	IMPACT	MITIGATION
13.5.15.1	Construction of new purpose-built residential apartments on site of northwest field and to north of protected hospital structure.	The land to the north west of the protected structures in zoned as Z12 Institutional Lands with future development potential. No other site on the plot concluded to be appropriate for the building of the new residential accommodation blocks. Allows for the creation of a linear park and new community space to north of protected hospital structure. Allows for new permeability of the site for improved public use.	Negative Impacts: Loss of historic garden boundary walls plot layout. Change of character and impact of views across the site, loss of sense of openness and some loss of mature trees. Infilling, increased density and scale and loss of open landscape to the west of the protected structures.	The historic character of this north-west boundary area has already been eroded by previous development. A thorough process of analysis, investigation and regular discussions has been carried out by the design team before arriving at the conclusive location for the new residential blocks. Visual renders, design statements, planners report and arborists report have been carried out as part of the investigation.

13.5.16 'Do Nothing' Impact

The hospital is in urgent need of upgraded, modern and fit for purpose facilities. If a development which facilitates the construction of a new hospital for mental health services is not pursued the hospital may cease to operate in this location. This will represent a huge loss of cultural significance, social benefit, and historical continuance. If the historic buildings are vacated with no designated future use, they are likely to fall into disrepair and dereliction.

The funds required to conserve these protected structures to a high standard are unlikely to be made available without an associated viable development, therefore to do nothing is to sacrifice a sustainable future for the protected structures or, at a minimum, to cause significant harm by driving dereliction.

13.6 REMEDIAL AND MITIGATION MEASURES

In this section we will propose architectural heritage conservation strategies for the development which will mitigate harm to the designated and non-designated heritage assets on the site. It should be read in conjunction with the EIAR, Construction and Environmental Management Plan and Appendices 13.3 – 13.5 and 13.9 of this chapter.

13.6.1 General Mitigation Measures

All interventions have been discussed as a part of regular design team meetings to consider rationale of decisions with the view to balance the needs of the brief, economy, practicality, health and safety, accessibility and conservation. These meetings should be considered part of the assessment/mitigation process. Various mitigants have been put in place to ensure that the historic fabric and special architectural character of the complex's significant buildings and site are preserved during the repair and upgrading works.

General mitigation measures to be applied to all interventions require that:

- Proposed conservation works must be carried out by an experienced main contractor and specialist subcontractors or crafts people.
- The delivery of a heritage induction to all contractors and subcontractors should be carried out.
- Where repair and upgrading to historic fabric is required, the conservation method statement and guidelines of product manufacturers must be followed by the contractor so that works can be carried out appropriately.
- Works must be supervised by the design team.
- Works have been carefully designed and are guided by the international conservation principles.
- Historic fabric will be adequately protected during all site stages.
- Demolitions and strip out will be guided by the design team and carefully conducted to ensure the protection of historic fabric and features.
- To prevent damage to adjacent fabric or substrates, where possible, power tools will be avoided.
- In so far as is possible, MEP services will use pre-existing pathways or joist notching. New services will also be surface mounted to ensure reversibility.
- Where historic building fabric cannot be reused within the complex for repairs, it will be salvaged and sent to a reputable salvage yard.

- If structural timbers such as joists our found to be non-performing, they will be retained and strengthened via coupling of members and or splicing. However defective timbers that show signs of spores/fungus attack or larvae will be removed to prevent the occurrence of a future breakout.
- To ensure quality, appropriate methods and materials, as series of samples will be required by the conservation and architectural teams including doors, joinery, sash windows, plaster removal and plastering, cornice running, cleaning.
- The contractor will provide submittals of materials and products for the approval of the design team. Only high quality and fabric-compatible materials will be used during conservation and upgrades.
- Careful detailing is to be produced to provide a high-quality design and finish; this should be presented to the conservation consultant for comment where requested.
- All works undertaken will be monitored by qualified conservation architects and contractors.

13.6.2 Recording of Buildings Scheduled for Demolition

Demolition is only proposed where there is not considered to be a viable use for an existing structure or where its retention will compromise the overall progress of the development, preventing the provision of a new hospital and in turn the conservation of the designated protected structures on the site.

In the event of the demolition of any heritage structure on the site irrespective of their origin and level of significance, it is recommended that they be preserved by record, by means of measured survey and photographic record of original features supplementing recording already undertaken in the Appendices to this chapter. This should be completed when the buildings are vacated and cleared of debris.

13.6.3 Salvage Strategy

It is proposed to salvage as much of the historic fabric of St. Teresa's as possible prior to demolition. This is outlined in detail in Volume 4, Appendix 9 to this chapter.

13.6.4 Historic Boundaries and Landscaping Strategy

Where possible the new landscaping strategy will seek to reference the location, form and materiality of the historic plot and boundary conditions. Where robust historic materials can be reused, they will be integrated into the landscape design strategy. Further detail is provided in Volume 4, Appendix 8 to this chapter and in Chapter 11 of the EIAR where the proposed landscaping strategy impacts are detailed.

13.6.5 The Need for Demolition - Analysis of Exceptional Circumstances

In this section we will summarise the circumstances leading to the need for the demolition of structures forming part of/within the curtilage of protected structures and associated mitigation measures proposed which will balance the potential negative impact against the arising public benefit.

The protected structures defined in Volume 4 – RPS of the CDP 8 in a Section 57 Declaration, dated 06/12/2016, which was issued by Dublin City Council in the context of a previous planning application that was made in respect of the site, are not proposed for demolition; however, some features of these buildings will be removed or altered. A copy of this declaration is provided in Volume 4, Appendix 10 of this chapter.

For the purposes of this heritage impact assessment, we have considered the structures proposed for complete demolition to be within the curtilage of these protected structures.

Section 13.5. AHIA Ref:	Structure / feature to be demolished	Summary analysis of the exceptional circumstances arising	Mitigation measures proposed
13.5.5.3 13.5.5.4 13.5.6.1 13.5.6.3 13.5.6.4 13.5.6.5 13.5.6.6	Removal of later additions to the protected structure Hospital Buildings [RPS Ref.: 2032] including the conservatory extension, toilet block extension, an external corridor, toilet core, lift core, and stair core.	In order to rationalize the external elevations of the protected structures which form the former Convent and Hospital buildings, it is proposed to remove a number of structures and features which are considered to be inappropriate later additions. They do not enhance the character of the protected structures, nor does their loss represent a major loss of historic fabric. In some instances, removing these structures creates the opportunity to expose original features such as the original openings which will be reinstated in relation to item 13.5.5.4, and allow for the removal of inappropriate cementitious renders as in the case of 13.5.6.1. The removal of the non-original abutment described in 13.5.6.5 will restore the composition of this elevation representing a positive impact, as will the removal of the conservatory described in 13.5.6.6. In all cases these alterations support the new function and improved accessibility of these buildings as amenity facilities for the new residential development.	Details of any alterations to openings and new doors/windows will be in keeping with the materials and proportions of the original finishes. Careful demolition will be undertaken where fabric to be removed abuts the retained heritage fabric in accordance with BS: 7913:2013 and *Architectural Heritage Protection, Guidelines 2011.* Any scarring to the heritage buildings will be made good using salvaged bricks, lime mortar and finished with lime render. Some original openings be re-exposed and window joinery redecorated. Adjusted levels will improve the overall site accessibility which is a key public benefit for this site.
13.5.7.1	Demolition of the westernmost wing of Hospital Phase 2 complete.	The buildings proposed to be demolished in this location are not in active use by the hospital. Demolition of the existing buildings is required to allow for the construction of the new residential development, the new mental health facility, and their associated amenities. It has been determined by the design team that refurbishing the existing buildings on the site proposed for demolition would not result in the delivery in the sufficient quantum of units which is required to fund the new mental health facility. Due to the volumetric form and layout of the wards and clinical spaces they cannot be adapted to provide the residential units needed. A reduction in unit numbers will have a financial impact for the development of the hospital and could jeopardise its development.	The loss of original historic fabric will be balanced against the provision of new high-quality residential facilities. The removal of this wing will allow for the conservation, repair and regeneration of the protected structures on the site and facilitate the development of the mental health facility. The wing proposed for demolition is of historical and architectural value. It was built as a later addition to the 1861 first Phase of the hospital and mirrors the form of the opposite wing. The demolition of this later wing does not represent a permanent loss of architectural detail as the original form is represented by the eastern 1861 wing. The Phase 2 wing has been significantly obscured and altered by the 1970s development of the

Section 13.5. AHIA Ref:	Structure / feature to be demolished	Summary analysis of the exceptional circumstances arising	Mitigation measures proposed
		The conservation of the protected structures will represent a considerable cost outlay. The developer is investing heavily in the reuse of Block J [the current Hospital], the Laundry building, Richmond House, Brooklawn and the wider grounds as public open space. The complex is large (4800m of historic buildings) and these structures pose a challenge as there is finite opportunities for viable reuse. The risk of the new mental health facility not being built is a significant one which will impact on patients and the local community, and result in the possibility of the existing protected structures falling into further disrepair if St. Vincent's Hospital does not continue to operate on this site. The existing buildings proposed for demolition divide the site creating an enclosed space that is counterintuitive to what the scheme is trying to achieve and compromises the quality of the shared open spaces. The demolition of buildings will improve connectivity and permeability of the site. The existing site is located within a very large and highly impermeable urban block. The overall site masterplan has the potential of becoming a key link at a pedestrian level that can support local amenities and create the opportunity for the site to become a destination at a neighbourhood level. There is a need for the provision of this public open space and parklands within the scheme for patients, tenants and local residents.	Freeman wing and other later additions to the rear, compromising its significance and overall form. The introduction of the 19th and 20th century hospital wings served to consolidate the various component parts, but at the same time fundamentally altered their form and legibility with each iteration. This development represents an ongoing process of integration, development and adaption which has characterised the hospital's presence on this site over the centuries. The proposed scheme will conserve and rehabilitate approximately 4800 sq.m of historic buildings on the site and provides for long term sustainable uses for them. Careful demolition will be undertaken where fabric to be removed abuts the retained heritage fabric in accordance with BS: 7913:2013 and *Architectural Heritage Protection, Guidelines 2011.* Scarring to be finished using salvaged cut stone. Undamaged high-quality materials are to be salvaged for reuse either on this site or elsewhere
13.5.7.2	Demolition of the Freeman Wing building complete.	The existing buildings to be demolished currently divide the site creating an enclosed space that is counterintuitive to what the scheme is trying to achieve and compromises the quality of the shared open spaces. The westernmost end of the hospital has been altered significantly and from the front is predominantly obscured by the Freeman Wing which was added in the 1970s and is	1970's wing is considered to have low historic and architectural significance. The mitigation is to balance the loss of fabric against the provision of newly designed high-quality facilities which allow for the practical upgrades to the majority of the historic structures and to ensure that the protected structures on the site can be afforded a sustainable future use.

Section 13.5. AHIA Ref:	Structure / feature to be demolished	Summary analysis of the exceptional circumstances arising	Mitigation measures proposed
		incongruous to the setting, compromising the group value of the range of hospital buildings. There is a need for the provision of Public Open Space and parklands within the scheme for patients, tenants, and local residents.	
13.5.10.1	Demolition of St. Teresa's Ward complete.	[Refer to 13.5.7.1. points b - f above] St Teresa's is not in active use and was last used as hospital accommodation in 2014. Analysis was undertaken by STW to asses viability of retaining part or most of this building while also forming the new link to the public linear park. It was not deemed feasible to do this and simultaneously form the essential visual connection and necessary infrastructure routes to support this public amenity which is central to the development. The demolition of buildings is required in phase 1 of construction to allow for access to the hospital complex buildings for their refurbishment.	The removal of this structures allows for progression of wider masterplan providing significant public and social benefit through allowing for the building of a new mental health facility and housing scheme. Historic fabric from St Teresa's will carefully salvaged for repair of the main hospital. Fabric may include timber parquet flooring, fireplaces, internal window joinery. Careful demolition will be undertaken where fabric to be removed abuts the retained heritage fabric in accordance with BS: 7913:2013 and *Architectural Heritage Protection, Guidelines 2011.* Ref to Volume 4, Appendix 9 St Teresa Ward and Auditorium: Architectural Inventory & History, Condition Report and Salvage Strategy [and Drawings].
NA	Demolition of the Outbuildings and Nurse Training School to the north of the protected structures.	The demolition of buildings is required in phase 1 of construction to allow for access to the hospital complex buildings for their refurbishment. Analysis was undertaken by STW to asses viability of retaining part or most of these buildings while also forming the new link to the public linear park. It was not deemed feasible to do this this and simultaneously form the essential visual connection and necessary infrastructure routes to support this public amenity which is central to the development. The development needs to achieve a minimum amount of public open space which would not be achievable while retaining these buildings.	These buildings are considered to be of little or no architectural merit, nor do they contribute to the character and setting of the historic structures. The removal of this structures allows for progression of wider masterplan providing significant public and social benefit through allowing for the building of a new mental health facility and housing scheme.

Accordingly, on the basis of the above analysis, it is our opinion that exceptional circumstances exist which allow the granting of planning permission by the Planning Authority, or the Board on appeal, in accordance with section 57(10)(b) of the Planning and Development Act 2000 (as amended). For the demolition of the structures listed in the table above refer to Fig. 22 Aerial image showing buildings proposed for demolition highlighted in red [Source: STW Conservation report].

13.7 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

In this section we will describe the impacts arising from the proposed development on the architectural heritage within site, on the basis that the mitigations in Sections 13.5 and 13.6 above are applied. All proposed impacts described below are to be understood in the context of the wider principle of redevelopment and managed change, which has been established in previous sections as necessary for securing a viable future use for the site and the retained historic structures.

13.7.1 Proposed Refurbishment and Change of use of Historic Structures

The conservation and refurbishment of the designated and non-designated structures on the site will represent a significant public and cultural benefit. The protected parts of the hospital structure, Brooklawn, Richmond House, Rose Cottage and the Laundry Building will be provided with sustainable and viable future uses and their fabric will be conserved and maintained, extending their lifespans. The alterations to the retained fabric and resulting loss of heritage value will be mitigated through quality conservation works and sensitive detailing.

13.7.2 Proposed Demolition of Hospital Buildings

The proposed demolition of the westernmost range of the hospital complex, St. Teresa’s Ward and a number of later additions to the protected structures will represent a significant loss of historic fabric and will alter the current form of the hospital complex. These structures are considered to be within the curtilage of the protected structures but their loss is considered to be balanced by the overall public benefit of the conservation of the protected structures, the detailed archival recording of structures proposed for demolition and the provision of new high quality designed accommodation and mental health facilities. The circumstances and justification for the demolition is outlined in section 13.6.5 above.

Figure 13.22 Aerial image showing buildings proposed for demolition highlighted in red [Source: STW Conservation report]

Figure 13.23 Proposed new layout of the historical hospital complex showing new extension to the western end and the conversion of the protected structures to ancillary facilities serving the residential development. The open space between the protected structures and the new development to the north connects the proposed landscaping strategy visually and physically.

13.7.3 Proposed New Hospital Building

The new mental health facility has been designed to sit into the garden landscape to the south of the current hospital. The new hospital will represent a visual impact on the protected structures and will occupy a prominent location in the historic setting. This will be balanced by good design whereby the building roofline sits below the historic buildings allowing some long views towards the historic complex. Its landscaping strategy will be integrated into the wider historic landscape and setting. The provision of a new fit-for-purpose hospital facility represents a significant public benefit. Locating it on this site represents a continuation of historic clinical development and modernisation associated with St. Vincent's Hospital, Fairview.

13.7.4 Proposed Residential Development

The proposed residential blocks to the north, northwest and west of the protected structures will have a visual impact on the buildings and their historic setting by virtue of their presence, mass and modern design. The buildings directly to the north will replace a series of non-designated structures, of which St. Teresa's Ward is considered to be of heritage significance and referred to on the NIAH. The new buildings will be set back from the range of protected structures allowing them to be considered as a whole within a new linear public landscape which will connect the site on an east-west axis. The loss of value resulting from the demolition of heritage structures is mitigated against through archival recording, the provision of high-quality residential accommodation and the facilitation of a viable redevelopment plan for the site.

The new buildings proposed to the northwest of the protected structures and their setting are situated on Z12 Institutional Land zoned for Future Development as per the Dublin City Development Plan 2023-2028. As such it is envisaged that this part of the site would be developed to its maximum potential in the future to ensure sustainable use of the site and to meet the city's housing needs. The scale of the proposed buildings will have a visual impact on the setting of the protected structures, but this impact is not considered to be unacceptable and is an inevitable aspect of the zoning designation. Any harm caused to the historic setting will be mitigated against by the massing and landscaping strategies which will graduate the transition from historic garden to new residential infill parkland.

13.8 MONITORING

13.8.1 Recording

Items identified for salvage will be recorded and scheduled during the demolition phase in accordance with Volume 4, Appendix 9 to this chapter.

Works to historic boundary walls undertaken to facilitate the works will be recorded and supervised by the conservation consultant and made good in accordance with Volume 4, Appendix 8 to this chapter.

13.8.2 General Works in Proximity to Heritage Buildings

The main contractor for the scheme will monitor works in the vicinity of the heritage buildings on a daily basis to ensure that protection measures are observed at all times. Qualified conservation architects and/or archaeologists, as appropriate, will monitor the works in the vicinity of heritage buildings intermittently.

13.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

13.9.1 Construction Phase

Hoarding and other protective measures will be provided as required during the Phase 1 works to mitigate against potential harm to the protected structures represented by environmental changes arising from the construction works. As the historic hospital buildings must remain in use until Phase 2, these protective measures will have a dual function of protecting both the hospital users and the buildings while the works in Phase 1 are undertaken. As such they will be robust and fully compliant with required health and safety standards. The retained features of the historic landscape will also be protected during the construction phase – this is outlined in more detail in the Arborist and Landscape Architects reports.

The work to demolish those curtilage structures and features which are attached to the protected structures will have an impact on the retained historic fabric. This impact will be mitigated though the use of suitably qualified heritage contractors and in accordance with best practice methodologies. All proposed conservation works to the protected structures will be undertaken by suitably qualified heritage contractors and in accordance with best practice methodologies.

The protected structures along Richmond Road and on Richmond Avenue [listed in Section 13.2] will be subject to minimal additional environmental impacts during the construction phase as all construction related traffic will approach the site from the Richmond Road. There will be protective hoarding along the site's southwestern boundary for the duration of the construction phases, providing additional protection to the nearby protected structures. The main contractor's Construction Management Plan will take into account the location of all protected structures on and surround the site and ensure that adequate mitigation measures are in place to reduce the potential impacts to the maximum extent possible.

13.9.2 Operational Phase

The EIAR also considers the likelihood for cumulative impacts associated with the operational phase of the proposed development and the operational phase of these permitted developments. The likely operational impacts to the environment arising from these developments have been identified by a review of the planning documents associated with each of the permitted developments.

- *Reg. Ref.: 2991/15 & ABP Ref.: PL29N.245745 - Lands at St. Joseph's Centre, Gracepark Road, Dublin 9*
- *Richmond Road SHD ABP Ref.: 312352-21 - No. 146A and 148-148A Richmond Road, Dublin 3*
- *DCC Reg. Ref.: 2945/15 - No. 144 Richmond Road, Drumcondra, Dublin 3*
- *Under DCC Reg. Ref. 2556/18, planning permission was granted on 11th October 2018 for the change of use of the 2 No. permitted commercial units to provide 1 No. 3 bed apartment (115.32 sq.m) and all associated site development works.*
- *Reg. Ref.: 2957/02 and 5224/05 - Unit 1.1,1.2,1.3,1.4,2,3,4a Richmond Rd., Unit 4A,4B,5B,5C Richmond Rd. Ind. Est., Richmond Road, Dublin 3*

Permission was originally granted for a part 4 No. to 5 No. storey residential and commercial development under DCC Reg. Ref. 2957/02 at the site to the south-east of the subject lands. Under DCC Reg. Ref. 5224/05, permission was granted for amendments to the scheme including the change of use of commercial units to live/work units, redesign of some residential units and in addition, a new 7 No. storey building was granted permission at the site. It appears from Google Maps that the permitted 7 No. storey structure was never constructed at the lands however this decision demonstrates the potential for increased height in the area.

Under DCC Reg. Ref. 3151/13, planning permission was granted to retain amendments made to the permitted DCC Reg. Reg. 2957/02 including the reconfiguration of the ground floor to incorporate storeroom, gym and pool and reconfiguration of the upper-level apartments. Under DCC Reg. Ref. 2607/14, planning permission was granted for the change of use of a ground floor office unit to a residential unit.

Under DCC Reg. Ref. 4913/07, planning permission was granted for the redevelopment of a derelict building (Protected Structure), which involved the renovation of the building into a 30 No. bedroom short-term respite/convalescent day-care facility (7 No. storeys in total).

On completion of the development the cumulative impact of the new development and refurbishment works on the existing historic buildings and their landscape setting will be significant and largely positive despite the loss of elements of the historic and protected structures. The 18th century residences which have been absorbed into the hospital complex have been altered significantly over their lifespan. The introduction of the 19th and 20th century hospital wings served to consolidate the various component parts, but at the same time fundamentally altered their form and legibility with each iteration. This development represents an ongoing process of integration, development and adaption which has characterised the hospital's presence on this site over the centuries.

The loss of the westernmost range and later St. Teresa's Ward, Freeman Wing, outbuildings and Nurses Training school and the construction of the new residential blocks and new mental health facility to the south will impact physically and visually on the historic buildings. As outlined in detail earlier in Section 6, any negative impact on the fabric, character and setting of this historic complex is outweighed by the significant public benefit of the provision of modern fit-for-purpose hospital facilities, ancillary facilities to the residential component, central public park serving the wider community and new modern apartments – all of which are urgently required. The development allows St. Vincent's Hospital Fairview to continue operating from this location where it is embedded into the social, cultural and historical fabric of the city.

The new buildings will represent an infilling of the previously spacious and 'garden-like' curtilage landscape. In the most sensitive and historic area of the landscape setting – the former gardens to the south of the protected structures - the new hospital building has been designed to be subservient to the protected structures. The landscaping strategy in this area seeks to retain as many of the mature tress as possible, providing a buffer between the new and the historic buildings, and retaining the historic landscape character to the west of the proposed new hospital facility. There are currently 88 mature[2] trees recorded on the site, of these 29 will be lost as a direct result of the proposed works and 59 will be retained. The tree protection strategy is included in Appendix III of the Arboricultural Assessment, Arboricultural Impact and Tree Protection Report.

[2] Note from CMK Horticulture + Arboriculture Ltd: *for mature trees counted, we dismissed those that have failed and would have to be removed regardless of any works (i.e. category 'U' trees - shown in red on the arborculturalist drawings). Also not included are tree species that fit the biological definition of 'mature' but grow to a comparatively small size (or in case of poplar have limited lifespans) these include: apple, birch, cabbage palm, goat willow, holly, poplar, purple leaf cherry, whitebeam and rowan. The majority of these tree were located near car parks, with smaller planting spaces, which further reduces their growth potential.*

It is considered that the potential negative impact of the infilling effect of the new development will be mitigated through the retention of mature trees, the proposed landscaping strategy, the design and location of the new hospital facility, the retention and protection of historic boundary features [Refer to Volume 4 Appendix 8 in the main Architectural Heritage Impact Assessment report produced by Carrig Conservation International Ltd] and the public benefit of the new hospital and residential facilities.

13.11 REFERENCES

Volume 4 Architectural Heritage Report and Appendices prepared by Carrig Conservation:

Architectural Heritage Impact Assessment Historic Buildings & Structures at St Vincent's Hospital

Appendix 1: Architectural Inventory, History and Appraisal of Historic Hospital Buildings and Complex

Appendix 2: Condition Assessment of Historic Hospital Buildings and Complex

Appendix 3: Conservation Repair Recommendations for Historic Hospital Buildings and Complex

Appendix 4: Conservation Repair Drawings of Historic Hospital Buildings and Complex

Appendix 5: Conservation Specifications for Historic Buildings

Appendix 6: Brooklawn Conservation Report [and Drawings]

Appendix 7: Richmond House Conservation Report [and Drawings]

Appendix 8: Conservation Assessment of Historic Boundaries and Garden Walls [and Drawings]

Appendix 9: St Teresa's Ward and Auditorium: Architectural Inventory & History, Condition Report and Salvage Strategy [and Drawings]

Appendix 10: DCC Section 57 Declaration D0737/17 [06 Dec 2018]

CHAPTER 14

MATERIAL ASSETS - TRAFFIC AND TRANSPORTATION

awnconsulting
A Trinity Consultants Company

CHAPTER 14 CONTENTS

14.0 MATERIAL ASSETS: TRAFFIC AND TRANSPORT

14.1 INTRODUCTION

This chapter assesses the potential impact of the proposed development in terms of traffic and transportation. This chapter aims to provide a detailed and conservative assessment of the potential impact of the proposed development on the operation of the links and junctions which form the local road network.

This section should be read in conjunction with the site layout plans for the site and project description provided in Chapter 2 of this EIAR.

14.2 METHODOLOGY

This chapter is based on the findings of the Traffic Impact Assessment (included with the application documentation) in support of this application. This assessment has been carried out in accordance with relevant guidelines including:

- Traffic & Transport Assessment Guidelines (2014) as published by the former National Roads Authority (NRA) now Transport Infrastructure Ireland (TII);
- Guidelines for Traffic Impact Assessment (1997) as published by the Chartered Institute of Highways & Transportation;
- Dublin City Development Plan 2022 – 2028;
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (2022) as published by Environmental Protection Agency (EPA); and
- Geometric Design of Junction (2017) as published by Traffic Infrastructure Ireland (TII).

In order to inform this assessment, the traffic counts were carried out by IDASO at the following locations:

- Site 1: Drumcondra Road Upper/Ormond Road
- Site 2: Grace Park Road/Church Avenue
- Site 3: Drumcondra Road/Richmond Road/Millmount Ave
- Site 4: Grace Park Road/Richmond Road
- Site 5: Richmond Road/Crannog Access
- Site 6: Richmond Road/St Joseph's Access
- Site 7: Convent Avenue/Richmond Road
- Site 8: Fairview Strand/Luke Kelly Bridge/Richmond Rd
- Site 9: Philipsburgh Avenue/Fairview Strand
- Site 10: Fairview Strand/Annesley Bridge Road
- Site 11: Drumcondra Road/Griffith Avenue
- Site 12: Drumcondra Road Lower/Clonliffe Road
- Site 13: Ballybough Road/Clonliffe Road
- Site 14: Malahide Road/Marino Cres/Clontarf Road

The exact locations of these junctions can be seen in the figure following.

Figure 14-1*: Junction Survey Locations*

The surveys were carried out on Tuesday, 24 May 2022, when schools were in session.

The surveys took the form of 15-minute interval junction turning counts and were carried out between the hours of 07:00 – 19:00 on the aforementioned dates and can be seen appended to the TIA which has been included with the application documentation.

An eight-fold classification system was used which recorded cars, taxis, light goods vehicles, two classes of heavy goods vehicles, public service vehicles, motorcycles, and bicycles.

The junction surveys also included the queue length surveys which recorded the maximum queue length observed on a per-lane basis at each approach of each junction over 5 minutes intervals.

14.2.1 Forecasting Methods

The base year flows were then adjusted to the predicted Year of Opening for the development (2026) and the Design Year (2041) using medium-range NRA growth factors, defined in the table following.

Table 14.1: *Background Traffic Growth Factors*

Year	Growth Rates	
	Light Vehicles	Heavy Vehicles
2022 - 2026	3.27%	5.99%
2022 - 2041	19.05%	42.50%

The traffic generation potential of the proposed development was then assessed using the Trics planning database. This database contains information on thousands of sites in Ireland and the U.K. and can be used to predict the traffic that will be generated by numerous types of development.

With respect to permitted developments which has yet to be completed, several developments have been investigated. These developments have either already been constructed or are awaiting approval. The only development which has been granted approval and is yet to be constructed, of the developments investigated, is SHD ABP Ref.: 310860-21 - Clonliffe Road Holy Cross College, Clonliffe Road, Dublin 3 and Drumcondra Road Lower, Drumcondra, Dublin 9. However, this permission has subsequently been quashed by the High Court and any potential impact of the development on the road network within the study area has been disregarded.

By combining the base flows with the traffic generation estimates for the proposed development, the following peaks were identified:

- A.M. Peak Hour: 08:45 – 09:45;
- P.M. Peak Hour: 18:00 – 19:00.

The estimated additional traffic was assigned to the local road network and its impact on the operation of the local links and junctions was assessed using guidance from the NRA, CIHT, the Design Manual for Roads and Bridges (DMRB) and a task-specific traffic software, Junctions 9. Traffic flow diagrams indicating the associated volumes for each scenario assessed can be found appended to the TIA included with the application documentation.

The traffic generation potential of the proposed development has been estimated using the Trics software modelling database. This database contains records of surveys carried out at a range of development types across the UK and Ireland. It records a variety of details including the number and type of vehicles entering and exiting the site as well as several other site-specific factors.

When developing traffic generation estimates for any development, several surveys are selected from the database based on a range of factors including development type, size, location, public transport etc. The results are then used to establish trip rates for the development in question which is ultimately used to derive estimates for traffic generation.

It was deemed appropriate to only consider the trips generated by the new residential portion of the development. The retail and café elements are comparatively small and are considered to be ancillary to the rest of the development. The hospital is currently operating on-site. It is not anticipated that the size of the hospital will increase and that only a new building will be constructed to accommodate the existing operations as part of the masterplan of this site. The current and proposed hospital buildings also utilise the same access, and as such, the hospital trips are already present and accurate on the base traffic flows. Including additional hospital, trips will lead to an overestimation of the demand on the road network.

Table 14.2 *Estimated Trips Generated*

Time Range	Residential Development		
	811	units	Total
	Arrivals	Departures	
07:00-08:00	32	95	127
08:00-09:00	**32**	**92**	**124**
09:00-10:00	**35**	**52**	**87**
10:00-11:00	17	35	52
11:00-12:00	35	55	90
12:00-13:00	72	23	95
13:00-14:00	35	75	110
14:00-15:00	49	67	115
15:00-16:00	55	20	75
16:00-17:00	92	58	150
17:00-18:00	118	78	196
18:00-19:00	**92**	**63**	**156**
Daily Trips:	**664**	**713**	**1377**

Any discrepancy between the above values is due to rounding.

Based on this table, the proposed development is expected to generate approximately 1377 additional trips per day. Of these, approximately 34 arrivals and 62 departures are expected during the A.M. peak (08:45 – 09:45) while approximately 92 arrivals and 63 departures are expected in the P.M peak hour (18:00 – 19:00). It should be noted that there is a slight discrepancy between the local road peak hours and the development peak hours, with the latter occurring earlier. This difference will reduce the impact of the development on the local road.

14.2.2 Assessment Criteria

The traffic assessment considers two different scenarios. These are:

- Do Nothing: - This assessment allows for only normal background traffic growth, with no other developments in the area.
- Do Something: - This assessment allows for everything considered in the Do Nothing scenario, with the addition of the trips generated by the development.

These two scenarios are assessed against three different analysis years, which comprise of:

- Base Year (2022) – The current performance of the local road network;
- Year of Opening (2026) – The performance of the local road network during the Year of Opening;
- Design Year (2041) – The performance of the local road network during the Design Year.

The criterion used to assess the functionality of the junctions is the Ratio of Flow to Capacity (RFC). This measures the demand relative to the total capacity of each road link or vehicular turning movement.

14.2.3 Difficulties in Compiling the Assessment

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

14.3 RECEIVING ENVIRONMENT

The receiving environment is urban in nature. The existing primary artery through the study area is Richmond Road which is just over a kilometre long and parallels the course of the River Tolka. The road connects Drumcondra Road and Grace Park Avenue on the western end with Fairview Strand and the Luke Kelly Bridge on the eastern end. The access to the development lands will be directly on Richmond Road, through the modification of two existing junctions.

Outside of the study area, development-generated traffic will dissipate considerably and so is expected to have a negligible impact on the operation of the wider network. While there is substantial variation in the type of traffic travelling on the links locally, during peak travel hours, they would primarily be expected to carry commuter traffic.

14.3.1 Public Transport

As outlined in the figure below, the site is within reasonable walking distance of high quality public transport. The site is within c. 4 minutes walking distance to the bus stop on Philipsburgh Avenue (350m) via the proposed connection through Griffith Court to the north and c. 6 minutes walking distance to the Fairview Strand bus stop to the east (550m) via the main entrance from Richmond Road. The bus stops at Fairview Strand and Phillipsburgh Avenue are served by Bus Route No. 123 (with a peak frequency every 10 mins).

The site is within reasonable walking distance (details included below) of high quality public transport, including existing Drumcondra Road QBC and BusConnects Radial Core Bus Corridor 'H-Spine' at Annesley Bridge Road. The Drumcondra Road QBC is proposed as BusConnects Radial Core Bus Corridor 'A Spine' and due to be launched later in 2023. The site is also located near two proposed Core Bus Corridors including CBC1 - Clongriffin to Marino (submitted to An Bord Pleanala under Ref.: HA29N.313182) and CBC2 - Swords to City Centre (not yet submitted to An Bord Pleanala for approval).

The subject site is within a 7 minute walking distance of Drumcondra Road QBC which is situated c. 560m to the west via the proposed connection through Grace Park Wood. The bus stops on Drumcondra Road Lower, which are within c. 650 metres / c. 8 minutes walking distance from the subject site, include the following bus routes (peak frequencies in brackets):

- Nos. 1 (every 10 mins), 11 (every 15 mins), 13 (every 10 mins), 16 (every 10-12 mins), 41 (every 20 mins) and 44 (every 60 mins).

The proposed Bus Connects 'A Spine' indicates a frequency of between 3-4 minutes between buses during peak hours. It is c. 850m walking distance to the bus stops on Drumcondra Road via Richmond Road.

The site is also within c. 10 minutes walking distance (c. 850m) to the BusConnects Radial Core Bus Corridor 'H-Spine' and bus stops at Annesley Bridge and Fairview (Marino Mart) via the main entrance from Richmond Road. These bus stops are served by Bus Route No's 14 (every 10-12 mins), 15 (every 10 mins), 27 (every 10 mins), 27A (every 35 mins), 27B (every 15 mins), 42 (every 20 mins), 43 (every 15 mins), 130 (every 10 mins), Bus Connects H1 (every 15 mins), H2 (every 30 mins) and H3 (every 30 mins).

In addition, the site is located within 1.6km (20 minute walking distance / 6 minute cycle) of Drumcondra Rail Station and within 1.7km (22 minutes walking distance / 7 minute cycle) of Clontarf DART Station.

Having regard to the above, the subject site can be considered to fall within a 'public transport corridor', which is identified as one of the key locations in the City for increased heights and densities in Appendix 3 of the Development Plan. The public transport accessibility and Inner Suburban location of the site is also reflected in the site's location within Car Parking Zone 2 as identified on Map J of the Development Plan. The accompanying Public Transport Capacity Study prepared by OCSC provides details of the number and frequency of existing bus routes serving the area and demonstrates the capacity of the existing public transport services to cater for the additional demand arising from the proposed development.

As indicated in the figures below, the application also makes provision internally within the site for a potential future connection to Lomond Avenue / Inverness Road, i.e. through provision of a pedestrian / cycle path up to the application site boundary, with the potential future connection point identified on the site boundary by the relocated gate piers. This connection will be subject to delivery by others in the future, as these adjacent lands are in third party ownership and it was not possible to reach agreement with the adjacent landowner to include these lands within the red line application site boundary. The scheme is not reliant upon this connection to provide connections to public transport services, as illustrated above and below, and it is apparent that the proposals will deliver significant connectivity and permeability benefits for the area, in accordance with the principles of the 15-minute city. The figure below shows the location of bus stops around the development. It also includes walking & cycling distances to these stops along the proposed connections, with available routes at the stops.

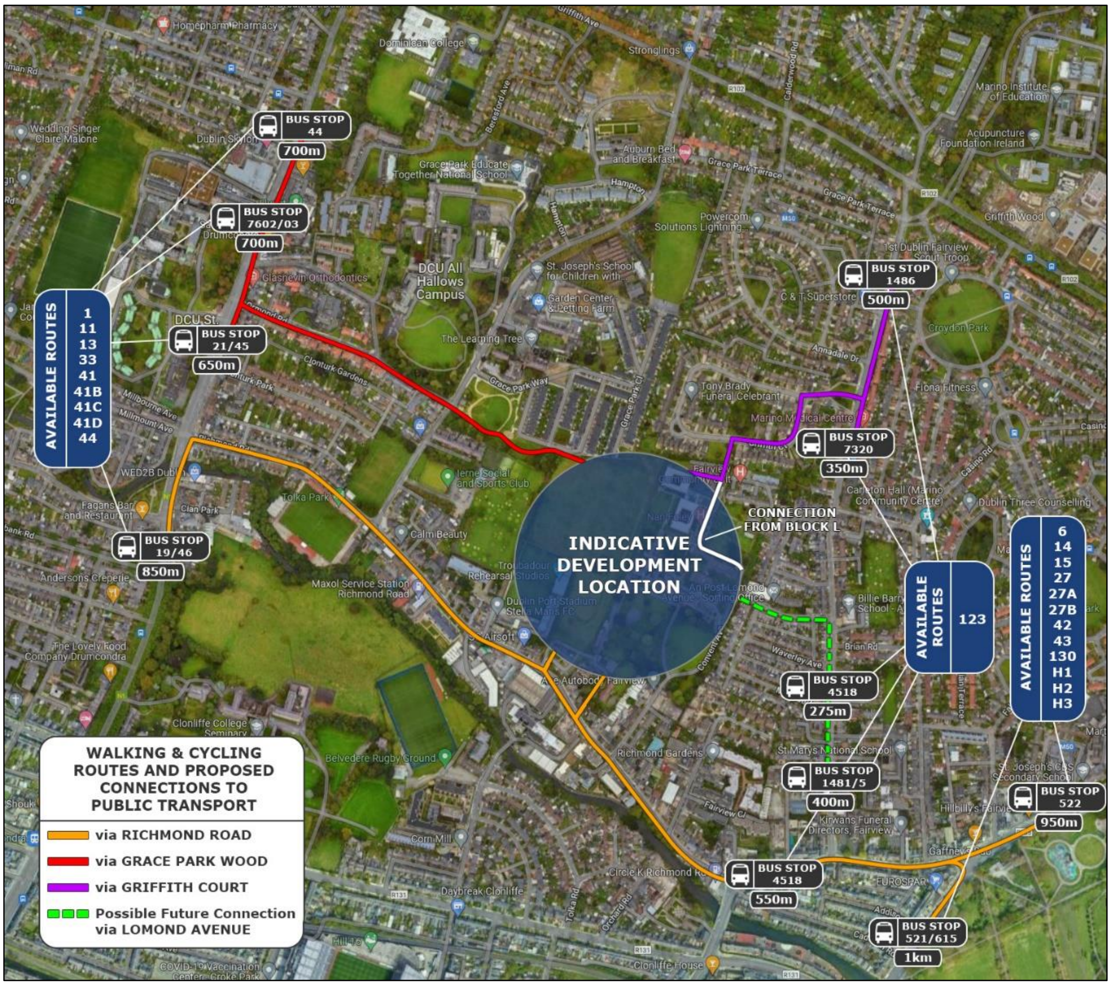


Figure 14-2*: Bus Stops Around the Development*

14.3.2 Cycling and Walking

The existing cycle infrastructure across Dublin was surveyed by the National Transport Authority (NTA) in the preparation of the Greater Dublin Area Cycle Network Plan. The existing facilities in the local area as extracted from this mapping are highlighted following.

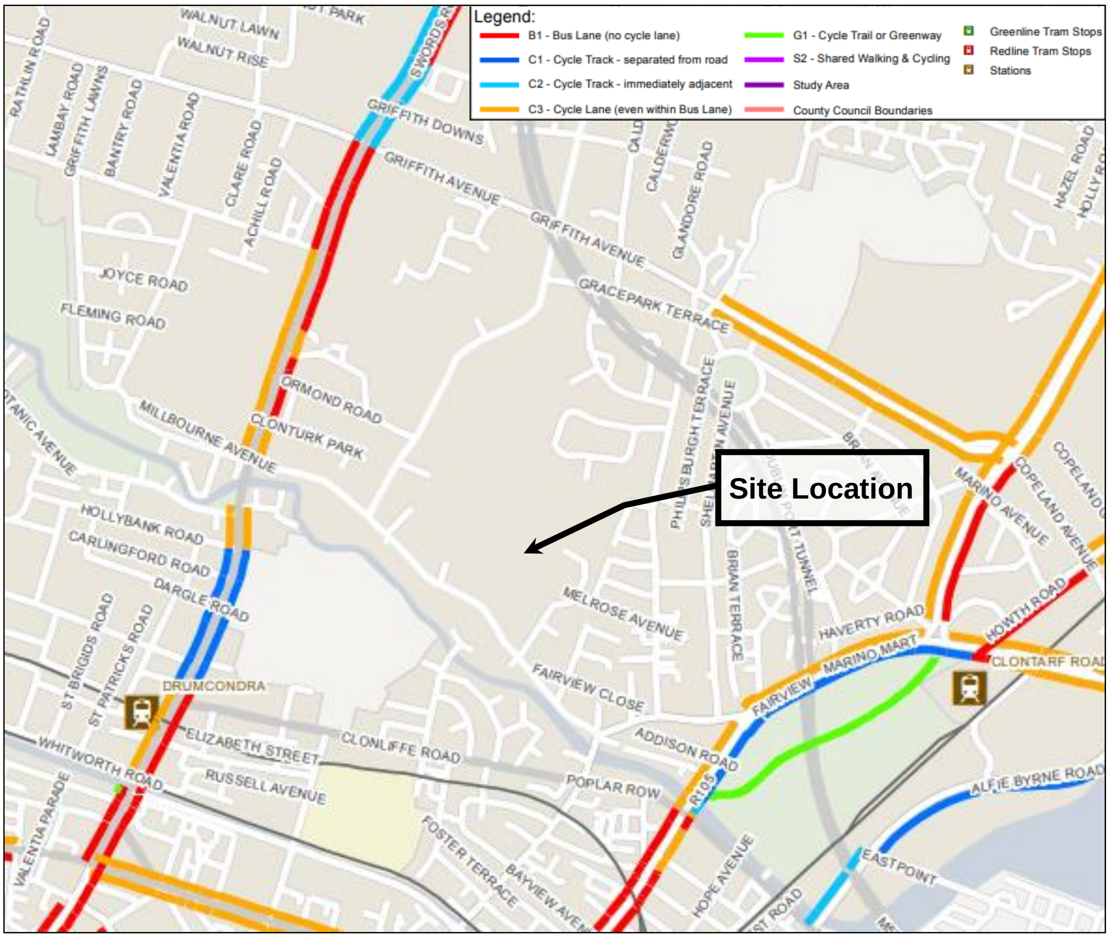


Figure 14-3*: Existing Cycle Infrastructure in Local Area*

Relative to the development site, there are numerous cycleways within the near vicinity. Sections of Drumcondra Road incorporate different forms of cycleways, however, there are sections along the stretch of road which have no specific cycle measures in place (in red). Similarly, the Annesley Bridge Road offers mixed-cycle use with certain sections designed without cycle lanes.

Richmond Road, on which the development fronts, does not have any dedicated cycle infrastructure at present, with cyclists travelling on-road. This is possible due to the low speeds on this road. To the east, along Fairview Strand, bicycles mainly travel along shared facilities, transitioning onto dedicated cycle lanes and crossings at junctions. Similarly, along Drumcondra Road to the west, cyclists travel along shared facilities, with dedicated cycling infrastructure at junctions.

Overall the cycling infrastructure around the development, and towards public transport nodes is of good quality and sufficient. Some upgrades are proposed to the existing infrastructure in the Greater Dublin Area Cycle Network Plan.

There is a short cycle trail passing through Fairview Park, which is located to the East of the development site. Additionally, the site is located just 1.1 km (4 min cycle) away from the entrance to the royal canal greenway (phase 2) and the royal canal towpath, as illustrated in the figure below. This amenity is used by both pedestrians and cyclists as a more direct route to both Ashtown and the City Centre.

In terms of pedestrian access, the existing footpaths on the nearby public road are moderately-lit and in fair condition. There are dedicated pedestrian crossing facilities in the wider area including signalised crossing facilities at the minor and priority junctions along Drumcondra Road and signalised crossing facilities at the Fairview Road and Griffith Avenue Road junctions.

In addition to the major crossings, there are several minor signalised crossings along Richmond Road, Philipsburgh Avenue and Grace Park Road.

Dedicated pedestrian infrastructure is present along both sides of Richmond Road. Infrastructure is of adequate width and condition, with cyclists travelling on road.

Further east, infrastructure remains similar along Fairview Strand, with adequate width and condition. Infrastructure does transition to a shared facility along this road, however, there is sufficient width to accommodate both modes. Similar to Fairview Strand, Drumcondra Road also has pedestrian infrastructure on both sides of the road, with good width and condition. Sections of this infrastructure are also used as shared facilities to accommodate cyclists in the area.

Relevant to travel by foot is a variety of employment opportunities, and commercial and leisure amenities within walking distance of the site. These are summarised as follows:

- The site is immediately bordered and in close proximity to considerable areas of employment in the extensively developed surrounding lands to the east and west which include a wide variety of commercial developments and access to the city centre;
- Both the DCU St Patrick's & DCU All Hallows campuses are located north/north-west of the development site.
- There are several large retail units within walking distance of the site. These include a supermarket on Drumcondra Rd (via Grace Park Rd pedestrian entrance), approximately 900m (11-minute walk away) and another on Drumcondra Rd (via Grace Park Rd), approximately 750m (a 10-minute walk away). Additionally, there is a small supermarket located on Philipsburgh Avenue, which is approximately 800 m away (10-minute walk), via the Griffith Ct pedestrian entrance;
- There are a number of leisure and fitness amenities within close proximity including a gym on Fairview Road and another on Drumcondra Road;
- There are several restaurants within a short walking distance including one on Drumcondra Road and Fairview Road/Strand, all within a 600m to 1km walking distance.
- Drumcondra is located approximately 9 minutes walking distance and 3 minutes cycling distance from the development site which provides access to a number of convenience shops/supermarkets, restaurants/cafes, gyms, schools and various community facilities;
- Fairview is located approximately 8 minutes walking distance and 2 minutes cycling distance from the development site which provides access to a number of convenience shops/supermarkets, restaurants/cafes, gyms, schools and various community facilities;
- Phibsborough is located approximately 32 minutes walking distance and 12 minutes cycling distance from the development site which provides access to a number of convenience shops/supermarkets, restaurants/cafes, gyms, schools and various community facilities;
- There are a number of schools and childcare facilities within an approximate 1km/2km walking distance;

- The proximity of public transport infrastructure, in particular, the vast choice of buses, makes the site readily accessible to areas of employment, residential areas, commercial and leisure amenities in Dublin City and other areas along the respective routes;
- There are a wide number of residential areas and developments within reasonable walking and cycling distance of the development site which is particularly relevant for future employees at the development.

TA 79/99 "Traffic Capacity of Urban Roads" from the DMRB provides information on the capacity of urban roads based on classification and width. The table below shows the capacities of various road types based on this manual and using a 60:40 split in flow.

***Table 14.3**: Urban Road Capacities*

2-Way Single Carriageway – Busiest Direction of Flow (60/40 split)										
		Total Number of lanes								
Carriageway Width (m)		*2*				*2–3*	*3*	*3–4*	*4*	*4+*
		6.10	*6.75*	*7.30*	*9.0*	*10.0*		*12.3*	*13.5*	*18.0*
Road Type	UM	*Not Applicable*								
	UAP1	1020	1320	1590	1860	2010	2550	2800	3050	3300
	UAP2	1020	1260	1470	1550	1650	1700	1900	2100	2700
	UAP3	900	1110	1300	1530	1620	*	*	*	*
	UAP4	750	900	1140	1320	1410	*	*	*	*

The local links have been classified based on the associated definitions in the DMRB. Using the previous table, link capacities have been calculated and current Ratio of Flow to Capacity (RFC) values have been assessed for the key links bordering the site.

It should be noted that given the variation in width across the links in question, an average figure for each has been used which is rounded down to the nearest value shown in the above table, thus ensuring a conservative assessment of link capacity. The links around the development have been classified according to the table below.

***Table 14.4:** Base Year Link RFC Values for Local Network*

Link	Width (m)	Link Capacity	A.M. Peak	RFC	P.M. Peak	RFC
		(veh/hr)	(veh/hr)	(%)	(veh/hr)	(%)
R132	12.00	2100	1314	63%	1145	55%
Richmond Road	5.50	900	529	59%	424	47%
Fairview Strand	12.00	2100	1287	61%	1257	60%
Clonliffe Road	9.00	1530	356	23%	398	26%
Ballybough Road	12.00	2100	930	44%	700	33%
Annesley Bridge Road	9.50	2100	875	42%	918	44%

As can be seen, there are variations in how the links are operating depending on the time of day with RFC values ranging between 23% – 63% indicating that there is significant reserve capacity available on all links.

14.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

A full description of the proposed development is available in Chapter 2 (Description of the Proposed Development).

14.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

14.5.1 Do Nothing

The Do Nothing scenario would involve leaving the subject site in its current state. This would entail that the proposed development will not take place in the local area and only allowance for natural background traffic growth would be accounted for.

14.5.2 Construction Phase

Relative to the operation stage, the construction period will be temporary. Construction traffic is expected to consist of the following categories:

- Private vehicles owned and driven by site construction staff and by full-time site supervisory staff and occasional professional supervisory staff i.e. design team members and supervisory staff from utility companies;
- Materials delivery and removal vehicles.

Experience with buildings of a similar scale to St Vincent's development suggests an estimated maximum vehicle/ truck movements per day at peak production and an estimated average vehicle/ truck movements to complete the development as detailed. However, this is to be confirmed based on the contractor's construction management and traffic plan and the program for delivery of the development.

These estimates are summarised as follows:

- 60 no. private vehicles per day from staff and site visitors i.e., 120 no. vehicle movements.

- 40 no. light goods vehicles per day from subcontractor staff i.e., 80 no. vehicle movements.
- 100 no. heavy goods vehicles per day during the peak excavation process i.e., 200 no. vehicle movements.
- 40 no. heavy goods vehicles per day outside of the peak excavation periods i.e., 80 no. vehicle movements.

When estimating the potential impact of the construction stage, several factors have been taken into consideration as follows:

The peak traffic hours have been defined as 08:45-09:45 and 18:00-19:00. The normal permitted construction working hours are 08:00 to 19:00 on a weekday. As a result, staff travelling in private vehicles will arrive and depart the site outside of the peak traffic hours;

The excavation period is considered to represent the peak of HGV movements at 100 per day, based on 10 vehicles per hour. The assessment has considered this volume of traffic as it represents the worst-case scenario;

Heavy excavation and delivery vehicles travelling to and from the site will be spread across the course of the working day and efforts will be made to limit the number of arrivals and departures during the peak traffic hours where possible. However, for the purposes of this assessment, a worst-case scenario is assumed where no such restrictions are in place and 10 no. HGVs are allowed during peak hours;

The majority of contractor vehicles are expected to arrive and depart just before and after the site opening and closing hours respectively, with a small number, spread across the course of the day. However, in the interest of a conservative assessment, all have been assumed to arrive in the A.M. peak hour and depart in the P.M. peak hour.

Taking the above into consideration, the estimated construction vehicle movements relative to the operational vehicle movements are set out in the table below. Please note that vehicle movements are a summation of arrivals and departures e.g. 10 no. vehicles arriving and 5 no. vehicles departing equates to 15 no. vehicle movements.

Table 14.5: *Construction vs. Operational Vehicle Movements*

Time Period	Construction Stage	Operational Stage
08:45 – 09:45	40	126
18:00 – 19:00	40	158
Daily	400	1396

As can be seen, the peak hour vehicle movements for construction vehicles will be significantly less than that of the operational vehicle numbers, despite a conservative assessment with respect to construction traffic. Daily construction vehicle movements are notably less than the operational stage movements. Thus, taking into consideration, the temporary nature of construction activity and the detailed analysis of the operational stage in the following section, a bespoke detailed analysis of the construction stage has not been deemed necessary.

14.5.3 Operational Phase

In order to assess the actual impact of the operational development on the local road network, a number of different scenarios have been analysed as follows:

Base Year (2022) – The current performance of the local road network was initially assessed along with the impact of the proposed development to establish which junctions require more detailed analysis;

Year of Opening (2026) – The performance of the local road network was then assessed for the Year of Opening. In order to show the true impact of the proposed development, the Do Nothing and Do Something were analysed;

Design Year (2041) – The local road network was analysed for Design Year considering the Do Nothing and Do Something.

The junction analysis was carried out using Junctions 9 and the link capacities for the Year of Opening and the Design Year were assessed based on the same methodology outlined earlier in this report.

The Opening Year Do Something scenario RFC value for the links within the study area is shown in the table overleaf.

***Table 14.6**: Opening Year Do Something Link RFC Values for Local Network*

Link	Width (m)	Link Capacity	A.M. Peak	RFC	P.M. Peak	RFC
		(veh/hr)	(veh/hr)	(%)	(veh/hr)	(%)
Drumcondra Road	12.00	2100	1372	65%	1203	57%
Richmond Road	5.50	900	563	63%	491	55%
Fairview Strand	12.00	2100	1342	64%	1317	63%
Clonliffe Road	9.00	1530	371	24%	414	27%
Ballybough Road	12.00	2100	970	46%	731	35%
Annesley Bridge Road	9.50	2100	915	44%	962	46%

For the Opening Year, the highest ratio of flow to capacity will again occur on the R132 during the morning peak with a value of 65%.

The Design Year Do Something scenario RFC value for the links within the study area is shown in the table below.

***Table 14.7:** Design Year Do Something Link RFC Values for Local Network*

Link	Width (m)	Link Capacity	A.M. Peak	RFC	P.M. Peak	RFC
		(veh/hr)	(veh/hr)	(%)	(veh/hr)	(%)
Drumcondra Road	12.00	2100	1606	76%	1404	67%
Richmond Road	5.50	900	651	72%	559	62%
Fairview Strand	12.00	2100	1576	75%	1536	73%
Clonliffe Road	9.00	1530	429	28%	477	31%
Ballybough Road	12.00	2100	1128	54%	845	40%
Annesley Bridge Road	9.50	2100	1079	51%	1127	54%

Like the 2026 scenario, the highest ratio of flow to capacity will again be on the R132 during the morning peak with a value of 76%.

The links around the development will thus provide sufficient capacity for all scenarios.

In order to establish which junctions require more detailed analysis, the impact of the proposed development relative to the existing traffic flows has been assessed. The criteria used for this scoping exercise are national criteria based on the guidance set out in the *TII Traffic & Transport Assessment Guidelines (2014)* which states that an assessment is required when:

"Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road"

or

"Traffic to and from the Development exceeds 5% of the traffic flow on the adjoining road where congestion exists or the location is sensitive"

or

"Residential development in excess of 100 dwellings (Applications for 100 or more dwellings are decided by An Bord Pleanála as an SHD);"

With regard to the scope of the assessment, the guidelines state:

"In general, the study area should include all road links and associated junctions where traffic to and from the development may be expected to exceed 10% of the existing traffic movements, or 5% in congested or other sensitive locations, including junctions with national roads. Where two or more of the supplementary criteria as indicated in Table 2.3 apply in relation to any of the adjoining links or junctions, then those links and junctions should also be considered for inclusion in the study area"

From the queue length surveys, and to ensure a comprehensive, conservative, and robust analysis, it was assumed that all surveyed junctions are in congestion-sensitive areas, and as such, threshold 2 was used as guidance.

To determine which junctions require detailed analysis, the development trips projected to be added to each junction are compared to the base year traffic volumes obtained through surveys at that junction and expressed as a percentage figure. This is shown in the table below:

Table 14.8*: Junction Impact*

	AM			PM			Requires Analysis
	2022 DN	Dev Trips	% Impact	2022 DN	Dev Trips	% Impact	
Junction 1	2274	18	0.81%	2377	32	1.36%	No
Junction 2	846	5	0.57%	803	7	0.93%	No
Junction 3	2214	39	1.78%	2099	61	2.92%	No
Junction 4	**969**	**44**	**4.57%**	**918**	**69**	**7.50%**	**Yes**
Junction 5	**738**	**97**	**13.19%**	**756**	**158**	**20.87%**	**Yes**
Junction 6	**739**	**37**	**5.07%**	**752**	**106**	**14.03%**	**Yes**
Junction 7	**763**	**53**	**6.96%**	**767**	**89**	**11.59%**	**Yes**
Junction 8	1779	53	2.97%	1832	89	4.84%	No

Junction 9	1260	34	2.73%	1347	62	4.59%	No
Junction 10	2215	32	1.44%	2297	56	2.44%	No
Junction 11	2274	18	0.81%	2377	32	1.36%	No
Junction 12	2565	21	0.80%	2351	28	1.20%	No
Junction 13	2071	18	0.88%	2088	27	1.29%	No
Junction 14	4016	34	0.86%	4162	65	1.55%	No

From the table above it is evident that the development trips will have a low impact on most of the large junctions. A number of junctions along Richmond Road will be impacted by the development trips and thus require detailed junction analysis. These are Junctions 4 - 7. According to the thresholds specified in the Dublin City Development Plan 2022 - 2028 and the TII Traffic and Transport Assessment Guidelines 2014, none of the other surveyed junctions requires detailed analysis, as none of the calculated impacts exceeds the criteria specified.

14.5.3.1 Junction 4

The junction between Richmond Road and Grace Park Road is a priority-controlled T-junction with Richmond Road as the major link. The worst-performing movement at each approach, for each scenario, is shown in the table below.

***Table 14.9**: Junction 4 - Analysis Results*

Peak	Scenario		Year	Grace Park Road (N)		Richmond Road (E)		Richmond Road (W)	
				RFC	Queue (pcu)	RFC	Queue (pcu)	RFC	Queue (pcu)
AM	1	DN	2022	78%	3.40	34%	0.60	-	-
	2	DN	2026	88%	5.80	37%	0.70	-	-
	3	DS	2026	90%	7.00	38%	0.70	-	-
	4	DN	2041	108%	26.70	43%	0.90	-	-
	5	DS	2041	111%	30.60	44%	0.90	-	-
Peak	Scenario		Year	Grace Park Road (N)		Richmond Road (E)		Richmond Road (W)	
				RFC	Queue (pcu)	RFC	Queue (pcu)	RFC	Queue (pcu)
PM	6	DN	2022	37%	0.60	74%	2.90	-	-
	7	DN	2026	40%	0.60	80%	4.00	-	-
	8	DS	2026	41%	0.70	83%	5.10	-	-
	9	DN	2041	47%	0.90	92%	9.10	-	-
	10	DS	2041	49%	0.90	96%	13.10	-	-

This junction performs adequately for the Base Year and Opening Year scenarios for both peak hours. During the Design Year, the junction does experience some capacity problems, especially on the northern approach (Grace Park Road) during the morning peak, and the eastern approach (Richmond Road) during the afternoon peak. However, it should be noted that the development trips do not lead to the potential capacity problems identified, rather these trips just aggravate the projected situations slightly.

There could be a need to upgrade this junction in future, possibly to a signalised junction, however, the main cause for this would be natural traffic growth on the existing road network and not the calculated trips generated by the proposed development.

14.5.3.2 Junction 5

Junction 5 is a priority-controlled T-junction between Richmond Road and the Crannog Access Road, with Richmond Road being the major link. The worst-performing movement at each approach, for each scenario, is shown in the table below.

***Table 14.10**: Junction 5 - Analysis Results*

Peak	Scenario		Year	Crannog (N)		Richmond Road (E)		Richmond Road (W)	
				RFC	Queue (pcu)	RFC	Queue (pcu)	RFC	Queue (pcu)
AM	1	DN	2022	0%	0.00	0%	0.00	-	-
	2	DN	2026	0%	0.00	0%	0.00	-	-
	3	DS	2026	18%	0.20	5%	0.10	-	-
	4	DN	2041	0%	0.00	0%	0.00	-	-
	5	DS	2041	19%	0.20	6%	0.10	-	-
Peak	Scenario		Year	Crannog (N)		Richmond Road (E)		Richmond Road (W)	
				RFC	Queue (pcu)	RFC	Queue (pcu)	RFC	Queue (pcu)
PM	6	DN	2022	0%	0.00	0%	0.00	-	-
	7	DN	2026	0%	0.00	0%	0.00	-	-
	8	DS	2026	18%	0.20	17%	0.50	-	-
	9	DN	2041	0%	0.00	0%	0.00	-	-
	10	DS	2041	19%	0.20	19%	0.50	-	-

This junction will be used as the proposed main access junction to the residential portion of the development. As such, there is a noticeable difference between the results of the Do Nothing analysis and the Do Something analysis. Irrespective of this, the junction has sufficient capacity to accommodate the additional trips calculated to be generated by the proposed development using the current simple priority-controlled junction layout.

14.5.3.3 Junction 6

This junction currently operates as a simple priority-controlled T-junction between Richmond Road and the St Joseph's Adolescent School access road, with Richmond Road being the major link. The worst-performing movement at each approach, for each scenario, is shown in the table below.

***Table 14.11**: Junction 6 - Analysis Results*

Peak	Scenario		Year	St Joseph's (E)		Richmond Road (S)		Richmond Road (N)	
				RFC	Queue (pcu)	RFC	Queue (pcu)	RFC	Queue (pcu)
AM	1	DN	2022	0%	0.00	1%	0.00	-	-
	2	DN	2026	0%	0.00	1%	0.00	-	-

	3	DS	2026	4%	0.00	7%	0.10	-	-
	4	DN	2041	0%	0.00	1%	0.00	-	-
	5	DS	2041	5%	0.10	8%	0.20	-	-
Peak	Scenario		Year	St Joseph's (E)		Richmond Road (S)		Richmond Road (N)	
				RFC	Queue (pcu)	RFC	Queue (pcu)	RFC	Queue (pcu)
PM	6	DN	2022	0%	0.00	0%	0.00	-	-
	7	DN	2026	0%	0.00	0%	0.00	-	-
	8	DS	2026	5%	0.10	2%	0.00	-	-
	9	DN	2041	0%	0.00	0%	0.00	-	-
	10	DS	2041	6%	0.10	2%	0.00	-	-

It is proposed that this junction will become the main access to the hospital portion of the development. Currently, the existing hospital is accessed via this junction and the adjacent junction with Convent Avenue. However, due to the width of Convent Avenue, it is proposed that this junction becomes the main, exclusive access.

As mentioned previously in this report, no additional trip generation was calculated for the hospital development as it is anticipated that the size of the hospital will remain as current, and just be moved to a new, updated facility. As such, a conservative assessment was done to move all current in and out trips from the Convent Avenue approach (north) of the adjacent junction to this junction. It was assumed that all trips on Convent Avenue are destined to and from the hospital. This is unlikely as there are a number of residential developments along Convent Avenue prior to the hospital grounds, however, this reallocation of trips provides a worst-case scenario for this junction. Even with this conservative approach, the junction has excess capacity to accommodate the calculated volumes with the current priority-controlled layout.

14.5.3.4 Junction 7

This junction is currently operating as a four-leg priority-controlled junction between Richmond Road, Convent Avenue, and the access road to Richmond Hall. Richmond Road is the major link at this junction. The worst-performing movement at each approach, for each scenario, is shown in the table below.

Table 14.12: *Junction 7 - Analysis Results*

Peak	Scenario		Year	Richmond Road (N)		Convent Ave (E)		Richmond Road (S)	
				RFC	Queue (pcu)	RFC	Queue (pcu)	RFC	Queue (pcu)
AM	1	DN	2022	0%	0.00	4%	0.00	5%	0.10
	2	DN	2026	0%	0.00	5%	0.00	6%	0.10
	3	DS	2026	0%	0.00	0%	0.00	0%	0.00
	4	DN	2041	0%	0.00	5%	0.10	7%	0.10
	5	DS	2041	0%	0.00	0%	0.00	0%	0.00
Peak	Scenario		Year	Richmond Road (N)		Convent Ave (E)		Richmond Road (S)	
				RFC	Queue (pcu)	RFC	Queue (pcu)	RFC	Queue (pcu)
PM	6	DN	2022	0%	0.00	4%	0.00	2%	0.00

	7	DN	2026	0%	0.00	4%	0.00	2%	0.00
	8	DS	2026	0%	0.00	0%	0.00	0%	0.00
	9	DN	2041	0%	0.00	5%	0.10	2%	0.00
	10	DS	2041	0%	0.00	0%	0.00	0%	0.00

As detailed in the previous section, an assumption was made that all trips in and out of Convent Avenue will redistribute to Junction 6. This assumption is based on the argument that all trips on Convent Avenue are trips to and from the hospital, which will be relocated to Junction 6 when the new hospital is constructed and this becomes the main access. Even though this is unrealistic as there are some residential properties on Convent Avenue, it provides a worst-case scenario as the exact number of trips that the hospital generates is unknown.

However, from the analysis of Junction 6 as well as this junction, it is evident that there is excess capacity available to accommodate any redistribution of trips between the two junctions.

The table below summarises the identified likely significant effects of the proposed development in the absence of mitigation during the operational phase.

***Table 14.13**: Summary of Operational Phase Likely Significant Effects Without Mitigation*

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Excessive car usage	Adverse	Significant	Wider road network	Likely	Long term	Worst case
Increased traffic congestion	Adverse	Significant	Wider road network	Likely	Long term	Worst case
Poor site permeability negatively impacting pedestrian and cycle movements	Adverse	Moderate	Travel routes in the immediate area	Likely	Long term	Worst case
Increased risk of accident due to increased vehicle movements	Adverse	Slight	Wider road network	Likely	Long term	Worst case
Failure to realise local and national sustainable transport objectives	Adverse	Moderate	Wider road network	Likely	Long term	Worst case

14.6 REMEDIAL AND MITIGATION MEASURES

14.6.1 Construction Phase

the following points are noted concerning construction traffic:

- In general, the construction day will begin and end outside of peak travel hours. As a result, the majority of workers travelling to and from the site will arrive before the a.m. peak hour and depart after the p.m. peak hour;
- Limited on-site parking will be provided for use by critical staff only with the remainder of staff encouraged to travel by the numerous public transport options serving the locality;
- Adequate on-site compounding will be provided to prevent any potential overflow onto the local transport network;

- The potential for construction staff to be brought to the site in vans/minibuses will be investigated. This would serve to reduce the overall trip generation potential of the construction period;
- Delivery vehicles travelling to and from the site will be spread across the course of the working day meaning the number of HGVs travelling during peak hours will be relatively low.

This stage of the development will be dealt with by the appointed contractor through the development and implementation of the Construction and Environmental Management Plan (CEMP). The CEMP will be updated by the Construction Manager, Environmental Manager and/or Ecological Clerk of Works, as required if site conditions change, and for any planning conditions that may be imposed. The CEMP will implemented and adhered to by the construction Contractor(s).. This plan will be agreed upon with the Local Authority prior to the commencement of construction and will ultimately include details on the following:

- Daily and weekly working hours;
- Agreed haul routes for incoming materials;
- Licensed hauliers to be used;
- Disposal sites, if necessary;
- Travel arrangements for construction personnel;
- Appropriate on-site parking arrangements for construction personnel to prevent overspill parking on the local road network;
- Wheel wash facilities if required;
- Road cleaning and sweeping measures to be put in place as required;
- Temporary construction signage to be put in place and maintained;
- Any proposed traffic management measures such as temporary traffic lights and signage on any public roads and dedicated parking provided for construction personnel.

14.6.2 Operational Phase

The operational stage impact of the proposed development will be mainly negligible in terms of traffic as can be seen in the traffic modelling results. The analysed junctions indicate that sufficient excess capacity is available to accommodate the development trips. Junction 4 showed that during the Design Year, there could potentially be some capacity issues, although it should be noted that it was shown that this will not be caused by the development. Given that the development is not the cause, and the assumed growth rates are considered conservative, especially considering the relatively unknown impact on trip patterns in future caused by the social changes as a result of the pandemic (increased percentage of people working from home), it is not recommended that any mitigation measures be employed at this stage. This is a conservative assessment as it includes the following elements:

- Medium-range TII growth rates from 2022 to 2040;
- Third-party developments in the study area;

14.6.2.1 Car Parking

According to the Dublin City Development Plan 2022 - 2028, car parking is based on three zones within Dublin City. These are:

- Parking Zone 1: Generally within the Canal Cordon and within North Circular Road in recognition of active travel infrastructure and opportunities and where major public transport corridors intersect;
- Parking Zone 2: Occurs alongside key public transport corridors and;
- Parking Zone 3: The remainder of the City.

The parking zones are shown on Map J, which is included as part of the Development Plan. As per this map, the proposed development is located within Parking Zone 2. The following maximum car parking standards apply to the development based on this:

- Houses, Apartments/Duplexes: 1 space per dwelling;
- Hospital: 1 space per 100 sqm GFA.

Based on the above, the maximum car parking standard as set out in the development plan is:

- House, Apartments/Duplexes: 811 no. spaces (811 no. units)
- Hospital: 84 no. spaces (8 411 sqm / 100 sqm)

For the hospital portion of the development, it is proposed to provide 72 no. car parking spaces, with an additional 4 no. mobility impaired parking bays (76 no. spaces in total). This is below the maximum car parking figure as set out in the Dublin City Development Plan 2022 – 2028. The motivation and appropriateness of this quantum of car parking are discussed in the Parking Management Plan (PMP) submitted under separate cover. A total of 9 no. surface car parking spaces will be provided for the commercial and community uses of which 4 no. are EV spaces.

It is proposed to provide a total of 247 no. spaces, of which 124 no. are EV spaces, 7 no. are car club spaces, and 13 no. are disabled spaces, for the residential portion of the development. This translates to an approximate ratio of 0.3 spaces per unit. This provision is a reduction on the maxima standards set out within the Dublin City Development Plan, but it is submitted that this is an appropriate car parking strategy, which can be motivated as set out below.The Census data for the Electoral Division of Drumcondra South A (Dublin), which has a survey population of over 3 000, in which the development site is located, has been interrogated to get an accurate estimate for a modal share in the area of the development. Based on this, the estimated modal share for the development is as follows:

Table 14.14*: Estimated Modal Share of Development*

Mode	Modal Share
Walking	27%
Bicycle	13%
Bus	22%
Rail	4%
Work From Home	2%
Car Driver	28%
Car Passenger	5%

As can be seen from the table above, less than 30% of the modal share in this Electoral Division is allocated to “Car Driver”. It should also be noted that the above has a very conservative allowance for working from home which is likely to be notably higher given the long-term impact of the worldwide pandemic which has highlighted this option as a viable working practice for many.

The site is advantageously located within approximately 3.5 km of the Dublin City Centre, which translates to a 15 min cycle. As can be expected, this proximity allows the development to enjoy several benefits such as services and locations within walking and cycling distance, as well as proximity to high quality and frequency public transport.

The subject site is located approximately 550m from the District Centre of Fairview and c. 1km from the District Centre of Drumcondra, as identified in Figure 5.1 of the Development Plan relating to neighbourhoods. Both areas are well served by amenities and services which are accessible to the subject site.

The application site is in an 'Inner Suburban' and accessible location. The site is also located c. 300m from the Royal Canal at Ballybough Luke Kelly Bridge, which is located just outside of the City Centre as outlined in the Core Strategy map of the Development Plan. The site is located c. 2km from Connolly Station. The site is therefore considered to be within reasonable walking and cycling distance of the city centre and therefore suitable for the scale and density of development.

As outlined in the figure below, the site is within reasonable walking distance of high-quality public transport, including existing Drumcondra Road QBC and BusConnects Radial Core Bus Corridor 'H-Spine' at Annesley Bridge Road. The Drumcondra Road QBC is proposed as BusConnects Radial Core Bus Corridor 'A Spine' and is due to be launched later in 2023. The site is also located near two proposed Core Bus Corridors including CBC1 - Clongriffin to Marino (submitted to An Bord Pleanala under Ref.: HA29N.313182 and CBC2 - Swords to City Centre (not yet submitted to An Bord Pleanala for approval)).

The subject site is within a 7 minute walking distance of Drumcondra Road QBC which is situated c. 560m to the west via the proposed connection through Grace Park Wood. The bus stops on Drumcondra Road Lower, which are within c. 650 metres / c. 8 minutes walking distance from the subject site, include the following bus routes (peak frequencies in brackets):

- Nos. 1 (every 10 mins), 11 (every 15 mins), 13 (every 10 mins), 16 (every 10-12 mins), 41 (every 20 mins) and 44 (every 60 mins).

The proposed Bus Connects 'A Spine' indicates a frequency of between 3-4 minutes between buses during peak hours. It is c. 850m walking distance to the bus stops on Drumcondra Road via Richmond Road.

The site is also within c. 10 minutes walking distance (c. 850m) to the BusConnects Radial Core Bus Corridor 'H-Spine' and bus stops at Annesley Bridge and Fairview (Marino Mart) via the main entrance from Richmond Road. These bus stops are served by Bus Route No's 14 (every 10-12 mins), 15 (every 10 mins), 27 (every 10 mins), 27A (every 35 mins), 27B (every 15 mins), 42 (every 20 mins), 43 (every 15 mins), 130 (every 10 mins), Bus Connects H1 (every 15 mins), H2 (every 30 mins) and H3 (every 30 mins).

In addition, the site is located within 1.6km (20 minute walking distance / 6 minute cycle) of Drumcondra Rail Station and within 1.7km (22 minutes walking distance / 7 minute cycle) of Clontarf DART Station.

Having regard to the above, the subject site can be considered to fall within a 'public transport corridor', which is identified as one of the key locations in the City for increased heights and densities in Appendix 3 of the Development Plan. The public transport accessibility and Inner Suburban location of the site is also reflected in the site's location within Car Parking Zone 2 as identified on Map J of the Development Plan. The accompanying Public Transport Capacity Study prepared by OCSC provides details of the number and frequency of existing bus routes serving the area and demonstrates the capacity of the existing public transport services to cater for the additional demand arising from the proposed development.

14.6.2.2 Car Sharing Spaces

To further promote sustainable travel and a reduction of car usage at the development, a total of 7 no. car share spaces are proposed. This forms part of a wider Mobility Management Plan which has been prepared for the development and submitted under separate cover. In addition to this, a quantum of high-quality, covered, and secure bicycle parking is proposed for the development which should further motivate a reduction in car usage.

14.6.2.3 Cycle Parking

The Design Standards for New Apartments – December 2020 stipulate that in general a minimum standard of 1 cycle storage space per bedroom and 1 space per 2 residential units should be provided. The development consists of the following breakdown of units:

- 18 no. studio apartments;
- 387 no. 1-bed apartments;
- 349 no. 2-bed apartments;
- 57 no. 3-bed apartments.

The residential development proposes a total of 1 274 bedrooms. Based on this, as per the Design Standards, 1 274 long-stay, and 406 short-stay bicycle parking spaces are required.

The Dublin City Development Plan 2022 - 2028 provides the following requirements for bicycle parking, relevant to the development:

- Residential Apartments: 1 per bedroom (long-stay) and 1 per two apartments (short-stay);
- Hospital: 1 per 5 staff (long-stay) and 1 per 10 beds (short-stay).

These standards translate to the following requirements:

- Residential Apartments: 1 274 long-stay and 406 short-stay spaces - ;
- Hospital: 42 long-stay (210 staff) and 8 short-stay (73 beds) spaces.

In order to maximise the modal share for cycling, a significant quantum of high-quality cycle parking is proposed at the development as follows:

- Residential: 1 680 no. spaces;
- Hospital: 42 long-stay and 8 short-stay spaces;
- Ancillary (gym, café, co-working, library, creche, community hall) – 84 no. spaces.

The majority of cycle parking spaces will be provided in secured stores within the structure and comprise stacked cycle parking spaces, with the design of the stores providing sufficient horizontal and vertical clearance to permit their use. Based on the above, the development satisfies the required standards as set out in the Design Standards for New Apartments and the Dublin City Development Plan 2022 – 2028.

14.6.2.4 Mobility Management Plan

A site and development-specific Mobility Management Plan has been prepared and submitted under separate cover as part of this application. The plan set out a series of objectives which relate to facilitating and encouraging travel by sustainable means. The plan includes details of a combination of hard and soft measures included in the development design and proposed to be put in place for its operation to achieve the stated objectives.

The plan will be a living document, continually updated in light of the experience gained through its operation in conjunction with residents, employees, and the Local Authority to ensure the maximum benefit is achieved.

14.6.2.5 Cargo Bikes

To further promote sustainable travel, a total of 20 no. Cargo Bike spaces have been provided at the basement level. The demand for Cargo Bikes will be monitored at occupation. Additional facilities will be provided if required, based on demand.

14.6.2.6 Electric Bikes

To further promote sustainable travel, a total of 88 no. Electric Bike charging spaces have been provided at the basement level. The demand for Electric Bikes will be monitored at occupation. Additional facilities will be provided if required, based on demand.

14.6.2.7 Communication & Tenant Management

A key aspect of the strategy will be early and effective communication with prospective tenants and residents of the residential and commercial units. These units will be marketed on the basis of sustainable living, embracing the highly accessible nature of the site and local amenities. The demand for more sustainable living continues to grow in line with objectives to improve quality of life as well as address significant environmental issues such as climate change, a key contributor to which is the burning of fossil fuels created by car-based travel. As people are becoming more aware of these issues, which are becoming more and more prominent in day-to-day life, it is leading to a cultural shift and change in priority for many residents who would prefer to lead a more sustainable lifestyle.

This communication strategy will make the overall sustainability strategy and the associated parking strategy clear to the prospective tenants as part of the marketing for the units and from the initial stages of contact in line with Section 4.24 of the Design Standards for New Apartments. The communication strategy will also highlight the following:

- The proximity of local areas of employment;
- The proximity of local retail, commercial and leisure amenities;
- Key local transport options in the area;

- Key measures proposed to facilitate no car ownership at the development include the availability of car club vehicles, extensive cycle parking provision, implementation of a Mobility Management Plan etc.

14.6.2.8 Parking Management

The majority of resident car spaces are located in the basement which is accessed via a dedicated entrance between blocks C and D/E.

Access to the basement car parking area will be controlled through steel gates and access control. Residents will lease spaces directly with the landlord. Access for this area will be through a phone / GSM system.

Residents who have leased a car parking space in the basement car park will be provided with their space number that has been allocated to their unit. A parking control company will be engaged to manage parking in the car park as well as any set down/drop off areas.

Management will control the registration of users on the GSM system to ensure that only residents who have been provided with a parking space are able to open the vehicle gates.

Accessible parking spaces are provided at ground level servicing those buildings that are not located over the basement car park. The parking control contractor will check that any car parked in these spaces displays a valid ‘disabled parking badge’. Any cars parked in these spaces not displaying a valid badge will be clamped.

Signage will be displayed throughout the development giving notice that cars parked incorrectly may be clamped.

There will be 9 no. surface level car spaces available to the retail and community units and a ‘Drop Off’ Zone allocated to the crèche; it is envisaged that there will be a 10-minute time limit on crèche drop offs.

It is planned that the surface level car park will have a 2-hour parking limit and will be monitored by a mobile patrol service and clamping will be arranged for cars parking beyond time restrictions.

Deliveries for the creche, cafes and retail units will be by way of set down areas located in close proximity to the units.

It is anticipated that restrictions on the times that deliveries are permitted to these units will be implemented in the interest of good estate management and to prevent undue nuisance to the residential element.

Deliveries to the mental health facility will be made directly to the facility.

Control measures will be implemented for bicycle parking to ensure access is restricted to authorised users only. This will prevent the misuse of bicycle stores, as well as improve the safety and security of these facilities, especially at the basement level.

14.6.2.9 Motorcycle Parking

As per the Development Plan, motorcycle parking is required at a rate of 5% of the provided number of car parking spaces. This equates to 4 no. spaces at the hospital development. A further 13 spaces are being provided for motorcycles in the basement for the residential development.

14.6.2.10 EV Parking

As per the Development Plan, all new developments should provide for a minimum of 50% of all car parking spaces to be equipped with fully functional EV Charging Points, with the remainder of spaces designed to facilitate the infrastructure in future. This equates to 124 no. EV spaces for the residential development, 39 no. EV spaces for the hospital development and 4 no. EV spaces for the commercial and community uses. This will be provided at the development.

Drawing from the above, it is considered that the impact of the operational phase on Traffic and Transport will be likely, positive, moderate, and permanent.

The table below summarises the identified likely significant effects of the proposed development with mitigation in place.

Table 14.15*: Summary of Operational Phase Likely Significant Effects with Mitigation*

Likely Significant Effect	Quality	Significance	Extent	Probability	Duration	Type
Car usage	Neutral	Imperceptible	Local road network	Unlikely	Long term	Residual
Traffic congestion	Neutral	Imperceptible	Local road network	Unlikely	Long term	Residual
Site permeability for pedestrian and cycle movements	Positive	Moderate	Travel routes in the immediate area	Likely	Long term	Residual
Risk of accident due to vehicle movements	Neutral	Imperceptible	Local road network	Unlikely	Long term	Residual
Realising local and national sustainable transport objectives	Positive	Moderate	Wider transport network	Likely	Long term	Residual

14.7 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

14.7.1 Construction Phase

The impact of the proposed development construction phase on the existing road network will be negligible with slight negative impacts experienced during the construction phase with construction traffic on the local road network, though this is temporary to short-term in duration.

The impact of the construction stage is assessed as follows:

- Increased vehicle numbers are expected to be limited during peak hours meaning congestion impacts are expected to be a negligible increase on background levels. As a result, associated health impacts from emissions and increased safety risk with respect to potential accidents involving vehicles will also be expected to be a negligible increase in background levels;
- There will be increased vehicle and HGV movements, however, these will be routed to use the most appropriate routes to limit the associated impact and minimise potential interaction with vulnerable road users where possible;

- The urban nature of the local road infrastructure lends itself to lower speeds and the limited increase in vehicle numbers means there is expected to be no real increase in risk to other vulnerable road users.

The impact of the proposed development construction stage will be managed by the measures set out in the Construction & Environmental Management Plan which include:

- Minimising waste and facilitating re-use/recycling of material where possible to reduce the need to transport off site;
- Use of the shortest possible haul routes available;
- Limited on-site parking for construction personnel to encourage travel by more sustainable means;
- Wheel washing and dust suppression facilities;
- A managed delivery system.

Drawing from the above, it is considered that the impact of the construction phase on Traffic and Transport will be likely and adverse but moderate and short-term.

14.7.2 Operational Phase

The assessment which forms the basis of this chapter has been wholly conservative to ensure a worst-case scenario is considered. This includes allowing for conservative background traffic growth based on TII guidance and conservative trip generation estimates which do not fully take into consideration the full effect of the reduced car parking provision. On that basis, the assessment and the associated results are considered to represent the worst-case scenario.

The increased traffic as a result of the proposed development has been shown to be minimal and will have a negligible impact in terms of traffic. The associated impact on human beings will be limited.

The increased permeability of the site and the provision of high-quality pedestrian and cycle facilities will result in increased numbers of cyclists which in turn will promote healthier living and a more active population.

The potential for increased accidents is also considered low as a result of the relatively minor traffic increases associated with the proposed development.

Thus, taking the above into consideration, the potential impact of the development operational stage is summarised as follows:

- The link capacities for the study area road network will continue to operate within acceptable limits at the year of opening;
- The impact on the junctions in the study area is considered to be negligible with relatively low increases in RFC values at each as a result of the proposed development;
- The development will increase pedestrian and cycle permeability through the local area and increase connectivity; and
- The increased traffic levels associated with the development are relatively low, particularly when compared to existing traffic flows locally meaning the associated impact in terms of road safety will be negligible.

Drawing from the above, it is considered that the impact of the operational phase on Traffic and Transport will be likely, neutral, slight, and permanent.

Full details of traffic modelling assumptions and results are included in the Traffic Impact Assessment completed by O'Connor Sutton Cronin Consulting Engineers for the proposed development, which is included with this planning application. Although it should be noted that the impact is expected to be negligible relative to the existing scenario.

14.8 MONITORING OR REINSTATEMENT

It has been demonstrated that the proposed development has negligible impact on the operation of the local road network meaning monitoring is not required to facilitate it.

14.9 CUMULATIVE IMPACTS OF THE PROPOSED DEVELOPMENT

A full list of developments that are currently permitted or under construction within the surrounding area are identified and described in Chapter 2 (Description of the Proposed Development), Section 2.8.

With respect to permitted developments which has yet to be completed, several developments have been investigated. These developments have either already been constructed or are awaiting approval. The only relevant development which has been granted approval and is yet to be constructed, of the developments investigated, is SHD ABP Ref.: 310860-21 - Clonliffe Road Holy Cross College, Clonliffe Road, Dublin 3 and Drumcondra Road Lower, Drumcondra, Dublin 9. However, this has subsequently been quashed by the High Court and any potential impact of this development on the road network within the study area has been disregarded.

Another development which has been granted permission on 1 March 2023 and is considered as part of the permitted developments is LRD6006/23-S3: Leydens LRD located at 158A, The former Leydens Wholesalers & Distributors, Richmond Road, Dublin 3, D03 YK12. From interrogating the development's Traffic and Transport Assessment, the anticipated trip generation figures for the 2025 Opening Year amounts to 2 no. arrivals and 9 no. departures during the morning peak, and 8 no. arrivals and 4 no. departures during the afternoon peak. Due to the low trip generation rates, it is expected that the addition of these trips will have a negligible impact on the local road network and are already accounted for in the background traffic growth rates. As such, the detailed inclusion of these trips was not deemed necessary.

CHAPTER 15

MATERIAL ASSETS: WASTE MANAGEMENT

awnconsulting
A Trinity Consultants Company

CHAPTER 15 CONTENTS

15.0 MATERIAL ASSETS: WASTE MANAGEMENT

15.1 INTRODUCTION

This chapter evaluates the impacts, if any, which the proposed development may have on Waste Management (Material Assets) as defined in the EIA Directive (Directive 2011/92/EU as amended by Directive 2014/52/EU) and the EPA EIA Report Guidelines 2022.

This chapter has also been prepared to address the issues associated with material assets during the construction and operational phases of the proposed development as described in Chapter 2.

A site-specific Resource Waste Management Plan (RWMP) has been prepared by AWN Consulting Ltd to deal with waste generation during the demolition, excavation, and construction phases of the proposed Development and has been included as Appendix 15.1. The RWMP was prepared in accordance with the Environmental Protection Agency's (EPA) document 'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021) and 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects' document produced by the National Construction and Demolition Waste Council (NCDWC) in conjunction with the Department of the Environment, Heritage and Local Government (DoEHLG)(2006).

A separate Operational Waste Management Plan (OWMP) has been prepared for the operational phase of the proposed Development and is included as Appendix 15.2 of this Chapter.

The Chapter has been prepared in accordance with European Commission's Guidelines, Guidance on the preparation of the Environmental Impact Assessment Report (2017) and the EPA Guidelines on the Information to be contained in EIARs (2022).

These documents will ensure the management of wastes arising at the Development Site in accordance with legislative requirements and best practice standards.

15.2 METHODOLOGY

The assessment of the impacts of the proposed development, arising from the consumption of resources and the generation of waste materials, was carried out taking into account the methodology specified in relevant guidance documents, along with an extensive document review to assist in identifying current and future requirements for waste management; including national and regional waste policy, waste strategies, management plans, legislative requirements and relevant reports.

This Chapter is based on the proposed development, as described in Chapter 2 (Description of the Proposed Development) and considers the following aspects:

- Legislative context;
- Construction phase (including demolition/renovation, site preparation and excavation); and

- Operational phase; A desktop study was carried out which included the following:
- Review of applicable policy and legislation which creates the legal framework for resource and waste management in Ireland;
- Description of the typical waste materials that will be generated during the Construction and Operational phases; and
- Identification of mitigation measures to prevent waste generation and promote management of waste in accordance with the waste hierarchy.

Estimates of waste generation during the construction and operational phases of the proposed development have been calculated and are included in section 15.4 of this chapter. The waste types and estimated quantities are based on published data by the EPA in the National Waste Reports and National Waste Statistics, data recorded from similar previous developments, Irish and US EPA waste generation research as well as other available research sources.

Mitigation measures are proposed to minimise the effect of the proposed development on the environment during the construction and operational phases, to promote efficient waste segregation, and to reduce the quantity of waste requiring disposal. This information is presented in Section 15.6

A detailed review of the existing ground conditions on a regional, local and site-specific scale are presented in Chapter 5 (Land, Soils, Geology, and Hydrogeology) of this EIAR.

15.2.1 Legislation and Guidance

Waste management in Ireland is subject to EU, national and regional waste legislation and control, which defines how waste materials must be managed, transported and treated. The overarching EU legislation is the Waste Framework Directive (2008/98/EC) which is transposed into national legislation in Ireland. The cornerstone of Irish waste legislation is the Waste Management Act 1996 (as amended). European and national waste management policy is based on the concept of 'waste hierarchy', which sets out an order of preference for managing waste (prevention > preparing for reuse > recycling > recovery > disposal) (Figure 15.1).

Figure 15.1 *Waste Hierarchy (Source: European Commission)*

EU and Irish National waste policy also aims to contribute to the circular economy by extracting high-quality resources from waste as much as possible. Circular Economy (CE) is a sustainable alternative to the traditional linear (take-make-dispose) economic model, reducing waste to a minimum by reusing, repairing, refurbishing and recycling existing materials and products. (Figure 15.2).

Figure 15.2 *Circular Economy (Source: Repak)*

The Irish government issues policy documents which outline measures to improve waste management practices in Ireland and help the country to achieve EU targets in respect of recycling and disposal of waste. The most recent policy document, Waste Action Plan for a Circular Economy – *Waste Management Policy in Ireland, was published in 2020* and shifts focus away from waste disposal and moves it back up the production chain. The move away from targeting national waste targets is due to the

Irish and international waste context changing in the years since the launch of the previous waste management plan*, A Resource Opportunity, in 2012.*

One of the first actions to be taken from the WAPCE was the development of the Whole of Government Circular Economy Strategy 2022-2023 ‘Living More, using Less’ (2021) to set a course for Ireland to transition across all sectors and at all levels of Government toward circularity and was issued in December 2021.

The Circular Economy and Miscellaneous Provisions Act 2022 was signed into law in July 2022. The Act underpins Ireland’s shift from a "take-make-waste" linear model to a more sustainable pattern of production and consumption, that retains the value of resources in our economy for as long as possible and that will to significantly reduce our greenhouse gas emissions. The Act defines Circular Economy for the first time in Irish law, incentivises the use of recycled and reusable alternatives to wasteful, single-use disposable packaging, introduces a mandatory segregation and incentivised charging regime for commercial waste, streamlines the national processes for End-of-Waste and By-Products decisions.

The strategy for the management of waste from the construction phase is in line with the requirements of the EPA’s ‘Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects’ (2021). The guidance documents, Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects and Construction and Demolition Waste Management: A Handbook for Contractors and Site Managers (FÁS & Construction Industry Federation, 2002), were also consulted in the preparation of this assessment.

There are currently no Irish guidelines on the assessment of operational waste generation, and guidance is taken from industry guidelines, plans and reports including the Eastern-Midlands Region (EMR) Waste Management Plan 2015 – 2021, BS 5906:2005 Waste Management in Buildings – Code of Practice, the Dublin City Council (DCC) Waste Management (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws 2018, the EPA National Waste Database Reports 1998 – 2019 and the EPA National Waste Statistics Web Resource.

15.2.2 Terminology

Note that the terminology used herein is consistent with the definitions set out in Article 3 of the Waste Framework Directive. Key terms are defined as follows:

Waste - Any substance or object which the holder discards or intends or is required to discard.

Prevention - Measures taken before a substance, material or product has become waste, that reduce:

a) the quantity of waste, including through the re-use of products or the extension of the life span of products;
b) the adverse impacts of the generated waste on the environment and human health; or
c) the content of harmful substances in materials and products.

Reuse - Any operation by which products or components that are not waste are used again for the same purpose for which they were conceived.

Preparing for Reuse - Checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing.

Treatment - Recovery or disposal operations, including preparation prior to recovery or disposal.

Recovery - Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II of the Waste Framework Directive sets out a non-exhaustive list of recovery operations.

Recycling - Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

Disposal - Any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I of the Waste Framework Directive sets out a non-exhaustive list of disposal operations.

15.2.3 Difficulties Encountered in Compiling the Chapter

Until final materials and detailed construction methodologies have been confirmed, it is difficult to predict with a high level of accuracy the construction waste that will be generated from the proposed works as the exact materials and quantities may be subject to some degree of change and variation during the construction process.

There is a number of licensed, permitted and registered waste facilities in the Dublin and EMR regions and across Ireland and Northern Ireland. However, these sites may not be available for use when required or may be limited by the waste contractor selected to service the development in the appropriate phase. In addition, there is potential for more suitably placed waste facilities or recovery facilities to become operational in the future which may be more beneficial from an environmental perspective.

The ultimate selection of waste contractors and waste facilities would be subject to appropriate selection criteria proximity, competency, capacity and serviceability. The waste facilities selected will ultimately be selected to minimise the environmental impacts on the surrounding environment.

Provided all mitigation measures as set out in this chapter and the attached RWMP, the overall predicted impact of the proposed development is **long-term, imperceptible** and **neutral**.

15.3 RECEIVING ENVIRONMENT

In terms of waste management, the receiving environment is largely defined by DCC as the local authority responsible for setting and administering waste management activities in the area. This is governed by the requirements set out in the EMR Waste Management Plan 2015-2021 (currently under review to be replaced in 2023) and the Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland.

The waste management plans set out the following targets for waste management in the region:

- A 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan;
- Achieve a recycling rate of 55% of managed municipal waste by 2025; and
- Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.

The Plan sets out the strategic targets for waste management in the region and sets a specific target for C&D waste of "70% preparing for reuse, recycling and other recovery of construction and demolition waste" (excluding natural soils and stones and hazardous wastes) to be achieved by 2020.

The National Waste Statistics update published by the EPA in November 2021 identifies that Ireland's current against "Preparing for reuse and recycling of 50% by weight of household derived paper, metal, plastic & glass (includes metal and plastic estimates from household WEEE)" was met for 2020 at 51% however they are currently not in line with the 2025 target (55%).

The Dublin City Development Plan 2022 – 2028 (2022) sets out the policies and objectives for the DCC area which reflect those set out in the regional waste management plan.

In terms of physical waste infrastructure, DCC no longer operates any municipal waste landfill in the area. There are a number of waste permitted and licensed facilities located in the EMR Waste Region for management of waste from the construction industry as well as municipal sources. These include soil recovery facilities, inert C&D waste facilities, municipal waste landfills, material recovery facilities and waste transfer stations.

However, these sites may not be available for use when required or may be limited by the waste contractor selected to service the development in the appropriate phase. In addition, there is potential for more suitably placed waste facilities or recovery facilities to become operational in the future which may be more beneficial from an environmental perspective.

The ultimate selection of waste contractors and waste facilities would be subject to appropriate selection criteria, proximity, competency, capacity, and serviceability.

15.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as

Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage. A full description of the proposed development can be found in Chapter 2 (Description of the Proposed Development). The characteristics of the proposed development that are relevant in terms of waste management are summarised below.

15.4.1 Demolition Phase

There will be waste materials generated from the demolition and renovation of the existing buildings and hardstanding areas on site to accommodate the new development.

Further detail on the waste materials likely to be generated during the demolition works are presented in the project-specific RWMP in Appendix 15.1. The RWMP provides an estimate of the main waste types likely to be generated during the C&D phase of the proposed Development. The reuse, recycling / recovery and disposal rates have been estimated using the EPA National Waste Reports and the developments targeted recycling and reuse rates. The quantities of waste material have been supplied by the project architects (Scott Tallon Walker) and are summarised in Table 15.1.

***Table 15.1**: Estimated off-site Reuse, Recycle and Disposal Rates for Demolition Waste*

Waste Type	**Tonnes**	**Reuse**		**Recycle / Recovery**		**Disposal**	
		%	**Tonnes**	**%**	**Tonnes**	**%**	**Tonnes**
Glass	50.0	0	0.0	85	42.5	15	7.5
Concrete, Bricks, Tiles, Ceramics	10088.6	30	3026.6	65	6557.6	5	504.4
Plasterboard	96.0	30	28.8	60	57.6	10	9.6
Metals	1.0	5	0.1	80	0.8	15	0.2
Slate	199.0	0	0.0	85	169.2	15	29.9
Timber	215.0	10	21.5	60	129.0	30	64.5
Asbestos	1.0	0	0.0	0	0.0	100	1.0
Total	**10650.6**		**3076.9**		**6956.6**		**617.0**

15.4.2 Construction Phase

During the construction phase, waste will be produced from surplus materials such as broken or off-cuts of timber, plasterboard, concrete, tiles, bricks, etc. Waste from packaging (cardboard, plastic, timber) and oversupply of materials may also be generated.

There will be soil, stones made ground excavated to facilitate construction of new foundations, basement and the installation of underground services. The development engineers (OCSC) have estimated that 110,000 m^3 of material will need to be excavated to do so. The majority (but not all) of the topsoil stripped from the site will be reused on site for backfill (levels in some areas need to be raised) and landscaping with some export required. Any surplus topsoil material will be transported off site for appropriate reuse, recovery, recycling and / or disposal. It is envisaged that all of the subsoil and stones will be removed from the site and transported off site for appropriate reuse, recovery, recycling and / or disposal.

If any material that requires removal from the site is deemed to be a waste, removal and reuse / recycling / recovery / disposal of the material will be carried out in accordance with the Waste Management Act 1996 (as amended), the Waste Management (Collection Permit) Regulations 2007 (as amended) and the Waste Management (Facility Permit & Registration) Regulations 2007 (as amended). The volume of waste requiring recovery / disposal will dictate whether a Certificate of Registration (COR), permit or licence is required for the receiving facility. Alternatively, the material may be classed as by-product under Regulation 27 (By-products), as amended, of S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2011-2020, (Previously Article 27 of the European Communities (Waste Directive). For more information in relation to the envisaged management of by-products, refer to the RWMP (Appendix 15.1).

In order to establish the appropriate reuse, recovery and / or disposal route for the soils and stones to be removed off-site, it will first need to be classified. Waste material will initially need to be classified as hazardous or non-hazardous in accordance with the EPA publication *Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous* (2019). Environmental soil analysis will be carried out prior to removal of the material on a number of the soil samples in accordance with the requirements for acceptance of waste at landfills (Council Decision 2003/33/EC Waste Acceptance Criteria). This legislation sets limit values on landfills for acceptance of waste material based on properties of the waste, including potential pollutant concentrations and leachability. It is likely that the surplus material will be suitable for acceptance at either inert or non-hazardous soil recovery facilities / landfills in Ireland or, in the unlikely event of hazardous material being encountered, be transported for treatment / recovery or exported abroad for disposal in suitable facilities.

Waste will also be generated from construction phase workers e.g. organic / food waste, dry mixed recyclables (waste paper, newspaper, plastic bottles, packaging, aluminium cans, tins and Tetra Pak cartons), mixed non-recyclables and, potentially, sewage sludge from temporary welfare facilities provided on-site during the Construction phase. Waste printer / toner cartridges, waste electrical and electronic equipment (WEEE) and waste batteries may also be generated in small volumes from site offices.

Further detail on the waste materials likely to be generated during the excavation and construction works are presented in the project-specific RWMP (Appendix 15.1). The RWMP provides an estimate of the main waste types likely to be generated during the Construction phase of the proposed development. These are summarised in Table 15.2.

Table 15.2: *Predicted on and off-site reuse, recycle and disposal rates for construction waste*

Waste Type	Tonnes	Reuse		Recycle / Recovery		Disposal	
		%	Tonnes	%	Tonnes	%	Tonnes
Mixed C&D	1432.7	10	143.3	80	1146.2	10	143.3
Timber	1215.6	40	486.3	55	668.6	5	60.8
Plasterboard	434.2	30	130.2	60	260.5	10	43.4
Metals	347.3	5	17.4	90	312.6	5	17.4
Concrete	260.5	30	78.1	65	169.3	5	13.0

Other	651.2	20	130.2	60	390.7	20	130.2
Total	**4341.6**		**985.5**		**2947.9**		**408.1**

15.4.3 Operational Phase

As noted in Section 15.1, an OWMP has been prepared for the proposed Development and is included as Appendix 15.2. The OWMP provides a strategy for segregation (at source), storage and collection of all wastes generated within the building during the operational phase including dry mixed recyclables (DMR), organic waste and mixed non-recyclable waste (MNR), as well as providing a strategy for management of waste glass, batteries, WEEE, printer / toner cartridges, chemicals, textiles, waste cooking oil and furniture.

The proposed development will also give rise to healthcare waste, as detailed in Section 3.2 of the OWMP. Healthcare waste categories are detailed in Figure 15.3, below. Healthcare risk waste generated at the proposed development will comprise waste disposed of in yellow bags (such as dressings, swabs, bandages, gloves, nappies etc.) and yellow sharps buckets (for waste such as needles, syringes, razors, stitch cutters etc.).

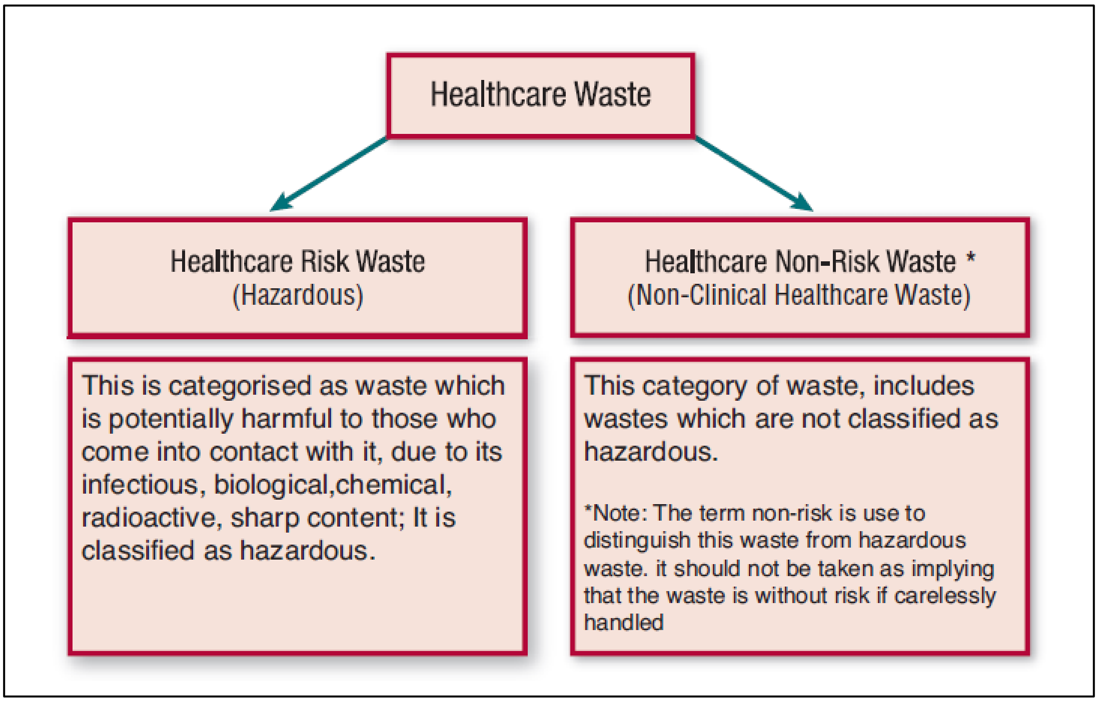


Figure 15.3: Healthcare Waste Categories (Source: HSE, Waste Management Awareness Handbook (2001))

The total estimated waste generation for the proposed development for the main waste types, based on the AWN waste generation model (WGM), is presented in Table 15.3, below, and is based on the uses and areas as advised by the Project Architects. Further unit breakdowns can be found in Appendix 15.2, Tables 4.1 through 4.4.

Table 15.3: *Estimated Waste Generation During Operational Phase*

Waste Type	Waste Volume (m^3/week)	
	Residential Waste (Combined)	Commercial Waste (Combined)
Organic Waste	12.02	0.85
DMR	85.15	13.57
Glass	2.33	0.34
MNR	44.78	6.51
Confidential Paper	-	0.68
Medical / Biological Waste	-	0.81
Total	144.27	22.78

The residents, hospital operator and commercial tenants will be required to provide and maintain appropriate waste receptacles within their units to facilitate segregation at source of these waste types. The location of the bins within the units will be at the discretion of the residents and tenants. As required, the residents and tenants will need to bring these segregated wastes from their units to their allocated Waste Storage Areas (WSAs). WSAs can be viewed on the plans submitted with the application under separate cover.

The OWMP seeks to ensure that the proposed Development contributes to the targets outlined in the *EMR Waste Management Plan 2015 – 2021, Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland* and the DCC (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws 2018.

15.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

This section details the potential waste effects associated with the proposed development.

15.5.1 Construction Phase

The proposed Development will generate a range of non-hazardous and hazardous waste materials during site demolition, excavation and construction (see appendix 15.1 for further detail). General housekeeping and packaging will also generate waste materials, as well as typical municipal wastes generated by construction employees, including food waste. Waste materials will be required to be temporarily stored in the construction site compound or adjacent to it, on-site pending collection by a waste contractor. If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the Development Site and in adjacent areas. The indirect effect of litter issues is the presence of vermin in areas affected. In the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect, short-term, significant*** and ***negative.***

The use of non-permitted waste contractors or unauthorised waste facilities could give rise to inappropriate management of waste, resulting in indirect negative environmental impacts, including pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. In the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect, long-term, significant*** and ***negative.***

Wastes arising will need to be taken to suitably registered / permitted / licenced waste facilities for processing and segregation, reuse, recycling, recovery, and / or disposal, as appropriate. There are numerous licensed waste facilities in the EMR which can accept hazardous and non-hazardous waste materials, and acceptance of waste from the Development Site would be in line with daily activities at these facilities. At present, there is sufficient capacity for the acceptance of the likely C&D waste arisings at facilities in the region. The majority of construction materials are either recyclable or recoverable. However, in the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect, short-term, significant*** and ***negative.***

There is a quantity of excavated material which will need to be excavated to facilitate the proposed development. A detailed review of the existing ground conditions on a regional, local site-specific scale are presented in Chapter 5 (Land, Soils, Geology, and Hydrogeology) of this EIAR. The majority (but not all) of the topsoil stripped from the site will be reused on site for backfill (levels in some areas need to be raised) and landscaping with some export required. Any surplus topsoil material will be transported off site for appropriate reuse, recovery, recycling and / or disposal. It is envisaged that all of the subsoil and stones will be removed from the site and transported off site for appropriate reuse, recovery, recycling and / or disposal. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site. However, in the absence of mitigation, the effect on the local and regional environment is likely to be ***indirect, short-term, significant*** and ***negative.***

15.5.2 Operational Phase

The potential impacts on the environment of improper, or a lack of, waste management during the operational phase would be a diversion from the priorities of the waste hierarchy which would lead to small volumes of waste being sent unnecessarily to landfill. In the absence of mitigation, the effect on the local and regional environment is likely to be **indirect, *long-term, significant*** and ***negative****.*

The nature of the development means the generation of waste materials during the operational phase is unavoidable. Networks of waste collection, treatment, recovery and disposal infrastructure are in place in the region to manage waste efficiently from this type of development. Waste which is not suitable for recycling can be sent for energy recovery. There are also facilities in the region for segregation of municipal recyclables which is typically exported for conversion in recycled products (e.g. paper mills and glass recycling).

If waste material is not managed and stored correctly, it is likely to lead to litter or pollution issues at the development site and in adjacent areas. The knock-on effect of litter issues is the presence of vermin in affected areas. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **indirect, *short-term, significant*** and ***negative****.*

Waste contractors will be required to service the proposed development on a scheduled basis to remove waste, further details can be found in appendix 15.2. The use of non-permitted waste contractors or unauthorised facilities could give rise to inappropriate management of waste and result in negative environmental impacts or pollution. It is essential that all waste materials are dealt with in accordance with regional and national legislation, as outlined previously, and that time and resources are dedicated to ensuring efficient waste management practices. However, in the absence of mitigation, the effect on the local and regional environment is likely to be **indirect, *long-term, significant*** and ***negative****.*

15.5.3 Do Nothing Scenario

If the proposed development was not to go ahead (i.e. in the Do-Nothing scenario) there would be no demolition, excavation or construction at this site. Current or operational waste would continue to be generated at the same levels. There would, therefore, be a neutral effect on the environment in terms of waste.

The site is zoned for development, and it is likely that in the absence of this subject proposal that a development of a similar nature would be progressed on the site that accords with national and regional policies and therefore the likely significant effects would be similar to this proposal.

15.6 REMEDIAL AND MITIGATION MEASURES

This section outlines the measures that will be employed in order to reduce the amount of waste produced, manage the wastes generated responsibly and handle the waste in such a manner as to minimise the effects on the environment.

The concept of the ‘waste hierarchy’ is employed when considering all mitigation measures. The waste hierarchy states that the preferred option for waste management is prevention and minimisation of waste, followed by preparing for reuse and recycling / recovery, energy recovery (i.e. incineration) and, least favoured of all, disposal.

15.6.1 Construction Phase

The following mitigation measures will be implemented during the construction phase of the proposed development:

As previously stated, a project specific RWMP has been prepared in line with the requirements of the requirements of The EPA, *Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects’ (2021)* and is included as Appendix 15.1. The mitigation measures outlined in the RWMP will be implemented in full and form part of mitigation strategy for the site. The mitigation measures presented in this RWMP will ensure effective waste management and minimisation, reuse, recycling, recovery and disposal of waste material generated during the excavation and construction phases of the proposed development.

- Prior to commencement, the appointed Contractor(s) will be required to refine / update the RWMP (Appendix 15.1) in agreement with DCC and in compliance with any planning conditions, or submit an addendum to the RWMP to DCC, detailing specific measures to minimise waste generation and resource consumption, and provide details of the proposed waste contractors and destinations of each waste stream.
- The Contractor will implement the RWMP throughout the duration of the proposed excavation and construction phases.

The project engineers have estimated that 110,000m^3 of topsoil, subsoil and stones will need to be excavated to facilitate the proposed development. The majority (but not all) of the topsoil stripped from the site will be reused on site for backfill (levels in some areas need to be raised) and landscaping with some export required. Any surplus topsoil material will be transported off site for appropriate reuse, recovery, recycling and / or disposal. It is envisaged that all of the subsoil and stones will be removed from the site and transported off site for appropriate reuse, recovery, recycling and / or disposal. Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

In addition, the following mitigation measures will be implemented:

- Building materials will be chosen to 'design out waste';
- On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:
    - Mixed C&D;
    - Concrete rubble (including ceramics, tiles and bricks);
    - Plasterboard;
    - Metals;
    - Glass;
    - Slate;
    - Asbestos; and
    - Timber.
- Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible; (alternatively, the waste will be sorted for recycling, recovery or disposal);
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

Nearby sites requiring clean fill material will be contacted to investigate reuse opportunities for clean and inert material, if required. If any of the material is to be reused on another site as by-product (and not as a waste), this will be done in accordance with Regulation 27 of the EC (Waste Directive) Regulations (2011-2020). EPA approval will be obtained prior to moving material as a by-product.

These mitigation measures will ensure that the waste arising from the construction phase of the proposed development is dealt with in compliance with the provisions of the Waste Management Act 1996, as amended, associated Regulations and the Litter Pollution Act 1997, and the EMR Waste Management Plan 2015 – 2021. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved and will promote more sustainable consumption of resources.

15.6.2 Operational Phase

As previously stated, a project specific OWMP has been prepared and is included as Appendix 15.2. The mitigation measures outlined in the OWMP will be implemented in full and form part of mitigation strategy for the site. Implementation of this OWMP will ensure a high level of recycling, reuse and recovery at the development. All recyclable materials will be segregated at source to reduce waste contractor costs and ensure maximum diversion of materials from landfill, thus achieving the targets set out in the EMR Waste Management Plan 2015 – 2021, Waste Action Plan for a Circular Economy – Waste Management Policy in Ireland and the DCC waste bye-laws.

- The residents / tenants / hospital operator / facilities management company(s) of the development during the operational phase will be responsible for ensuring – allocating personnel and resources, as needed – the ongoing implementation of this OWMP, ensuring a high level of recycling, reuse and recovery at the Site of the proposed Development.

- The residents / tenants / hospital operator / facilities management company(s) will regularly audit the onsite waste storage facilities and infrastructure, and maintain a full paper trail of waste documentation for all waste movements from the site.

The following mitigation measures will be implemented:

- The hospital operator and facilities management will ensure on-site segregation of all waste materials into appropriate categories, including (but not limited to):
    - Organic waste;
    - Dry Mixed Recyclables;
    - Mixed Non-Recyclable Waste;
    - Glass;
    - Waste electrical and electronic equipment (WEEE) including computers, printers and other ICT equipment;
    - Hazardous waste (including Medical and Biological);
    - Cooking oil;
    - Cleaning chemicals (paints, adhesives, resins, detergents, etc.);
    - Furniture (and from time-to-time other bulky waste); and
    - Abandoned bicycles
- The residents / tenants / hospital operator / facilities management company will ensure that all waste materials will be stored in colour coded bins or other suitable receptacles in designated, easily accessible locations. Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials;
- The residents / tenants / hospital operator / facilities management company will ensure that all waste collected from the site of the Proposed Development will be reused, recycled, or recovered, where possible, with the exception of those waste streams where appropriate facilities are currently not available; and
- The residents / tenants / hospital operator / facilities management company will ensure that all waste leaving the site will be transported by suitable permitted contractors and taken to suitably registered, permitted, or licensed facilities.

These mitigation measures will ensure the waste arising from the Proposed Development during the operational phase is dealt with in compliance with the provisions of the Waste Management Act 1996 as amended, associated regulations, the Litter Pollution Act 1997, the EMR Waste Management Plan 2015 – 2021, and the DCC Waste Bye-Laws. It will also ensure optimum levels of waste reduction, reuse, recycling and recovery are achieved.

15.7 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

The implementation of the mitigation measures outlined in Section 15.5 will ensure that targeted rates of reuse, recovery and recycling are achieved at the site of the Proposed Development during the construction and operational phases. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

15.7.1 Construction Phase

A carefully planned approach to waste management as set out in Section 15.6.1 and adherence to the RWMP (which includes mitigation) (Appendix 15.1) during the construction phase will ensure that the predicted effect on the environment will be ***short-term***, ***imperceptible*** **and** ***neutral*****.**

15.7.2 Operational Phase

During the operational phase, a structured approach to waste management as set out in Section 15.6.2 will promote resource efficiency and waste minimisation. When the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted impact of the operational phase on the environment will be ***long-term, imperceptible and neutral.***

15.7.3 Conclusion

Assuming the full and proper implementation of the mitigation measures set out herein and, in the RWMP (Appendix 15.1), no likely significant negative effects are predicted to occur as a result of the construction or operational of the proposed development.

15.8 RESIDUAL IMPACTS

The implementation of the mitigation measures outlined in Section 15.6 will ensure that high rates of reuse, recovery and recycling are achieved at the Site of the proposed development during the construction and operational phases. It will also ensure that European, National and Regional legislative waste requirements with regard to waste are met and that associated targets for the management of waste are achieved.

15.9 CUMULATIVE IMPACT ASSESSMENT

The cumulative impact of the proposed development with any/all relevant other planned or permitted developments are discussed below. For details on the developments considered refer to Chapter 2, Section 2.8 of this EIA Report.

Existing developments that are already built and in operation contribute to the characterisation of the baseline environment. As such any further environmental impacts that the proposed development may have in addition to these already constructed and operational developments has been assessed in the preceding sections of this chapter.

15.9.1 Construction Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place in the area. In a worst-case scenario, multiple developments in the area could be developed concurrently or overlap in the construction phase.

Due to the high number of waste contractors in the Dublin region as provided from the National Waste Collection Permit Office and the Environmental Protection Agency there would be sufficient contractors available to handle waste generated from a large number of these sites simultaneously, if required. Similar waste materials would be generated by all the developments.

Other developments in the area will be required to manage waste in compliance with national and local legislation, policies and plans which will mitigate against any potential cumulative effects associated with waste generation and waste management. As such the effect will be ***short-term, imperceptible*** and ***neutral.***

15.9.2 Operational Phase

There are existing residential and commercial developments close by, along with the multiple permissions remaining in place. All of the current and potential developments will generate similar waste types during their operational phases. Authorised waste contractors will be required to collect waste materials segregated, at a minimum, into recyclables, organic waste and non-recyclables. An increased density of development in the area is likely improve the efficiencies of waste collections in the area.

Other developments in the area, will be required to manage waste in compliance with national and local legislation, policies and plans which will minimise/mitigate any potential cumulative impacts associated with waste generation and waste management. As such the effect will be a ***long-term, imperceptible*** and ***neutral.***

15.10 REFERENCES

1. Waste Management Act 1996 - 2021 (No. 10 of 1996) as amended.
2. Protection of the Environment Act 2003, (No. 27 of 2003) as amended.
3. Litter Pollution Act 1997 (S.I. No. 12 of 1997) as amended
4. Eastern Midlands Region Waste Management Plan 2015 – 2021 (2015).
5. Department of Environment and Local Government (DoELG) *Waste Management – Changing Our Ways, A Policy Statement* (1998).
6. European Commission, Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (2017).
7. Environmental Protection Agency (EPA) 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (2022)
8. Forum for the Construction Industry – Recycling of Construction and Demolition Waste.
9. Department of Communications, Climate Action and Environment (DCCAE), *Waste Action Plan for the Circular Economy - Ireland's National Waste Policy 2020-2025* (Sept 2020).
10. DCCAE, *Whole of Government Circular Economy Strategy 2022-2023 'Living More, Using Less*' (2021)

11. Environmental Protection Agency (EPA) *'Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction & Demolition Projects' (2021)* Department of Environment, Heritage and Local Government, *Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects* (2006).
12. FÁS and the Construction Industry Federation (CIF), Construction and Demolition Waste Management – a handbook for Contractors and site Managers (2002).
13. Dublin City Council (DCC) *Dublin City Development Plan* (2022-2028)
14. DCC, *Dublin City Council (Storage, Presentation and Segregation of Household and Commercial Waste) Bye-Laws* (2018).
15. BS 5906:2005 Waste Management in Buildings – Code of Practice
16. Planning and Development Act 2000 (No. 30 of 2000) as amended
17. Environmental Protection Agency (EPA), Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-Hazardous (2015)
18. Council Decision 2003/33/EC, establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of and Annex II to Directive 1999/31/EC.
19. EPA, *European Waste Catalogue and Hazardous Waste List* (2002)
20. EPA, National Waste Database Reports 1998 – 2020.
21. US EPA, *Characterisation of Building Uses* (1998);
22. EPA and Galway-Mayo Institute of Technology (GMIT), EPA Research Report 146 – A Review of Design and Construction Waste Management Practices in Selected Case Studies – Lessons Learned (2015)

CHAPTER 16

MATERIAL ASSETS - UTILITIES

CHAPTER 16 CONTENTS

16.0 MATERIAL ASSETS - UTILITIES

16.1 INTRODUCTION

The term material assets refers to “built services and infrastructure, roads and traffic and waste management” EPA Guidelines (2022). The EPA Advice Notes (2015) also gives examples of material assets including assimilative capacity of air and water; ownership and access; and tourism and recreational infrastructure. The European Commission Guidance (2017) refers to a number of examples of material assets including buildings, other structures, mineral resources and water resources. The Directive 2011/92/EU defined Material Assets as ‘resources that are valued and that are intrinsic to specific places; they may be of either human or natural origin’: this included architectural and archaeological heritage.

This EIA Report chapter undertakes evaluation of the potential significant impacts that the proposed development may have on material assets utilities. Utilities can refer to any essential services, such as water supply, electricity, gas, and telecommunications, that are required for the functioning of the development project. The chapter also addresses land use, property, and access.

The impact assessment presented in this chapter aims to identify potential impacts that have not been previously addressed in other sections of the EIA report.

The purpose of this chapter is to identify and evaluate any potential significant impacts that the proposed development may have on these utilities, such as damage to infrastructure or disruptions to essential services. By conducting this assessment, appropriate mitigation measures can be developed and implemented to minimise any negative impacts and ensure that the development project is carried out in an environmentally responsible manner.

16.2 METHODOLOGY

In this EIA Report, the impacts on some of the material assets described in the above guidance have already been considered in the following chapters and therefore these aspects will not be addressed within this chapter.

- Chapter 4, Human Health and Populations;
- Chapter 5, Land, Soils, Geology, and Hydrogeology;
- Chapter 6, Hydrology;
- Chapter 8, Air Quality;
- Chapter 12, Archaeological and Cultural Heritage;
- Chapter 14, Traffic and Transportation; and
- Chapter 15, Waste Management.

This chapter focus is on ownership and access, built services and infrastructure, which have not already been addressed elsewhere in this EIA Report. The potential impacts on built services and infrastructure, if any, are assessed under the following headings:

- Land Use, Property, and Access
- Power, Electrical, and Gas Supply.
- Telecommunications.

- Surface water infrastructure.
- Foul drainage infrastructure; and
- Water supply.

Detailed water supply and drainage design information and details of consultation with utility suppliers is provided in the *Engineering Services Report* prepared by OCSC Consulting Engineers, the M&E Utilities Report prepared by IN2, and the Telecommunications Report prepared by ISM, which accompanies the planning application. The assessment of impact on utilities is considered with respect to the availability and capacity within the utility network(s) and consultation with Gas Networks Ireland (GNI), ESB Networks, Telecom and Irish Water (IW).

Where significant impacts are identified, mitigation measures are proposed to address these issues. These measures aim to minimize or eliminate adverse impacts on material assets, while also ensuring the project's viability.

16.2.1 Difficulties in Compiling the Assessment

There were no significant difficulties encountered in compiling the specified information for this EIA chapter.

16.3 RECEIVING ENVIRONMENT

The associated built services and infrastructure currently in the vicinity of the site are summarised in the following sections.

16.3.1 Land Use, Property, and Access

The site (c. 9.46 hectares) is located in close proximity to residential dwellings to the east and north; adjacent to several sports grounds and parks, along with a mix of residential dwellings, to the west; and adjacent to Leyden's Wholesalers and Distributors and a mix of other commercial and residential properties to the south.

The land is subject to three different land use zonings, namely 'Z1 – Sustainable Residential Neighbourhoods', 'Z12 – 'Institutional Land (Future Development Potential) and 'Z15 – Community and Social Infrastructure' under the Dublin City Development Plan 2022-2028.

The subject site consists of a mix of greenfield and built structures associated with St. Vincent's Hospital. Several buildings will be demolished to facilitate the new proposed development.

Direct access to the subject site is available from Griffith Court, Richmond Road (via Convent Avenue), Richmond Road (Crannóg) and via St. Joseph's Adolescent School entrances on Richmond Road.

16.3.2 Power and Gas Supply

IN2 have prepared an M&E Utilities Report (IN2, 2023) which is included with the application documentation. This report outlines the existing power and gas infrastructure at the site.

According to the M&E Utilities Report the site is well located with regards to ESB infrastructure. The ESB Networks drawing of existing ESB infrastructure indicates the network distribution capacity to the St Vincent's Hospital Redevelopment. There are existing 10 / 20 kV underground cables and 400 / 230 V overhead LV lines surrounding the site. There is an existing unit substation named 'Richmond Road' located on the site.

The M&E Utilities Report outlines that there is natural gas infrastructure within the vicinity of the site managed by Gas Networks Ireland (GNI). There is an existing low-pressure distribution pipeline which is present in the site, which serves the existing St Vincent's Hospital Fairview buildings.

16.3.3 Surface Water Infrastructure

The Engineering Services Report prepared by OCSC (2023), included with the application documentation, sets out that the existing units and hardstanding areas currently discharge surface water to the local combined infrastructure, with no apparent treatment nor attenuation facilities in place.

Potential impacts, if any, associated with surface water discharges and the receiving environment water environment are addressed in Chapter 6 (Hydrology) of this EIA Report. This EIA chapter addresses impacts to foul water infrastructure and the capacity of that infrastructure only.

The Engineering Services Report prepared by OCSC (2023), included with the application documentation, sets out that public records indicate an existing 525 mm concrete storm water sewer within the site boundary. This sewer flows in the southerly direction towards Richmond Road before discharging to the 1350 mm sewer on Richmond Road. This sewer discharges to the Tolka River immediately downstream of the site.

16.3.4 Foul Drainage Infrastructure

The Engineering Services Report prepared by OCSC (2023), included with the application documentation, outlines that Irish Water records a 300 mm foul sewer within the site boundary with a 900 mm concrete foul sewer in Richmond Road. This 900 mm foul sewer flows in an easterly direction and is treated at Ringsend WWTP.

Potential impacts, if any, associated with foul water discharges and the receiving environment water environment are addressed in Chapter 6 (Hydrology) of this EIA Report. This chapter addresses impacts to foul water infrastructure and the capacity of that infrastructure only.

16.3.5 Potable Water Supply

The Engineering Services Report prepared by OCSC (2023), included with the application documentation, outlines that Irish Water records show an existing 3- and 5-inch cast iron watermain within the site and a 6-inch watermain on Richmond Road.

16.3.6 Telecommunications Infrastructure

Telecom infrastructure to the surrounding area is provided by EIR. There are numerous EIR existing in-ground ducts in the vicinity of the development in front of the site along Richmond Road and also surrounding the site in existing developments. There appears to be existing Virgin Media overhead lines traversing the site to the existing hospital.

16.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

The proposed development will consist of the redevelopment of the site to provide for a new hospital building, providing mental health services, provision of 9 no. residential buildings (Blocks A, B, C, D-E, F, G, H, J, and L), community facilities, and public open space. The proposed building heights range from 2 to 13 storeys. The residential development includes a total of 811 no. residential units, including 494 no. standard designed apartments (SDA) and 317 no. Build to Rent (BTR) apartments, with a mix of 18 no. studio units, 387 no. 1 bed units, 349 no. 2 bed units and 57 no. 3 bed units. The development includes the partial demolition and change of use, including associated alterations, of the existing hospital building (part protected structure under RPS Ref.: 2032), to provide residential amenity areas, a gym, a café, co-working space, a community library, a childcare facility, and a community hall (referred to as Block K). The development also includes additional residential amenities and facilities, a retail unit and a café. The proposed development includes for the demolition of existing structures on site, including extensions of and buildings within the curtilage of the existing hospital buildings under RPS Ref.: 2032, and other existing buildings and ancillary structures on the site; and the change of use, refurbishment and alterations of a number of buildings and protected structures on the site including Brooklawn (RPS Ref.: 8789), Richmond House (RPS Ref.: 8788), the Laundry building and Rose Cottage.

A detailed description of the proposed development is found in Chapter 2 of this EIA Report. This section describes the built services and infrastructure for the proposed development during both construction and operation are described below.

16.4.1 Land Use, Property, and Access

Access to the new hospital and associated grounds is provided from Richmond Road and Convent Avenue, with separate internal access points. A separate vehicular access to the residential development is provided from Richmond Road. The development includes a proposed pedestrian / cycle connection to Griffith Court, requiring alterations to the service yard of the Fairview Community Unit, pedestrian / cycle connections to the Fairview Community Unit campus to the north (providing an onward connection to Griffith Court), a pedestrian / cycle connection to Grace Park Wood, and makes provision internally within the site for a potential future connection to Lomond Avenue / Inverness Road.

The proposed connections ensure a high level of connectivity to surrounding areas and permeability through the site. The connections to the north of Block H and L to the Fairview Community Unit campus and onwards to Griffith Court and Phillipsburgh Avenue, also assists in encouraging east-west circulation through the central park and use of the activity track around the perimeter of the site, and ties in with existing pedestrian and cycle infrastructure in the area.

During construction vehicular access to the site will be via Richmond Road access and will egress similarly. The site access road will be strictly managed and controlled. A traffic management plan will be prepared in order to safely control construction traffic. Separate pedestrian access will be developed at the access point to the site in order to maintain vehicle and pedestrian segregation

16.4.2 Power and Gas Supply

During construction, contractors will require power for heating and lighting of the site and their onsite construction compound. The power requirements will be relatively minor and will be provided by a temporary connection to an existing ESB substation located at the access road through the site. If necessary, an application may be made to the ESB to increase the supply to this substation. In the event that generators be required HVO generators will be used to reduce carbon generation. Hybrid generators which currently work on HVO during the day and are backed up by battery at night will be used on a trial basis.

There are plans for six substations within the site and they have all been sized accordingly with the number of apartments within the development, this is calculated using 12 kVA for the 1st apartment and a diversified 3.5 kVA for the remaining apartments per block, this is the calculation method used by the ESB network design engineers. Any Blocks where a core Electrical load exceeds 200 kVA a substation has been provided. The substations are located across numerous blocks on the site. Refer to IN2 Drawing SVRD-IN2-ST-ZZ-DR-ME-0105 for Substation locations.

A Medium Voltage (MV) ESB connection has been designed into Block DE as the Mechanical plant heat pump load shall exceed 500kVA, this is as per ESB requirements. Associated MV switch room and Transformer rooms have been included in the design.

The ESB sub-stations have been sized to accommodate the electrical loads associated with the future provision of EV charging to all parking spaces.

The utility strategy for the St Vincent's residential and hospital elements of the development is to avail of centralised heat plant consisting of electrically driven air source heat pumps.

There is no gas connection required during the construction phase. There is no intention to provide natural gas to serve the new residential portion of the proposed development.

The daily electricity usage for the hospital has been estimated at c. 2.8 MWh. The daily electricity usage for the residential units has been estimated at 17.2 MWh, with a peak usage of 0.8 MW. Initial contact has been made with the ESB and there are currently no issues with the provision of the required power to the proposed development.

The gas usage for the hospital kitchen facilities has been estimated at c. 0.25 MWh per day. Contact has been made with Gas Networks Ireland, and they confirm there is sufficient gas capacity in the area to retain gas supply to these buildings and to provide to the new Hospital.

16.4.3 Surface Water Infrastructure

During the construction processes the disposal of water (rainfall run-off and shallow groundwater) from the site will be required. Depending on the construction stage and the quality of this water the discharge will occur to either; ground (via percolation bed or ground water wells); to surface water (via the storm water network to the Tolka River); or to Ringsend WWTP (via the combined foul wastewater network). Treatment and monitoring of this water prior to disposal will occur within the construction site.

It is proposed to separate the surface water and wastewater drainage networks, which will serve the proposed development, and provide independent connections to the local public surface water and wastewater sewer networks respectively.

The proposed development is to be served by a sustainable drainage system that is to be integrated with the developments landscaping features and is typically to comprise green roofs, blue podium, intensive landscaping, pervious paving and filter drains, rain gardens, infiltration basins, trapped road gullies, flow control devices, attenuation storages.

Sustainable Drainage Systems are to be provided, wherever practicable, with discharge rates from site being restricted to the greenfield equivalent runoff rate for design rainfall events up to, and including, the 1% AEP, in accordance with the DCC County Development Plan 2022-2028 and the Greater Dublin Strategic Drainage Scheme (GDSDS).

The surface water strategy is designed using SUDS principles and industry best practice, in order to meet the objectives of Dublin City Council's Sustainable Drainage Design and Evaluation Guide and the GDSDS. The measures outlined will control the quantity and quality of the surface water runoff to best mimic the greenfield scenario and provide a flood resilient solution for the development site.

Further details are provided within the Engineering Services Report (OCSC, 2023). Refer to drawings R517-OCSC-XX-XX-DR-C-0500, R517-OCSC-XX-XXDR-C-0501 and R517-OCSC-XX-XXDR-C-0502 for details of the proposed drainage layout, which is to serve the proposed development.

16.4.4 Foul Wastewater Infrastructure

Welfare facilities will be provided for the contractors on site during the construction works. The average and peak daily discharges of foul water during construction are estimated to be 2.58 l/s and 7.74 l/s respectively. There are existing buildings at the site proposed to be demolished. The existing foul water connection previously utilised by these buildings will be used for all temporary welfare facilities during construction.

All proposed wastewater sewer design has been carried out in accordance with Irish Water's Code of Practice for Wastewater Infrastructure. The existing site is currently a mix of greenfield and existing building, with existing combined sewer discharging to the public wastewater infrastructure.

It is proposed to provide a connection from each structure to the existing public wastewater network inside the site boundary. The overall development is to be separated into 2 no. individual gravity wastewater catchments and is to be drained by a gravity wastewater network, based on the natural topography of the development site. It is proposed to provide two individual connections to the existing 900mm public wastewater sewer on Richmond Road (one for the hospital and one for the residential part of the development).

The average and peak daily discharges of foul water during operation of the hospital is estimated to be 0.57 l/s and 2.57 l/s respectively. The average and peak daily discharges of foul water during operation of the Residential units is estimated to be 5.67 l/s and 17.03 l/s respectively.

A Pre-Connection Enquiry (PCE) (IW Ref Nr. CDS22004338) was prepared by OCSC Consulting Engineers and submitted to Irish Water on the basis of the anticipated foul water flows for the proposed development site. A Confirmation of Feasibility was issued by Irish Water on 31st of January 2023 and the COF letter states connection is Feasible Subject to upgrades. The connection of the Hospital can proceed prior to any works as it will replace the existing Hospital and hence does not increase the overall load on the downstream network. In order to accommodate the proposed connection (excluding the Hospital) at the Premises, Storm Sewer Separation works are required to reduce the load on the downstream combined network.

Further details on the proposed design of the foul water drainage are within the Engineering Services Report (OCSC, 2023) included with the planning documentation and on the accompanying engineering drawings.

16.4.5 Potable Water Supply

During construction, a water source will be required for the duration of the works for welfare facilities, dust suppression and general construction activities. The average and peak daily demands for potable water during construction are estimated to be 2.92 l/s and 14.65 l/s respectively. There are existing buildings at the site proposed to be demolished. The existing water supply connection previously utilised by these buildings will be used for all temporary welfare facilities and construction activities during construction.

The average and peak daily demands for potable water during operation of the hospital are estimated to be 0.65 l/s and 3.25 l/s respectively. The average and peak daily demands for potable water during operation of the residential units are estimated to be 6.44 l/s and 32.22 l/s respectively.

The proposed connection is to be carried out in accordance with Irish Water's Code of Practice for Water Infrastructure, following a New Connection agreement with Irish Water, with a bulk water meter to be provided at the development's entrance.

Water saving devices are to be considered for use within the proposed development units, in order to conserve the use of water, as part of the internal fit-out.

Water metering arrangements are to be upgraded at the connection location, so that they are to Irish Water's satisfaction. A bulk water meter is to be provided at the connection to the public watermain, at the development entrance, along with individual meters provided at the connection to each commercial and domestic unit. All metering is to be provided in accordance with Irish Water's requirements.

A Pre-Connection Enquiry (PCE) (IW Ref Nr. CDS22004338) was prepared OCSC Consulting Engineers and submitted to Irish Water on the basis of the anticipated potable water demand for the proposed development site. A Confirmation of Feasibility was issued by Irish Water on the 31st of January 2023 and the COF letter states that the connection is feasible subject to upgrades. In order to accommodate the proposed connection upgrade works are required to increase the capacity of the Irish Water network as described in Section 2.7.1 of Chapter 2 (Description of the Proposed Development).

Further details on the proposed design of the potable water connection and upgrade works are set out within the Engineering Services Report (OCSC, 2023) included with the planning documentation and on the accompanying engineering drawings.

16.4.6 Telecommunications

Telecommunications including fibre required during the construction phase will be provided via mobile data, or a wireless connection where available.

To provide an adequate allowance to support the density and scale of the Development with the appropriate level of telecommunication channels (mobile phone signal /voice & data services), the Applicant is seeking planning permission to install the following:

- 9 no. support poles, affixed to ballast mounts on Apartment Block B rising 2.5 m above parapet level. These support poles are sufficient to each accommodate 1 no. 2 m 2G/3G/4G antenna & 1 no. 5G antenna each;
- 3 no. support poles, affixed to the lift shaft overrun on the Development's Apartment Block B, rising 3 m above roof level. These support poles are sufficient to accommodate 2 no. Ø 0.3 m Microwave links each;
- Together with all associated telecommunications equipment and cabinets; and
- To adequately screen the infrastructure, the support poles used for the antennae will be installed within Radio friendly GRP shrouds.

Independent Site Management (ISM) has been engaged to provide a specific assessment that the proposal being made allows for the retention of important Telecommunication Channels such as microwave links, to satisfy the criteria of Section 3.2 of the Building Height Guidelines (2018). Refer to the ISM report Telecommunications Report - Section 3.2 of the Building Height Guidelines (2018) which is included with this application.

EIR infrastructure to the surrounding area is sufficient to service the development from Richmond Road subject to final agreement with EIR. A new EIR Ducting network shall be provided to the development so the option for provision of EIR is available to each household.

Virgin Media infrastructure to the surrounding area is sufficient to service the development subject to final agreement with Virgin Media. A new Virgin Media Ducting network shall be provided to the development so the option for provision of Virgin Media is available. New connections to the new development shall come from the road at main entrance underground.

16.5 POTENTIAL IMPACTS OF THE PROPOSED DEVELOPMENT

16.5.1 Construction Phase

Land Use, Property, and Access

During the construction phase there are potential short-term nuisances such as dust, noise, as well as the potential for pollution of groundwater or the existing drainage ditches associated with demolition, excavations and construction. In addition, access for construction traffic has the potential to cause delays along access road if not adequately mitigated.

The potential impact associated with land use and property for the construction phase will be ***localised, negative, significant*** and ***short term*.**

Power and Gas Supply

During construction, contractors will require power for heating and lighting of the site and their onsite construction compound. The estimated power requirements are relatively minor and will be provided by a temporary connection to an existing ESB substation located at the access road through the site. If necessary, an application may be made to the ESB to increase the supply to this substation.

In the event that temporary generators are required HVO generators will be used to reduce carbon generation. Hybrid generators which currently work on HVO during the day and are backed up by battery at night will be used on a trial basis.

Excavations within the vicinity of existing electrical services will be carried out in consultation with ESB Networks to ensure there is no impact on existing users.

There is no gas connection required during the construction phase.

The power demand for the construction phase will have a ***neutral, short-term*** and ***imperceptible*** impact.

Surface Water Infrastructure

Surface water run-off during the construction phase may contain increased silt levels or otherwise become polluted from construction activities. Suspended solids in runoff water may result in an increase in suspended sediment load, resulting in increased turbidity, which may damage downstream surface water infrastructure.

Potential impacts could arise from accidental spillage of fuels, oils, paints etc. which could impact surface water if allowed to infiltrate or runoff to surface water infrastructure.

The potential impacts associated with surface water run-off to surface water infrastructure from the proposed development during the construction phase without mitigation measures is ***negative, not significant*** and ***short-term.***

Foul Wastewater Infrastructure

Welfare facilities (canteens, toilets etc.) will be required for the construction staff. The existing foul water connection previously utilised by buildings on the site will be used for all temporary welfare facilities during construction. The average and peak foul wastewater demand during construction is minor as compared with the operational phase of the proposed development.

The potential impacts on foul wastewater infrastructure from the proposed development during the construction phase are ***short-term, neutral*** and ***imperceptible*****.**

Potable Water Supply

The existing water supply connection previously utilised by buildings on the site will be used for all temporary welfare facilities during construction. The average and peak potable water demand during construction is minor as compared with the operational phase of the proposed development.

The potential impacts on potable water infrastructure from the proposed development during the construction phase are ***short-term, neutral*** and ***imperceptible*.**

Telecommunications Supply

Telecommunications including fibre required during the construction phase will be provided via mobile data, or a wireless connection where available.

The potential impacts on telecommunications from the proposed development during the construction phase are ***short-term, neutral*** and ***imperceptible*.**

16.5.2 Operational Phase

Land Use, Property, and Access

During the operational phase the Proposed Development is not anticipated to generate any significant air (including odour), noise or water emissions during normal operating conditions; these have been discussed further in the respective EIAR chapters, Chapter 6 (Hydrology), Chapter 8 (Air Quality & Climate) and Chapter 10 (Noise and Vibration) Chapters.

The Proposed Development represents the redevelopment of an existing site Additionally the zonings of the lands are considered that are (Z1 – *'Sustainable Residential Neighbourhoods',* Z12 – '*Institutional Land'* and Z15 – '*Institutional and Community'*) of these lands for institutional, residential and community use. The proposed development does not represent a loss of land that would otherwise be used for an alternative purpose. The development of this new residential development and mental health hospital will optimise the use of land that was previously unused or underutilised. The proposed development has a dual function to meet the mental health needs of the community and provide additional housing for a growing population.

The development of new residential development and mental health hospital can have a positive impact on property values in the surrounding area. This is because new housing developments and healthcare facilities can increase demand for property in the area, which can lead to an increase in property values. This can benefit existing property owners in the area, who may see an increase in the value of their homes as a result.

The proposed development includes the provision of new pedestrian / cycle connection infrastructure, which can help to improve access to existing services and amenities. This can also stimulate the development of new businesses and services in the area, which can further improve access to a range of amenities for residents.

The overall potential impact associated with land use and property for the operational phase will be a ***localised, positive, imperceptible*** and ***long term*.**

Power and Gas Supply

There are plans for six substations within the site and they have all been sized accordingly with the number of apartments within the development. Any blocks where a core electrical load exceeds 200 kVA a substation has been provided. A Medium Voltage (MV) ESB connection has been designed into Block DE as the Mechanical plant Heat pump load shall exceed 500kVA, this is as per ESB requirements. Associated MV switchroom and Transformer rooms have been included in the design.

There will be Electric Vehicle (EV) charging infrastructure, comprising of cable ducting systems and cable trays provided to every parking space in the redevelopment.

The gas usage for the hospital kitchen facilities has been estimated at 0.25 MWh per day, with a peak usage of 50 kW/hr. Contact has been made with Gas Networks Ireland, and they confirm there is sufficient gas capacity in the area to provide to the new Hospital. Initial contact has been made with both the ESB and Gas Networks Ireland, and there are currently no issues with the provision of the required power and gas to the proposed development, as such there is a **long-term, neutral** and **not significant** effect on power supply.

Surface Water Infrastructure

The operational phase of the development represents an increase in hardstanding area that has the potential to cause an increase in surface water run-off and flooding offsite and downstream of the development site. Surface water runoff from roads, car parking areas, and the proposed petrol station can potentially contain elevated levels of contaminants such as hydrocarbons.

In the absence of mitigation measures (or design measures) the potential impacts during the operational phase on surface water infrastructure are ***negative***, ***not significant,*** and ***long-term***.

Foul Wastewater Infrastructure

Consultation has been undertaken with IW with regard to available capacity and required upgrades to sewers. The overall wastewater discharge associated with the proposed development is in accordance with the discharge outlined in the pre-connection enquiry (PCE). Irish Water have confirmed via the PCE consultation (IW Ref Nr. CDS22004338) that the connection of the Hospital to the existing wastewater network is currently feasible prior to any works, and that the connection of the remainder of the Proposed Development is also feasible subject to Storm Sewer Separation works.

There is a ***long-term, neutral, not significant*** effect on foul water infrastructure during the operational phase of the proposed development.

Potable Water Supply

Consultation has been undertaken with IW with regard to available capacity and required upgrades to watermains. The overall water demand associated with the proposed development is in accordance with the demand outlined in the pre-connection enquiry (PCE). Irish Water have confirmed via the PCE consultation (IW Ref Nr. CDS22004338) that the connection to the Irish Water water network is currently feasible subject to upgrade works to increase the capacity of the Irish Water network.

There is a ***long-term, neutral, not significant*** effect on water supply infrastructure during the operational phase of the proposed development.

Telecommunications Infrastructure

EIR infrastructure to the surrounding area is sufficient to service the development from Richmond Road subject to final agreement with EIR. Virgin Media infrastructure to the surrounding area is sufficient to service the development subject to final agreement with Virgin Media.

The Telecommunications Report – Section 3.2 of the Building Height Guidelines (2018) undertaken by ISM concludes that the proposal being made by the Applicant within its submission to DCC allows for the retention of important Telecommunication Channels.

As such there is a ***long-term, neutral*** and ***not significant*** effect on telecommunications infrastructure during operation of the proposed development.

16.6 REMEDIAL AND MITIGATION MEASURES

16.6.1 Construction Phase

Ongoing consultation with Gas Networks Ireland, DCC, Irish Water, EirGrid and ESB Networks and other relevant service providers within the locality will be carried out. This will ensure compliance with their guidelines and any requirements they may have, minimising the risk of significant disruption of services to local and business community.

The works contractor will be obliged to put best practice measures in place to ensure that there are no interruptions to utilities, unless this has been agreed in advance.

Land Use, Property, and Access

To minimise nuisance for neighbours, the contractor will be required to operate in compliance with the mitigation measure set out in this EIAR and the project-specific Construction Environmental Management Plan (CEMP) (OSCS, 2023).

Power and Gas Supply

The power demand for the construction phase will be relatively minor so it is not anticipated that this would have any significant potential offsite impact. The works contractor will be obliged to put best practice measures in place to ensure that there are no interruptions to the power supply, unless this has been agreed in advance.

In the event that generators are required HVO generators will be used to reduce carbon generation. Hybrid generators which currently work on HVO during the day and are backed up by battery at night will be used on a trial basis.

As such, no further remedial or mitigation measures are required in relation to power supply for the construction phase.

Surface Water Infrastructure

The construction phase mitigation measures with regard to surface water out in Chapter 6 (Hydrology) Section 6.6.1 of this EIA Report will be implemented in full. These measures will ensure that the potential effects associated with regard to surface water infrastructure will be adequately mitigated.

Strict quality control measures will be undertaken while laying pipes to minimise or eradicate infiltration and ex-filtration.

Foul Wastewater Infrastructure

The existing foul water connection previously utilised by buildings on the site will be used for all temporary welfare facilities during construction. These temporary welfare facilities no further mitigation measures are required.

The construction phase mitigation measures with regard to surface water out in Chapter 6 (Hydrology) Section 6.6.1 of this EIA Report will be implemented in full. These measures will ensure that the potential effects associated with regard to foul wastewater infrastructure will be adequately mitigated.

Strict quality control measures will be undertaken while laying pipes to minimise or eradicate infiltration and ex-filtration.

Potable Water Supply

The existing water supply connection previously utilised by buildings on the site will be used for all temporary welfare facilities during construction. The works contractor will be obliged to put best practice measures in place to ensure that there are no interruptions to the water supply, unless this has been agreed in advance.

Strict quality control measures will be undertaken while laying pipes to minimise or eradicate infiltration and ex-filtration.

Telecommunications

Telecommunications during the construction phase will be provided via mobile data, or other wireless connection. There are no potential significant impacts, and therefore no remedial or mitigation measures are required in relation to telecommunications for the construction phase.

16.6.2 Operational Phase

Power and Gas Supply

Initial contact has been made with both the ESB and Gas Networks Ireland, and there are currently no issues with the provision of the required power and to the proposed development. There are no potential significant impacts, and therefore no remedial or mitigation measures are required.

Surface Water Infrastructure

The proposed development stormwater drainage network design includes sustainable drainage systems (SuDS) these measures by design ensure the stormwater leaving the site is of a suitable quality.

As set out in the Engineering Services Report prepared by OSCS the proposed development is to be served by a sustainable drainage system that is to be integrated with the developments landscaping features and is to comprise green roofs, blue podium, intensive landscaping, pervious paving and filter drains, rain gardens, infiltration basins, trapped road gullies, flow control devices and attenuation storages.

A Class 1 bypass fuel separator is to be provided immediately upstream of the final manhole discharging from site prior to surface water discharge to the public surface water network.

Foul Wastewater Infrastructure

IW have agreed in principal that the wastewater requirements for the development can be accommodated, subject to storm sewer separation works. the connection of the hospital can proceed prior to any works as it will replace the existing Hospital and hence does not increase the overall load on the downstream network.

No remedial or mitigation measures are required in relation to foul wastewater infrastructure.

Foul wastewater infrastructure for the proposed development will be in accordance with the Building Regulations Technical Guidance Document H for design and construction.

Potable Water Supply

Water saving devices are to be considered for use within the proposed development units, in order to conserve the use of water, as part of the internal fit-out.

Water metering arrangements are to be upgraded at the connection location, so that they are to Irish Water's satisfaction. A bulk water meter is to be provided at the connection to the public watermain, at the development entrance, along with individual meters provided at the connection to each commercial and domestic unit. All metering is to be provided in accordance with Irish Water's requirements.

Telecommunications

To mitigate the impact the proposed development will have on the existing poor mobile phone signal in the area and provide both the occupants of the proposed development and the local area with adequate voice and data services to meet modern demands the following measures have been incorporated into the proposed development design:

- 9 no. support poles, affixed to ballast mounts on Apartment Block B rising 2.5 m above parapet level. These support poles are sufficient to each accommodate 1 no. 2 m 2G/3G/4G antenna & 1 no. 5G antenna each;
- 3 no. support poles, affixed to the lift shaft overrun on the Development's Apartment Block B, rising 3 m above roof level. These support poles are sufficient to accommodate 2 no. Ø 0.3 m Microwave links each;
- Together with all associated telecommunications equipment and cabinets; and
- To adequately screen the infrastructure, the support poles used for the antennae will be installed within Radio friendly GRP shrouds.

16.7 RESIDUAL EFFECTS OF THE PROPOSED DEVELOPMENT

16.7.1 Construction Phase

The works contractor will be obliged to follow best practice measures to ensure that there are no interruptions to service from the existing telecommunications network, watermain, sewer and electrical grid. Any planned interruptions will be agreed in advance with the utilities suppliers. Strict quality control measures will be undertaken while laying pipes to minimise or eradicate infiltration and ex-filtration.

The implementation of measures within each chapter and detailed in Section 16.6.1 will ensure that the residual impacts of the proposed development on material assets will be ***neutral, imperceptible,*** and ***short term*** for the construction phase.

16.7.2 Operational Phase

The proposed development requires electrical power, water supply and connection to the wastewater network. Consultations have been undertaken with DCC, Irish Water, and ESB, and confirmed availability of supply. These entities in considering future connection take into consideration the environmental impacts of planned developments within the wider network. As such, there will therefore be no significant impact on material assets to the wider economy or environment.

The implementation of mitigation measures within each chapter will ensure that the residual impacts on the material assets during the operational phase will be ***neutral, not significant*** and ***long term*****.** The overall impact associated with land use and property for the operational phase will be a ***localised, positive, imperceptible*** and ***long term*****.**

16.8 CUMULATIVE IMPACT

The following considers the cumulative impacts of the proposed development and proposed and permitted and operating facilities in the surrounding area. Permitted developments with the potential to overlap construction phases and / or operational phases with the Proposed Development include the following permitted developments; 3 no. residential developments (2991/15, 2945/15 and 2957/02) and 1 no. Strategic Housing Development (ABP-312352-21), in relation to Material Assets. This considers the proposed development and other surrounding proposed and permitted developments considered in Chapter 2, Section 2.8.

16.8.1 Construction Phase

The proposed development and other surrounding development will require site clearance, excavations and levelling which will generate localised requirement for soil removal and/or import, power and water supply and wastewater discharge.

However, provided standard mitigation measures set out in the EIA Reports for these developments are adhered to or where EIA does not apply, provided that planning conditions are implemented, the cumulative impact will be ***neutral, imperceptible,*** and ***short term.***

16.8.2 Operational Phase

The proposed development and all permitted developments considered are required to engage with DCC, Irish Water and ESB to ensure that there is sufficient capacity to cater for the increase in water and wastewater and electricity requirements. Based on known current and known future developments there is adequate capacity of supply available within the local environs. In developing long term plans for security of supply, these National Authorities for water and energy supply are required to develop resources in compliance with sustainable environmental planning.

The cumulative impacts associated with other material assets will be ***neutral, not significant*** and ***long term*.**

CHAPTER 17

INTERACTIONS

awnconsulting
A Trinity Consultants Company

CHAPTER 17 CONTENTS

17.0 INTERACTIONS

17.1 INTRODUCTION

This chapter of the EIA Report addresses potential interactions and inter-relationships between the environmental factors discussed in the preceding chapters. This covers both the demolition/construction and operational phases of the proposed development.

This chapter has been produced following the guidance within, the EIA Directive, the *Planning and Development Act 2000* (as amended), the EPA *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* 2022.

Directive 2011/92/EU, as amended by Directive 2014/52/EU, and section 171A of the Planning and Development Act, as amended, both provide that an EIA shall identify, describe and assess in an appropriate manner, in the light of each individual case, the interaction between the following factors:

a) human beings, fauna and flora population and human health;
b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
c) land, soil, water, air and climate and landscape;
d) material assets, cultural heritage and the landscape.

In accordance with the guidance not only are the individual significant impacts required to be considered when assessing the impact of a development on the environment, but so must the interrelationships between these factors be identified and assessed.

The majority of the EIA Report chapters have already included and described assessments of potential interactions between aspects, considered by the various specialists contributing to this impact assessment as inherent aspects of their methodology. The quality, magnitude and duration of potential impacts are defined in accordance with the criteria provided in the EPA 2022 Guidance as outlined in Chapter 1. This section of the assessment presents a summary and assessment of the identified interactions.

17.2 POPULATION AND HUMAN HEALTH AND ITS INTERACTION WITH:

17.2.1 Land, Soils and Hydrogeology:

<u>*Construction Phase*</u>

During the construction_phase there is a risk of accidental pollution to land, soil and geology within the area from construction works, such as excavations and oil / diesel spillages from construction plant and equipment. The proposed development will not impact on domestic wells or any groundwater protection areas.

Taking into account the design and mitigation measures set out in Chapter 5 of this EIA Report, there is no potential for negative interaction between Population and Human Health, and Land, Soils and Hydrogeology during the construction phase. The interaction is considered to be ***neutral***, ***imperceptible*** and ***short term.***

Operational Phase

There is a potential of a leak or spills of petroleum hydrocarbons from private or delivery vehicles during operation of the development which has the potential to impact on soil, and groundwater water quality if a leaks or spills occurs and is not adequately mitigated. Due to the lack of receptors i.e., no groundwater wells in the vicinity of the site or direct pathway to surface water, and the proposed mitigation measures, the potential impact on Population and Human Health in respect of the environmental factor of Land, Soils, Geology and Hydrogeology is ***neutral, imperceptible*** and ***short term***.

Taking into account the design and mitigation measures set out in Chapter 5 of this EIA Report, there is no potential for negative interaction between Population and Human Health, and Land, Soils and Hydrogeology during the operational phase. The interaction is considered to be ***neutral***, ***imperceptible***, and ***long term***.

17.2.2 Hydrology:

Construction Phase

The construction phase of the proposed development has the potential to impact on the surface water quality due to increased sediment runoff from the site, which have the potential to interact negatively on human health in the long term if not adequately mitigated. A reduction in water quality via unmitigated pollutants entering the Tolka River (as set out in Chapter 6 - Hydrology) has the potential to lead to negative impacts on human health and populations.

Taking into account the design and mitigation measures set out in Chapter 6 of this EIA Report, there is no potential for negative interaction between Population and Human Health, and Hydrology during the construction phase. The interaction is considered to be ***neutral, imperceptible*** and ***short term.***

Operational Phase

The operational development will impact on stormwater and foul wastewater which have the potential to impact on human health if not adequately managed. Stormwater generated on site will be discharged at controlled rates through the use of sustainable urban drainage systems (SuDS) which will reduce the risk of flooding and management of water quality as a result of the development. The foul sewer will discharge to the wastewater treatment plant at Ringsend. The Ringsend treatment plant is licenced by Irish Water and is soon to be upgraded and will provide appropriate treatment for wastewater emissions.

The use of SuDS and attenuation will mean that the development will result in neutral water impacts in the operational phase with regard to runoff rates and flooding risk. Furthermore, with the implementation of mitigation (design) measures there will be no measurable impact on the receiving water quality as a result of the development.

Taking into account the design and mitigation measures set out in Chapter 5 and Chapter 6 of this EIA Report, there is no potential for negative interaction between Population and Human Health, and Hydrology during the construction phase. The interaction is considered to be ***neutral, imperceptible*** and ***long term.***

17.2.3 Biodiversity:

Construction Phase

There are no potentially significant interactions identified between Population and Human Health, and Biodiversity during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Population and Human Health, and Biodiversity during the operational phase.

17.2.4 Air Quality and Climate:

Construction Phase

The construction phase of the proposed development has the potential to impact on air quality and climate and human health if not adequately mitigated. An adverse impact due to air quality in the construction phase has the potential to cause health and dust nuisance issues.

Implementation of best practice dust noise and traffic mitigation measures (as outlined in the EIAR mitigation measures and CEMP) during construction of the proposed development will ensure that the impact of the proposed development complies with all EU ambient air quality legislative limit values which are based on the protection of human health. Therefore, the impact of construction of the proposed development is likely to be short-term, imperceptible/not significant and negative with respect to human health. Traffic emissions are predicted to be imperceptible and will not exceed the EU ambient air quality limit values.

Emissions from traffic associated with future occupants may impact local air quality and climate in terms of increased emissions of greenhouse gases from vehicles.

Taking into account the design and mitigation measures set out in Chapter 8 of this EIA Report, there is no potential for negative interaction between Population and Human Health, and Air Quality during the construction phase. The interaction is considered to be ***negative***, ***imperceptible***, and ***short term***.

Operational Phase

Emissions from traffic associated with future occupants may impact local air quality and climate in terms of increased emissions of carbon dioxide (CO_2) and other greenhouse gases (GHGs)from vehicles.

There are no potentially significant interactions identified between Population and Human Health, and Air Quality and Climate during the operational phase. The mitigation measures that will be put in place at the proposed development will ensure that the impact is ***long term, neutral*** and ***imperceptible*** with respect to the operational phase.

17.2.5 Noise and Vibration:

Construction Phase

During the construction phase of the proposed development there will be some impact on nearby noise sensitive properties due to noise emissions from site traffic and construction / demolition activities. Construction traffic, excavation works and the build out of the blocks may result in short-term localised noise and vibration effects. Outside of the site, the noise and vibration will be in line with standard traffic.

The demolition, land clearance, excavation and construction give rise to the potential for the maximum permissible daytime noise level to be exceeded at distances up to 30 m from the subject lands. This indicates that additional mitigation measures may be required to prevent likely significant impacts at the residential properties to the west. Provided that the relevant mitigation measures are employed during the construction phase, it is anticipated that impacts will be short-term, negative and slight.

Taking into account the design and mitigation measures set out in Chapter 10 of this EIA Report, there is potential for negative interaction between Population and Human Health, and Noise and Vibration during the construction phase. The interaction is considered to be ***negative, moderate to significant*** and ***temporary*** impact to the southern, northern and eastern site boundaries for intermittent periods of time. The majority of residual construction noise impacts during the remaining work phases, are however expected to be controlled to within the CNT, thus resulting in a ***short-term***, ***negative*** and ***slight*** to ***moderate*** impact.

Operational Phase

There will be a variety of mechanical and electrical (M&E) items required to serve the proposed development as well as the newly constructed hospital once it becomes operational, as well as an increase in traffic.

Taking into account the design and mitigation measures set out in Chapter 10 of this EIA Report, there is potential for negative interaction between Population and Human Health, and Noise and Vibration during the operational phase. The interaction is considered to be ***negative, imperceptible*** to ***not significant*** and ***long term.***

17.2.6 Landscape and Visual Impacts:

Construction Phase

During construction the site and immediate environs would be heavily disturbed by construction activities and the incremental growth of the buildings on site. It is considered that the inherently, unavoidably unsightly activity of construction will impact negatively on Population and Human Health. There is limited mitigation to reduce this therefore the interaction is considered to be ***negative, moderate*** and ***short term***.

Operational Phase

The high urban design, architectural and landscape quality of the development would elevate the quality of the landscape (as a resource for human enjoyment) overall. Considering the weight of positive landscape effects identified for a large part of the receiving environment, the demonstrably high urban design, architectural and landscape design quality of the proposal, the consideration of the landscape context and sensitivities evident in the embedded mitigation, the site's strategic urban location, and the national policy of compact growth, the landscape effects can be classified positive overall.

In general, the proposed development will represent an intensification of the built urban landscape that will be consistent with the emerging trend in the locality and with the land use zoning for the area. The landscape and visual impact associated with human beings is focused on the effects on dwellings. The size and quality of the public amenity space and planting along the boundaries and within the public realm will have a small ameliorative effect at ground level, but due to the height of the proposed development, many visual impacts will persist, however the majority while not be significant. Three vantage points will be deemed to have imperceptible negative visual impacts with two view-points Grace Park Road experiencing a moderate negative visual impact.

17.2.7 Archaeological, Architectural and Cultural Heritage:

Construction Phase

There are no potentially significant interactions identified between Population and Human Health, and Archaeological, Architectural and Cultural Heritage during the construction phase.

On the whole the demolition of the western rage of the hospital complex, St. Teresa's, the Freeman Wing, the outbuildings to the north of the hospital, the Nurses Training School and the later additions to the protected structures as discussed in Chapter 13 will alter the character of this group of historic buildings and will impact on their historic setting. The demolitions present a short-term impact on adjacent and neighbouring buildings which will arise in disruption notwithstanding the proposed mitigations. Following the proposed demolitions, the impacts arising from any proposed excavations in the vicinity of the protected structures will be mitigated by the archaeological studies and testing plans prepared by IAC.

Operational Phase

There are no potentially significant interactions identified between Population and Human Health, and Archaeological, Architectural and Cultural Heritage during the operational phase.

17.2.8 Material Assets, including Traffic, Waste, and Utilities:

Construction Phase

The proposed development will have an impact on material assets such as surface water drainage, water supply, wastewater drainage, power supply and road infrastructure.

The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific RWMP and mitigation measures in Chapter 15, will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be ***long-term***, ***imperceptible*** **and** ***neutral***.

Local traffic and transportation will be impacted by the additional vehicle movements generated from the Site during the construction phase of the proposed Development. The increase in vehicle movements will be *temporary* in duration.

Chapters 14, 15 and 16 (Traffic, Waste, and Utilities) have reviewed the capacities of the available infrastructure to accommodate the proposed development and the implementation of the mitigation measure proposed in these chapters will ensure there are no residual negative impacts on the local population.

Provided the mitigation measures detailed in Chapters 14, 15 and 16 are adhered to, the interaction is ***short-term**, **imperceptible*** and ***neutral*****.**

<u>*Operational Phase*</u>

During the operational phase the potential impacts on human beings are in relation to incorrect management of waste during operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific RWMP (Appendices 15.1), and the mitigation measures in Chapter 15, will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be ***long-term*****,** ***imperceptible*** and ***neutral****.*

There will be an increase in vehicle movements in the area as a result of waste collections during the operational phase but these movement will be imperceptible in the context of the overall traffic and transportation increase.

The potential impacts on human beings are in relation to incorrect management of waste during construction and / or operation, which could result in littering and presence of vermin – with associated potential for negative impacts on human health and residential amenity. A carefully planned approach to waste management and adherence to the project specific RWMP and mitigation measures in Chapter 4 and Chapter 15, will ensure appropriate management of waste and avoid any negative impacts on the local population. The effects should be ***long-term*****,** ***imperceptible*** **and** ***neutral****.*

17.3 LAND, SOILS AND HYDROGEOLOGY AND ITS INTERACTION WITH:

17.3.1 Hydrology:

<u>*Construction Phase*</u>

The construction phase of the proposed development has the potential to result in increased sediment runoff which has the potential to interact negatively on surface water quality. The proposed construction phase mitigation, and the lack of a direct pathway means that the proposed development will not result in significant negative impact on surface water quality in the local area.

Taking into account the design and mitigation measures set out in Chapter 5 and 6 of this EIA Report, there is a residual negative interaction between Land, Soil, and Hydrology during the construction phase. The interaction is considered to be ***neutral***, ***not significant***, and ***short term***.

Operational Phase

Taking into account the design and mitigation measures set out in Chapter 5 (Land, Soils and Hydrogeology) and 6 (Hydrology) of this EIA Report there are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Hydrology during the operational phase.

17.3.2 Biodiversity:

Construction Phase

In the absence of mitigation measures to control the construction phase there is potential for silt laden material or pollution to enter the watercourse and impact on local biodiversity and European sites immediately downstream from the works. Furthermore, dust emissions from exposed earthworks have the potential to settle on plants causing impacts to local ecology.

There is potential for impacts to biodiversity associated with the groundwater dewatering. However, this dewatering is associated with perched groundwater within the subsoils and not with the Dublin Groundwater Body which is confined within bedrock and is indirectly connected to with a number of nationally and internationally important habitats. The use of a water treatment processes and monitoring of treated dewatering will result in no potential for impact on biodiversity downstream of the subject site.

Taking into account the design and mitigation measures set out in Chapter 5 (Land, Soils and Hydrogeology), and Chapter 7 (Biodiversity) of this EIA Report, there remains a residual negative interaction between Land, Soil, and Biodiversity during the construction phase. The interaction is considered to be ***negative***, ***not significant***, and ***short term***.

Operational Phase

There are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Biodiversity during the operational phase.

17.3.3 Air Quality and Climate:

Construction Phase

Demolition and construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils and the water environment (hydrology) in the form of dust emissions. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that interactions between air quality and land and soils and hydrology will be short-term and imperceptible.

Operational Phase

There are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Air Quality and Climate during the operational phase.

17.3.4 Noise and Vibration:

Construction Phase

There are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Noise and Vibration during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Noise and Vibration during the operational phase.

17.3.5 Landscape and Visual Impacts:

Construction Phase

There are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Landscape and Visual Impacts during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Landscape and Visual Impacts during the operational phase.

17.3.6 Archaeological, Architectural and Cultural Heritage:

Construction Phase

There are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Archaeological, Architectural and Cultural Heritage during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Archaeological, Architectural and Cultural Heritage during the operational phase.

17.3.7 Material Assets, including Utilities, Waste, and Transport:

Construction Phase

In the absence of mitigation, surface water run-off during the construction phase may contain increased silt levels or otherwise become polluted from construction activities. Suspended solids in runoff water may result in an increase in suspended sediment load, resulting in increased turbidity, which may damage downstream infrastructure.

During the construction phase, excavated soil, stone and clay (c. 110,000m^3) will be generated from the excavations required to facilitate site levelling, construction of new foundations, installations of site services and basement. The majority (but not all) of the topsoil stripped from the Site will be re-used on site for backfill (levels in some areas need to be raised) and landscaping with some export required. Any surplus topsoil material will be transported off site and disposed of at a fully authorised soil recovery site. It is predicted that all of the subsoil and stones will be removed from the Site and transported off site and disposed of at a fully authorised soil recovery site.

When material has to be taken off-site, it will be taken for reuse or recovery, where practical, with disposal as a last resort. Adherence to the mitigation measures in Chapter 15, and the requirements of the RWMP (Appendix 15.1), will ensure the effect is ***long-term***, ***imperceptible*** and ***neutral.***

This waste stream will be managed in accordance with the relevant legislation identified in Chapter 15 such that the effect of the waste generation will be long-term, imperceptible and neutral.

Operational Phase

There are no potentially significant interactions identified between Land, Soils and Hydrogeology, and Material Assets Utilities Waste and Transport during the operational phase of the proposed development.

17.4 HYDROLOGY AND ITS INTERACTION WITH:

17.4.1 Biodiversity:

Construction Phase

Dust emissions have the potential to settle on plants causing impacts to local ecology. Mitigation measures during the construction phase of the proposed development will ensure that dust generation is minimised and the effect on biodiversity will be short term, imperceptible and neutral.

There is potential for impacts to biodiversity associated with uncontrolled discharges to surface waters. In this instance the surface water system discharges into the ground and the stormwater sewer which ultimately discharges into the Tolka River, and the foul water provision discharges to Ringsend WWTP. They have an indirect hydrological connection with a number of nationally and internationally important habitats. The use of standard demolition and construction control measures as provided in the CEMP and the sustainable urban drainage systems, along with the water treatment processes and monitoring of treated effluent at Ringsend will result in no potential for impact on biodiversity downstream of Ringsend WWTP. The impact upon biodiversity from hydrological impacts would be long-term and neutral.

Taking into account the design and mitigation measures set out in Chapter 6, and 7 of this EIA Report, there remains a residual negative interaction between Hydrology, and Biodiversity during the construction phase. The interaction is considered to be ***negative***, ***not significant***, and ***short term***.

Operational Phase

There is potential for impacts to biodiversity associated with uncontrolled discharges to surface waters. In this instance the surface water system discharges into the ground and the stormwater sewer which ultimately discharges into the Tolka River, and the foul water provision discharges to Ringsend WWTP. They have an indirect hydrological connection with a number of nationally and internationally important habitats. The use of standard demolition and construction control measures as provided in the CEMP and the sustainable urban drainage systems, along with the water treatment processes and monitoring of treated effluent at Ringsend will result in no potential for impact on biodiversity downstream of Ringsend WWTP. The impact upon biodiversity from hydrological impacts would be long-term and neutral.

Taking into account the design and mitigation measures set out in Chapter 7 of this EIA Report, the interaction between Hydrology, and Biodiversity during the operational phase is considered to be ***neutral***, and ***long term***.

17.4.2 Air Quality and Climate:

Construction Phase

Construction phase activities such as land clearing, excavations, stockpiling of materials etc. have the potential for interactions between air quality and land and soils in the form of dust emissions that may deposit in surface waters.

Mitigation measures implemented during the construction phase will ensure that the deposition of dust is minimised. With the appropriate mitigation measures to prevent fugitive dust emissions, it is predicted that there will be no significant interactions between air quality and hydrology. The interaction is considered to be ***negative***, ***not significant***, and ***short term***.

There are no potentially significant interactions identified between Hydrology, and Climate during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Hydrology, and Air Quality during the operational phase.

Climate change has the potential to lead to increased rainfall in future years which may result in flood impacts and interactions between Hydrology and Land, Soils and Geology. A detailed Site Specific Flood Risk Assessment (SSFRA) was carried out for the proposed development which states that the site is located in Flood Zone C with an annual probability of flooding (fluvial) of less than 0.1%. The SSFRA report notes that a portion of the site lies within the 10% AEP pluvial flood extent. However, the proposed development includes a new surface water network which will manage the surface water onsite, and therefore mitigate the risk of pluvial flooding onsite. The new infrastructure is designed to accommodate rainfall runoff/ flows up to 1% AEP event. In addition, the surface water network has been designed to include an additional allowance of 20% in rainfall intensities due to climate change.

Therefore it can be determined that there is no significant risk to the proposed development as a result of increased rainfall and climate. No significant interactions between Climate, Hydrology and Land, Soils and Geology is predicted.

17.4.3 Noise and Vibration:

Construction Phase

There are no potentially significant interactions identified between Hydrology, and Noise and Vibration during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Hydrology, and Noise and Vibration during the operational phase.

17.4.4 Landscape and Visual Impacts:

Construction Phase

There are no potentially significant interactions identified between Hydrology, and Landscape and Visual Impacts during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Hydrology, and Landscape and Visual Impacts during the operational phase.

17.4.5 Archaeological, Architectural and Cultural Heritage:

Construction Phase

There are no potentially significant interactions identified between Hydrology, and Archaeological, Architectural and Cultural Heritage during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Hydrology, and Archaeological, Architectural and Cultural Heritage during the operational phase.

17.4.6 Material Assets, including Utilities, Waste, and Transport:

Construction Phase

There are no potentially significant interactions identified between Hydrology, and Material Assets during the construction phase.

Operational Phase

The use of SuDS during operations will mean that the development will result in neutral water impacts in the operational phase with regard to runoff rates and flooding risk. As a part of the SuDS features, it is anticipated that small amounts of hydrocarbon sludge waste and debris may be generated in the hydrocarbon interceptors which will treat the surface water run-off.

Hydrocarbon sludge waste and debris will be generated in the hydrocarbon interceptors which will treat the surface water run-off from the proposed development during the operational phase. This waste stream will be managed in accordance with the relevant legislation identified in Chapter 15 (Waste). The interaction is considered to be ***negative***, ***not significant***, and ***long-term***.

17.5 BIODIVERSITY AND ITS INTERACTION WITH:

17.5.1 Air Quality:

Construction Phase

There is the potential for air quality to interact with ecology as a result of dust emissions impacting vegetation. Dust emissions from the demolition and construction phase have the potential to deposit onto plant surfaces affecting photosynthesis. There are no designated ecological sites within 50 m of the proposed development and therefore dust impacts to sensitive ecology were not predicted. Nevertheless once the dust mitigation measures associated with a high level of dust control set out in Chapter 8 (Air Quality) are implemented on site, impacts to ecology from dust emissions will be short-term, localised, neutral and imperceptible.

Operational Phase

There are no potentially significant interactions identified between Air Quality and Climate, and Biodiversity during the operational phase.

17.5.2 Noise and Vibration:

Construction Phase

Taking into account the design and mitigation measures set out in Chapter 10 (noise and Vibration) of this EIA Report, there is a residual negative interaction between Noise and Vibration, and Biodiversity during the construction phase. The interaction is considered to be ***negative***, ***not significant***, and ***short term***.

Operational Phase

There are no potentially significant interactions identified between Noise and Vibration, and Biodiversity during the operational phase.

17.5.3 Landscape and Visual Impacts:

Construction Phase

There are no potentially significant interactions identified between Landscape and Visual Impacts, and Biodiversity during the construction phase

Operational Phase

The long-term effects of the proposed development will have a positive effect on the tree cover associated with the development. Consultation with the ecologist through the assessment and design process resulted in the inclusion of native plant species to maintain wildlife corridors and create areas of habitat.

The implementation of a high quality landscaping scheme will have a ***neutral not significant***, and ***long term*** interaction with biodiversity.

17.5.4 Archaeological, Architectural and Cultural Heritage:

Construction Phase

There are no potentially significant interactions identified between Biodiversity, and Archaeological, Architectural and Cultural Heritage during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Biodiversity, and Archaeological, Architectural and Cultural Heritage during the operational phase.

17.5.5 Material Assets, including Utilities, Waste, and Transport:

Construction Phase

There are no potentially significant interactions identified between Biodiversity, and Material Assets during the operational phase.

Operational Phase

There are no potentially significant interactions identified between Biodiversity, and Material Assets during the operational phase.

17.6 AIR QUALITY AND CLIMATE AND ITS INTERACTION WITH:

17.6.1 Noise and Vibration:

Construction Phase

There are no potentially significant interactions identified between Air Quality and Noise and Vibration during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Air Quality and Noise and Vibration during the operational phase.

17.6.2 Landscape and Visual Impacts:

Construction Phase

There are no potentially significant interactions identified between Air Quality and Landscape and Visual during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Air Quality and Landscape and Visual during the operational phase.

17.6.3 Archaeological, Architectural and Cultural Heritage:

Construction Phase

There are no potentially significant interactions identified between Air Quality and Archaeological, Architectural and Cultural Heritage during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Air Quality and Archaeological, Architectural and Cultural Heritage during the operational phase.

17.6.4 Material Assets, including Utilities, Waste, and Transport:

Construction Phase

Interactions between air quality and traffic can be significant. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site.

The impacts of the proposed development on air quality are assessed (Chapter 8) by reviewing the change in annual average daily traffic on roads close to the site. The interaction is considered to be imperceptible ***neutral***, ***imperceptible***, and ***short term***.

Traffic emissions have the potential to impact climate through the release of carbon dioxide (CO_2) emissions and other greenhouse gases (GHGs). This is an interaction between Material Assets – Traffic, Air Quality and Climate. The changes in CO_{2eq} emissions as a result of traffic associated with the proposed development were assessed as part of the climate impact assessment within Chapter 9. It was found that the proposed development will result in imperceptible changes in CO_{2eq} emissions as a result of traffic from the proposed development. Therefore no significant interactions between Climate and Traffic or Air Quality are predicted. Predicted impacts are ***long-term, neutral*** and ***imperceptible***.

There is the potential for interactions between Climate and Material Assets – Waste. There will be quantities of demolition wastes generated as part of the proposed development which will have an associated embodied carbon which impacts climate. A detailed Demolition Justification Report has been undertaken as part of this planning application which details the requirements for demolishing certain buildings within the development which are unsuitable for refurbishment. The report states that where possible demolition wastes should be reused on site or recycled to reduce the embodied carbon of the development. The project has committed to complying with the requirements set out in the EU taxonomy in relation to circular economy. This is specific to reuse, recycling and material recovery of demolition and construction wastes. As a result interactions between Climate and Material Assets – Waste are predicted to be short-term, minor adverse and not significant.

Operational Phase

Interactions between air quality and traffic can be significant. With increased traffic movements and reduced engine efficiency, i.e. due to congestion, the emissions of vehicles increase. The impacts of the proposed development on air quality are assessed by reviewing the change in annual average daily traffic on roads close to the site. In this assessment, the impact of the interactions between traffic and air quality are considered to be neutral and imperceptible due to the low level changes in traffic associated with the proposed development.

Traffic emissions have the potential to impact climate through the release of carbon dioxide (CO_2) emissions and other greenhouse gases (GHGs). This is an interaction between Material Assets – Traffic, Air Quality and Climate. The changes in CO_{2eq} emissions as a result of traffic associated with the proposed development were assessed as part of the climate impact assessment within Chapter 9. It was found that the proposed development will result in imperceptible changes in CO_{2eq} emissions as a result of traffic from the proposed development. Therefore no significant interactions between Climate and Traffic or Air Quality are predicted. Predicted impacts are long-term, neutral and imperceptible.

There is the potential for interactions between Climate and Material Assets – Waste. There will be quantities of demolition wastes generated as part of the proposed development which will have an associated embodied carbon which impacts climate. A detailed Demolition Justification Report has been undertaken as part of this planning application which details the requirements for demolishing certain buildings within the development which are unsuitable for refurbishment. The report states that where possible demolition wastes should be reused on site or recycled to reduce the embodied carbon of the development. The project has committed to complying with the requirements set out in the EU taxonomy in relation to circular economy. This is specific to reuse, recycling and material recovery of demolition and construction wastes. As a result interactions between Climate and Material Assets – Waste are predicted to be short-term, minor adverse and not significant.

17.7 NOISE AND VIBRATION AND ITS INTERACTION WITH:

17.7.1 Landscape and Visual Impacts:

Construction Phase

There are no potentially significant interactions identified between Noise and Vibration, and Landscape and Visual during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Noise and Vibration, and Landscape and Visual during the operational phase.

17.7.2 Archaeological, Architectural and Cultural Heritage:

Construction Phase

There are no potentially significant interactions identified between Noise and Vibration, and Archaeological, Architectural and Cultural Heritage during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Noise and Vibration, and Archaeological, Architectural and Cultural Heritage during the operational phase.

17.7.3 Material Assets, including Utilities, Waste, and Transport:

Construction Phase

There are potential interactions between the noise and vibration and traffic and transportation. With increased traffic movements, the noise levels in the surrounding area increase.

Based on the proposed scale of the demolition and construction activity, the number of workers on site each day and the existing level of traffic, the additional traffic introduced onto the local road network due to the construction phase of the proposed development will result a ***short-term***, ***negative*** and ***not significant***.

Construction traffic, excavation works and the build out of the blocks may result in short-term localised noise and vibration effects. Outside of the site, the noise and vibration will be in line with standard traffic.

Operational Phase

There are potential interactions between the noise and vibration and traffic and transportation. With increased traffic movements, the noise levels in the surrounding area increase.

The interaction of the proposed development on the noise environment is assessed by reviewing the change in traffic flows on roads close to the site. In this assessment, the impact of the interactions between traffic and noise are considered to be imperceptible to slight-moderate due to the changes in traffic flows associated with the proposed development. The interaction is considered to be imperceptible ***negative***, ***not significant***, and ***long term***.

17.8 LANDSCAPE AND VISUAL IMPACTS AND ITS INTERACTION WITH:

17.8.1 Archaeological, Architectural and Cultural Heritage:

Construction Phase

Chapter 11 of the EIAR comprises the assessment of Landscape and Visual impacts and this chapter has been fully reviewed in relation to potential setting impacts on cultural heritage sites. Visual impacts have been categorised based on verified montages. This study has influenced the development of the proposed development in relation to the landscaping proposals and the retention of historic trees.

Chapter 13 includes appraisals of the protected structures on site, their curtilage and the proposed demolitions. These appraisals have informed the design of the proposed development in relation to the protected structures and are supposed by detailed conservation strategies.

From a landscape and visual impact assessment perspective, the retention and conservation of the protected structures on the site, their re-purposing for hospital-related or community use and the enhancement of the landscape environment through the creation of a new inter-connected public realm are key positive impacts airing from the proposals, despite their incorporation into a new high density residential neighborhood. An important positive result of the development would be the physical and visual access to the former St Vincent’s Hospital buildings given to the public, allowing for greater appreciation of the architectural heritage.

Operational Phase

There are no potentially significant interactions identified between Landscape and Visual Impacts, and Archaeological, Architectural and Cultural Heritage during the operational phase.

17.8.2 Material Assets, including Utilities, Waste, and Transport:

Construction Phase

There are no potentially significant interactions identified between Landscape and Visual Impacts, and Material Assets during the construction phase.

Operational Phase

There are no potentially significant interactions identified between Landscape and Visual Impacts, and Material Assets during the operational phase.

17.9 ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE AND ITS INTERACTION WITH:

17.9.1 Material Assets, including Utilities Waste Management, and Transport:

Construction Phase

There are no potentially significant interactions identified between Material Assets, and Archaeological, Architectural and Cultural Heritage during the operational phase.

Operational Phase

The operational phase of the development will not impact directly on any archaeological, architectural or cultural heritage sites or features.

There are no potentially significant interactions identified between Material Assets, and Archaeological, Architectural and Cultural Heritage during the operational phase.

17.10 SUMMARY

This chapter of the EIA Report discusses the potential interactions and relationships between the environmental factors considered in the previous chapters, during both the demolition/construction and operational phases of the proposed development Table 17.1 below presents a summary of the interactions.

The chapter assesses the interactions between human beings, fauna and flora population and human health; biodiversity; land, soil, water, air, climate, and landscape; and material assets, cultural heritage, and the landscape. The chapter summarises and assesses the identified interactions, taking into account the design and mitigation measures set out in the previous chapters.

The proposed development will create significant residential capacity which will have a positive benefit to the area in which the development is located.

Overall, the interactions between the proposed development and the various environmental factors are generally considered to be not significant or negative but short-term in duration. Mitigation measures are proposed throughout this EIA Report to minimise any potentially negative impacts.

17.11 TABLE OF INTERACTIONS

Table 17.1 Summary of interrelationships Between the Aspects

	Population & Human Health		Land, Soils and Hydrogeology		Hydrology		Biodiversity		Air Quality and Climate		Noise and Vibration		Landscape and Visual Impact		Archaeology, Cultural Heritage and Architectural Heritage		Material Assets, including Transport and Waste	
	Con.	**Op.**	**Con.**	**Op.**	**Con.**	**Op.**	**Con.**	**Op.**	**Con.**	**Op.**	**Con.**	**Op.**	**Con.**	**Op.**	**Con.**	**Op.**	**Con.**	**Op.**
Population & Human Health			o	o	o	o	x	x	-	o	-	-	-	-	-	x	o	o
Land, Soils and Hydrogeology					o	x	o	x	o	o	x	x	x	x	x	x	o	x
Hydrology							-	o	-	o	x	x	x	x	x	x	x	-
Biodiversity									o	X	-	o	x	o	x	x	x	x
Air Quality and Climate											x	x	x	x	x	x	o	-
Noise and Vibration													x	x	x	x	-	-
Landscape and Visual Impact															+	x	x	x
Archaeology, Cultural Heritage and Architectural Heritage																	x	x
Material Assets, including Transport and Waste																		

Con.	Construction Phase
Op.	Operational Phase
x	No Significant Interaction

+	Positive Interaction
o	Neutral Interaction
-	Negative Interaction