

Planning Application to South Dublin County Council

**Non-Technical Summary of  
Environmental Impact Assessment Report**

**VOC Abatement System Project  
Takeda Ireland Ltd.  
Grange Castle Business Park,  
Nangor Road,  
Clondalkin,  
Dublin 22.**

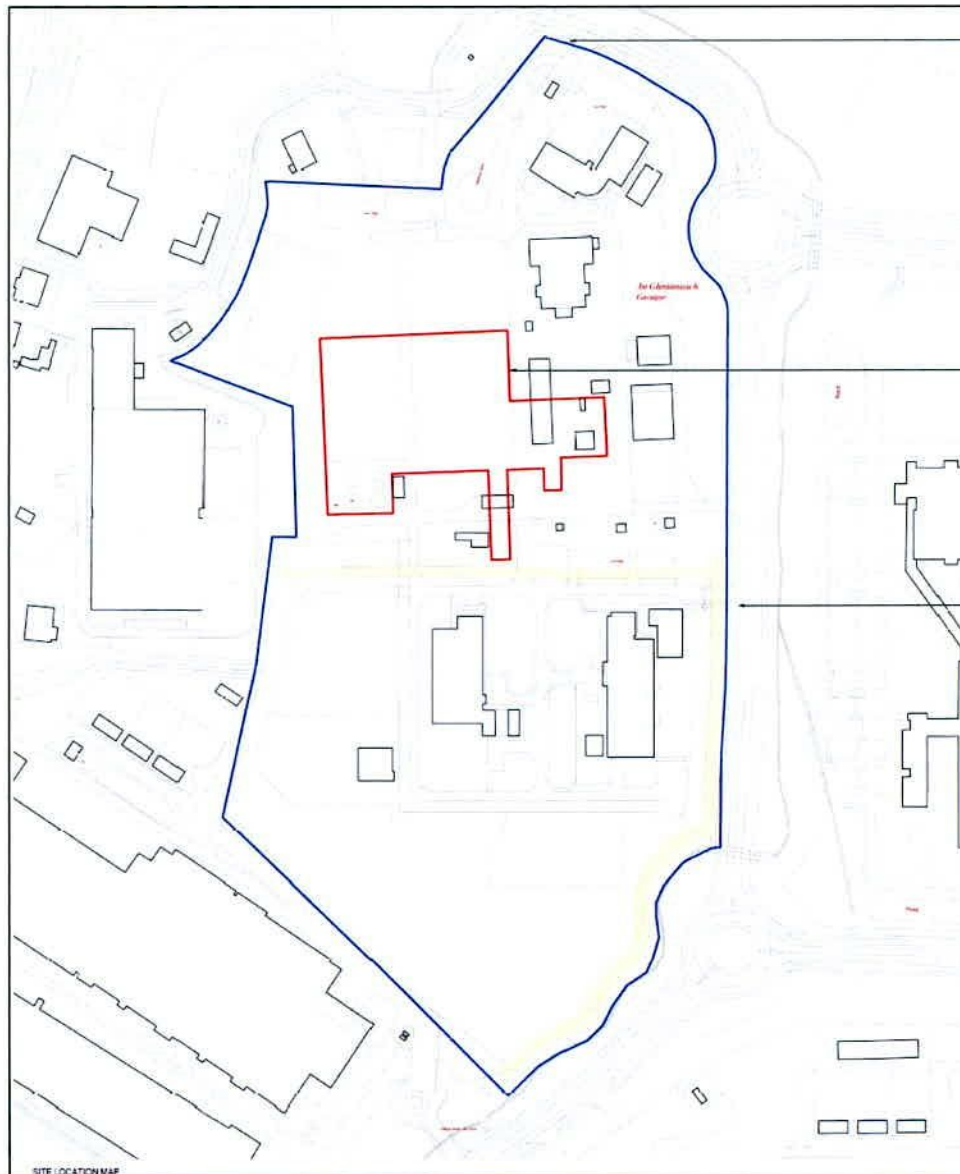
Prepared by  
**AWN Consulting**  
July 2022



## NON-TECHNICAL SUMMARY

### 1.0 INTRODUCTION

This is the non-technical summary of an Environmental Impact Assessment (EIA) Report prepared by AWN Consulting Ltd. (AWN) on behalf of Takeda Ireland Ltd. ('the Applicant'), to accompany a planning application to South Dublin County Council ('SDCC') for planning permission for a new volatile organic compound (VOC) abatement system, a supporting utilities workshop and associated ancillary services to replace the existing VOC abatement system at the Takeda Ireland Ltd. (herein referred to as TILGC) site in Grange Castle Business Park, Nangor Road, Clondalkin, Dublin 22. The location of the Proposed Development is shown in Figure 1.1.



**Figure 1.1** Site location plan showing the Applicants site ownership boundary (blue line boundary) and Proposed Development site boundary (red line boundary) (Source: DPS Group, July 2022)

***Need for the Development***

The TILGC site in Grange Castle Business Park has an Environmental Protection Agency (EPA) Industrial Emissions Licence (IED Licence Register No. P0693-02). The current carbon-based VOC abatement system is used to treat the waste gas streams generated by manufacturing operations and tank farm vessels. The existing VOC carbon abatement system is not considered Best Available Technology (BAT) for current EPA licencing requirements. A new VOC abatement system has been requested by TILGC for the treatment of the waste gas stream. The new VOC abatement system will ensure the compliance with the EPA emission limits, in line with Best Available Techniques and Regulations, with economical use of natural gas and/or other utilities. The new system will also facilitate future product expansion at this site.

***Requirement for an EIA***

The requirement for EIA for certain types and scales of development is set out in the EIA Directives (2011/92/EU and 2014/52/EU), European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (the bulk of which came into operation in September 2018), the European Communities (Environmental Impact Assessment) Regulations 1989-2006, Planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001-2019. It should be noted that this EIA Report is prepared in accordance with the 2011 EIA Directive (2011/92/EU), as amended by the 2014 EIA Directive.

The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which an EIA may be required (Annex II). With regard to Annex II projects, Member States can choose to apply thresholds or use case by case examination or a combination of both to assess where EIA is required. In Ireland, a combination of both has been applied.

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The project proposed is not listed under Annex I EIA Directives and is not mandatorily required for the Proposed Development. However, the development may be considered 'sub threshold' development for the purposes of EIA i.e. the addition of new main emission point means that the project has the potential to have significant effects on the environment. An EIA Report has been prepared, conservatively, with the intention of assessing the potential for significant effects, on that basis.

The main objective of an EIA, as set out in Article 3(1) of the 2014 EIA Directive, is to identify, describe and assess the direct and indirect significant impacts of a project on population and human health, biodiversity, land, soils, water, air & climate (including noise), material assets, cultural heritage and the landscape and the interaction between the aforementioned factors. This EIA Report describes the findings of the EIA process to the Planning Authority, to help determine if consent should be granted. It also informs statutory consultees, other interested parties, and the public in general, about the likely effects of the project on the environment. This EIA Report has been prepared in accordance with the requirements of EIA Directives (2011/92/EU and 2014/52/EU) and the associated legislation and relevant guidance.

***Habitats and Birds Directive***

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network of sites of

highest biodiversity importance for rare and threatened habitats and species. Natura 2000 sites in Ireland are European sites, including Special Protection Areas (SPAs), and Special Areas of Conservation (SACs). The Directives set out a key protection mechanism to consider the possible nature conservation implications of any plan or project on the Natura 2000 site network before any decision is made to allow that plan or project to proceed; the process known as Appropriate Assessment (AA). An Appropriate Assessment Screening has been undertaken for the Proposed Development, the results of which are presented in Appendix 8.1 of Chapter 8 (Biodiversity).

#### ***Integrated Pollution Prevention and Control / Industrial Emissions Directive***

The TILGC site has an EPA Industrial Emissions Licence (IE Licence Register No. P0693-02). TILGC will be submitting an IE Licence Review application to the EPA (Licence review application number LA010134) to address the changes to the facility as a result of the operation of the Proposed Development and other minor amendments to the operation of the TILGC facility.

#### ***Seveso Directive / COMAH Regulations***

The TILGC site is currently not a Seveso/COMAH facility. The Proposed Development will not introduce any substances that will make it a Seveso/COMAH facility. The nearest Seveso site is Irish Distillers Ltd. located 6 km linear distance from the Proposed Development. Due to separation distances the Proposed Development is not likely to be affected by an accident at any Seveso site in the wider area; and vice versa, nor is any Seveso site likely to be affected by the Proposed Development itself.

#### ***Contributors to the EIA Report***

The preparation and co-ordination of the EIA Report has been completed by AWN in conjunction with specialist subcontractors. The role and responsibility of each contributor, their qualifications and relevant experience are detailed in Chapter 1 (Introduction) of the EIA Report.

## **2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT**

### ***Description of the Site***

The overall TILGC site area which is within TILGC's ownership is 16.15 hectares in extent and is located in Grange Castle Business Park, Nangor Road, Clondalkin, Dublin 22. The Proposed Development site area (red line boundary) is within the overall site area and is c. 1.49 hectares in extent.

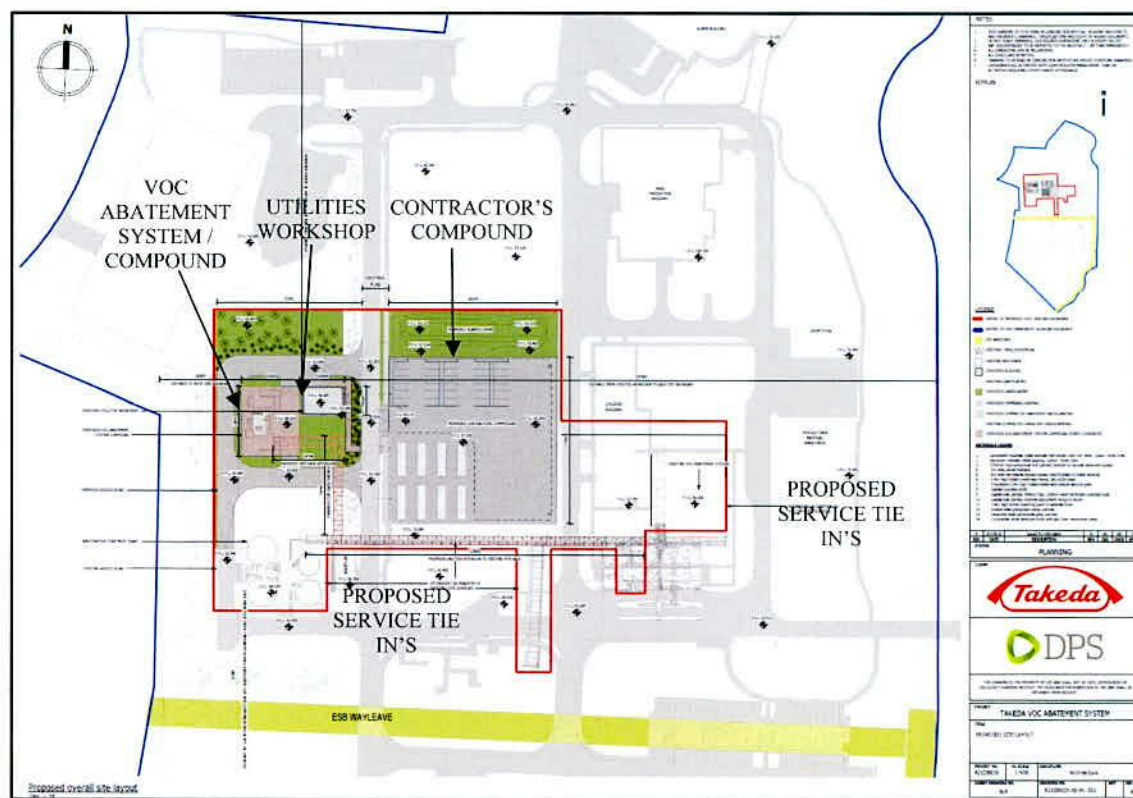
The majority of the TILGC site is already developed and consists of an office block with reception and administration, 3 no. production buildings (P1, P2 and P3), warehousing and storage, an electrical substation, backup power generation installation utilities and other ancillary buildings. The area proposed for the new VOC abatement system and utilities workshop is characterised by a flat terrain comprising backfill from previous construction projects on the site, and covered with ruderal vegetation with no trees, shrubs or hedgerows. The area proposed for the contractor's compound is a greenfield area that has predominantly grown wild for biodiversity with a cut border around the perimeter. The existing wastewater treatment plant (WWTP) is located to the south of the Proposed Development and there is an existing contractor's compound to the north. Along the east and west boundaries there are established planted berms with trees interspersed among dense hedgerows.

The TILGC site is generally flat with local undulations in level (covered with grass) with ground levels at approximately 63.6mOD in the north rising to 64.5mOD in the south. A section of the Griffeen River which previously ran through the site was realigned during the construction of the Business Park and runs along the eastern boundary of the site on the far side of the road and along part of the southern boundary.

Within the Grange Castle Business Park, immediately adjacent to the TILGC site to the west is an EdgeConnex Data Centre and an emergency power generation installation. To the south and southwest are a series of Microsoft Data Centres ranging from fully operational to under construction. Grifols Worldwide operations, a supplier of plasma products to the bioscience sector is located immediately east of the site with Pfizer Grange Castle located further to the east within the Business Park. Interxion data centre and Grange Castle backup power generation are located to the northeast of the site. Residential housing makes up the land to the east and north of Grange Castle Business Park. To the west is mainly agricultural land and to the south are Grange Castle Golf Club and Profile Park Industrial Estate, with Baldonnell Aerodrome located further south. The site is not located directly adjacent to any areas of national or local environmental sensitivity/designation.

**Proposed Development Description**

Figure 2.1 illustrates the site layout plan of the Proposed Development (Planning Drawing Ref. A21DB035-AE-PL-302).



**Figure 2.1.** Site layout plan of the Proposed Development (Source: DPS Group, July 2022)

The Proposed Development will consist of (as per the Site Notice description):

1. A Volatile Organic Compound (VOC) Abatement system comprising of a thermal oxidiser (TO), associated plant equipment and scrubbers positioned on a bunded concrete plinth with a maximum single stack height of 12m along with two access

platforms at 2.5m high and 5.0m high used for maintenance only. The system is set within a 489m<sup>2</sup> (including a bunded area of 213m<sup>2</sup>) concrete compound enclosed by a 2.4m high paladin weldmesh black fence to match the existing utilities perimeter fence.

2. A 135m<sup>2</sup> single storey utilities workshop will sit adjacent to the Volatile Organic Compound (VOC) abatement system compound with associated hardstanding area and soakpit.
3. A 55m (L) x 3.2m (W) x 5.6m (H) pipe rack extension with the addition of a second tier extension 118.6m (L) X 3.2M (W) 1.2m (H) to the existing pipe rack is required to service the new VOC abatement system compound.
4. A contractor's compound 3,420m<sup>2</sup> comprising single stacked portacabins, workshops, parking for 30 contractors, materials delivery and set down area. The compound will be enclosed by a 2.4m tall paladin weldmesh black fence.
5. Modifications to the existing internal access road will include the addition of a new 7m wide access circulation road and footpath around the VOC abatement system compound and utilities workshop.
6. A permanent pedestrian crossing including associated signage at the existing access road giving access between the contractor's compound and the VOC abatement system compound.
7. Modifications to the existing site lighting, signage, surface water, foul and process wastewater drainage, hard and soft landscaping including a 3m high planted berm to the north of the contractor's compound.

The Proposed Development is described in detail in Chapter 2 (Description of the Development).

### ***Existence of the Project***

Under the EPA EIA Report Guidelines 2022, the description of the existence of the project is required to define all aspects of the proposed lifecycle of the Proposed Development under the following headings:

- Construction;
- Commissioning;
- Operation;
- Decommissioning; and
- Description of Other Developments.

### ***Construction***

The construction of the development will comprise three main stages, namely;

- Site preparation works;
- Construction; and
- Commissioning.

It is anticipated that the construction of the Proposed Development will be completed during normal construction hours i.e. 7am to 7pm Monday to Friday with a half day working on Saturday (7am to 1pm). However, it is possible that the appointed contractors may wish to carry out certain operations outside these hours i.e. evening hours during long summer days etc. Such occurrences will be notified to the local authority, where required and generally kept to a minimum. Where they do occur, contractors will ensure they take place over as short a timeframe as possible and as such are unlikely to cause excessive disturbance.

The total peak construction population on site is estimated to be of the order of c. 30 staff. Site staff will include management, engineers, construction crews, supervisors and indirect staff.

Subject to grant of planning permission, construction work is targeted to commence in Q4 2022. The contractor's compound will be established first, followed by construction of the VOC abatement compound and utilities workshop. The VOC abatement system (TO) is targeted arrive for assembly and installation in Q2 2023. Construction and commissioning are targeted to be completed in Q3 2023. The contractor's compound will remain in place until Q4 2024 for use for maintenance activities for the existing TILGC site.

The primary activities that will be required during the site preparation phase for the Proposed Development will be demolition, site clearance, excavations and levelling of the site to the necessary base level for construction, surveying and setting out for structures.

There is a small amount of demolition required to modify the existing access road, install underground utilities, tie into existing utilities and modify hard landscaping.

It is estimated that approximately 3,900 m<sup>3</sup> of soils and stones will be excavated to facilitate construction of the contractor's compound. It is anticipated that all of this soil can be reused onsite for to create the temporary berm along the northern perimeter of the temporary contractor's compound and for landscaping purposes. Once the contractor's compound is no longer required, the material in the berm will be used to re-instate the ground in this area. In addition, it is estimated that c. 7,400 m<sup>3</sup> of soils and fill material will be excavated to facilitate construction of the VOC abatement compound, utilities building and ancillary services. This material is to be removed and disposed of offsite by a permitted waste management company for recovery and/or disposal at a suitably permitted/licenced facility. The importation of 1,745m<sup>3</sup> of fill will be required to facilitate construction. Contractors will be required to submit and adhere to a method statement (including the necessary risk assessments) and indicating the extent of the areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works.

Following the completion of site clearance and levelling, the VOC abatement compound and utilities building will require foundations to structural engineer specifications. The utility building will a comprise standard structural steel frame with cladding.

The new access road will be constructed of permeable asphalt with an underlying stone build-up on top of a geotextile filter membrane.

The contractor's compound will be surfaced with compacted hardcore. A geotextile filter membrane is to be installed below the hardcore onto a prepared surface to capture any contaminants and separate from the existing underlying stratum.

The landscaping strategy for this development is to extend and reinforce the existing landscaping. The landscape proposals for the Proposed Development are set out in Section 7.5 of the Planning Report (Planning Document Ref. A21DB035-SP-AE-001) prepared by DPS Group which has been submitted with the planning application.



**Commissioning**

The VOC abatement system (TO) is targeted to be delivered to site in Q2 2023 in one bulk delivery of 4 vehicles (curtain sided trailers or similar). Once installed, the VOC abatement system will be commissioned, with commissioning scheduled to be completed in Q3 2023. The existing VOC abatement system will remain in place and will be used in the event of maintenance or shut down of the new VOC abatement system. Any hard landscaping and final soft landscaping will be completed.

**Operation**

Once operational, the new VOC abatement system will treat the existing waste gas stream coming from manufacturing building P1 and P2 and the tank farm vessels. The system will be monitored and maintained by existing TILGC site personnel and contractors to ensure it operates effectively, efficiently and in accordance with TILGC procedures and IE Licence requirements. The existing VOC abatement system will remain in place and will be used in the event of maintenance or shut down of the new VOC abatement system.

Once operational, the system will be monitored and maintained by existing TILGC site personnel. It is not anticipated that any additional employees are required. As such no additional parking or bicycle spaces will be required. There are existing canteen, changing and showering facilities available to all staff on the TILGC site.

**Decommissioning**

The contractor's compound will be used for a period of 2 years, which includes the duration of construction and commissioning works required for the Proposed Development, and c. 1 year thereafter to facilitate maintenance activities for the existing TILGC site. Once the contractor's compound is no longer required, the cabins, fencing, drainage tie in's, lighting and hardcore will be removed. The planted berm and soil will be carefully spread over the area to return the landscape to its original condition. Additional planting of the original native grasses will be carried out (to encourage the natural growth of pollinator friendly species such as dandelions, clover, celandines, buttercup and primroses).

The lifespan of the VOC abatement system is not defined. It is likely that regular maintenance and periodic upgrading of the system over time will enable it to continue to meet future demands. Subject to the grant of this application, the existing IE Licence Closure Plan will be updated to account for the new VOC abatement system. It is not anticipated that the development will require any special additional closure measures. Upon closure of the TILGC site, all buildings, plant, equipment, drainage networks etc. at the site will be fully decontaminated and decommissioned in accordance with the requirements of the IE licence. The buildings once rendered environmentally safe will more than likely be retained and sold on for future use as part of the site following closure.

**Description of other Developments**

A list of the other developments in the vicinity is provided in Chapter 3 (Planning and Development Context) of this EIA Report. In terms of construction projects some of these developments are completing alterations or extensions however the majority of these are relatively small scale.

The potential for cumulative impact of the Proposed Development with any/all relevant other planned or permitted developments have been considered for the

construction and operational phases for each environmental aspect in Chapters 5 to 15.

#### ***Sustainability, Energy Efficiency and Resource Use***

The Applicant is committed to running its business in the most environmentally friendly way possible. In preparation for this application, the Operator and their design team have undertaken an assessment of a variety of sustainable design measures to assist with achieving its overall sustainability and energy efficiency targets.

#### ***Major Accidents/Disasters***

The 2014 EIA Directive and associated EPA EIA Report Guidelines 2022 requires that the vulnerability of the project to major accidents, and natural disasters (such as earthquakes, landslides, flooding, sea level rise etc.) is considered in the EIA Report. The site has been assessed in relation to the following external natural disasters; landslides, seismic activity and volcanic activity and sea level rise/flooding as outlined below. The potential for major accidents to occur at the site has also been considered with reference to Seveso/COMAH in Section 1.0 of this Non-Technical Summary and in Section 1.2.4 of Chapter 1 (Introduction).

#### ***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. Further detail is provided in Chapter 6 Land, Soils, Geology & Hydrogeology.

#### ***Flooding/Sea Level Rise***

The potential risk of flooding on the site was also assessed. A Flood Risk Assessment (FRA) was carried out by Malachy Walsh Partners in 2017 for the existing TILGC site at Grange Castle and the now operational P2 project (included as Appendix 5 of the Planning Report). The Proposed Development has designed the FFL above the 1% AEP MRFS flood level to ensure that the development is not at risk of flooding. This is in line with the recommendations of the greater Dublin Strategic Drainage Scheme. Furthermore, the Proposed Development design has no potential impact on flood risk for the overall TILGC site and other neighbouring properties. Further detail is provided in Chapter 7 (Hydrology). Given the inland location of the site, it is not at risk from sea level rise.

#### ***Minor Accidents/Leaks***

There is a potential impact on the receiving environment as a result of minor accidents/leaks of fuel/oils during the construction and operational phases. However, the implementation of the mitigation measures set out in Chapters 6 and 7 will ensure the risk of a minor/accident is low and that the residual effect on the environment is imperceptible.

### **3.0 PLANNING AND DEVELOPMENT CONTEXT**

The site for the Proposed Development is situated within the administrative area of SDCC, and therefore the planning and development framework with which the development complies is defined by the South Dublin Development Plan 2016 – 2022. The Draft South Dublin County Development Plan for 2022 - 2028 was published on the 7th of July 2021 and is likely to be adopted by August of 2022. Whilst the current application will be considered under the current Development

Plan, it is considered appropriate to note the key aspects of the Draft County Development Plan as it relates to the subject site, as in event the decision is made following the adoption of the new Plan, it would be the new 2022-2028 Development Plan that the application would fall to be considered under.

The site is located within Land Use Zoning Objective 'EE': '*To provide for enterprise and employment related uses*' under the Development Plan 2016 – 2022. Enterprise and Employment (EE) zoned lands accommodate low to medium intensity enterprise and employment uses. Enterprise and Employment zoned lands have the capacity to attract high tech manufacturing and associated strategic investments, due to the availability of large sites that are supported by high quality infrastructure and services. More peripheral Enterprise and Employment lands may be more suited to light industrial or logistics based uses. The draft SDCC Development Plan 2022 – 2028 zoning objective remains unchanged.

Chapter 11 (Landscape and Visual Impact), and Schedule 5 of the Development Plan 2016 – 2022 lists the Definition of Use Classes & Zoning. The Proposed Development falls within Industry and Science & Technology Based Enterprise use classes that are listed as 'permitted in principle', subject to further assessment against the relevant policies, objectives and standards set out under this Plan.

The Development Plan 2016 – 2022 sets out environmental policies and objectives. The environmental policies and objectives which are considered to be most applicable to the Proposed Development have been identified and set out in Chapter 3 (Planning and Development Context) of the EIA Report.

As part of the assessment of the impact of the Proposed Development, account has been taken of developments that are currently permitted or under construction within the vicinity of the site.

The SDCC Planning Department website was consulted in order to generate a list of granted planning permissions from the surrounding areas of the Proposed Development within the previous 5 years. This list is presented in Table 3.1 of Chapter 3 (Planning and Development Context) of the EIA Report.

#### **4.0 ALTERNATIVES**

EIA legislation and the prevailing guidelines and best practice require that EIA Reports describe "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", addressing:

- Do Nothing Alternative;
- Alternative project locations;
- Alternative designs/layouts;
- Alternative processes; and
- Alternative mitigation.

##### ***Do Nothing Alternative***

As stated in Section 1.0 of this Non-Technical Summary and Section 1.1.1 of Chapter 1 (Introduction), the TILGC site has an EPA IE Licence (IE Licence Register No. P0693-02). The current carbon-based VOC abatement system is used to treat the

waste gas streams generated by manufacturing operations and tank farm vessels. While existing system achieves compliance with the IE licence requirements, is not considered best available technology (BAT) for current EPA licencing requirements. It also takes considerable time, effort and cost to ensure it remains compliant. The proposed new VOC abatement system will ensure the compliance with the EPA emission limits, in line with Best Available Techniques and Regulations, with economical use of natural gas and/or other utilities. (Note: The existing VOC abatement system will remain in place and serve as a backup VOC abatement system which will be used when the new system requires maintenance.). The Do Nothing Alternative would be to continue to use the existing VOC carbon abatement system which does not comply with BAT.

### ***Alternative Project Locations***

At the project concept stage, TILGC undertook a detailed review of suitable locations for the proposed new VOC abatement system in order to determine the most appropriate location for the Proposed Development on the TILGC site. There were 4 no. locations on the TILGC site that were considered for the Proposed Development. Without pre-assessing the resultant environmental impact associated with the Proposed Development, a high-level environmental comparison of environmental effects for key environmental aspects such as air quality, noise and landscape and visual impact was undertaken for the four options. All four options were determined as suitable for the Proposed Development, in terms of environmental considerations, with appropriate mitigation measures. The site selected was established as the most suitable location for the Proposed Development for the following reasons:

- Building a standalone VOC abatement system away from existing buildings will result in minimal business interruption during construction.
- The Proposed Development is located along the west boundary of the site 220m from the main entrance (along north boundary) with no view visible from the New Nangor Road, 207m from the east site boundary.
- Close Adjacencies to existing Wastewater Treatment Plant and pipe bridge.
- Proposed location makes use of the existing site road network. Ease of access during construction. Proposed tie in points allows for a one-way access road around the development.
- Proposed location has a minimal impact on existing trees and planting on the site.

### ***Alternative Design/Layouts***

In the preparation for Proposed Development, a number of alternative arrangements and configurations for the new VOC abatement compound, utilities workshop, access road, drainage connections were considered. There was no perceptible difference between the alternative arrangements and configurations in terms of environmental sensitivities. The proposed site design/layout represents the most practical and efficient configuration.

The stack height for the new VOC abatement system was modelled in an iterative fashion (i.e. with incremental increases in stack height modelled) to ensure that an adequate stack height was selected to aid dispersion of the emissions.

### ***Alternative Processes***

In terms of the proposed technology, DPS Group undertook a VOC abatement technology assessment to determine the Best Available Techniques in relation to the design of emissions reduction systems for the TILGC site. Best Available Technique identifies the most appropriate emission reduction technique that provides the highest

level of protection to the environment as a whole, taking into account technical and economic considerations.

The DPS Group assessment considered the following VOC abatement technologies: Regenerative Thermal Oxidizer (RTO) and Direct Fired Thermal Oxidizers (DFTO). The operating temperature of RTO is currently c. 950°C. Due to the presence of halogenated organic compounds in the waste gas, the operating temperature required is c. 1100°C. In addition, RTOs are usually designed for high and constant volume flows with relatively low, consistent concentrations of VOC. Due to the batch nature of the production operations at the TILGC facility, current gas flows rates are relatively low, volumes are not constant and concentrations of VOCs are not consistent, so RTO technology was not recommended by DPS Group. The DFTO has an operating temperature greater than 1,100°C and combustion chamber sized to give two seconds residence time, followed by a 'fast-quench' of post-combustion gases, was recommended by DPS Group for the new VOC Abatement System. The proposed new VOC abatement system is a DFTO system.

The assessment also considered the options of using selective non-catalytic reduction (SNCR) or selective catalytic reduction (SCR) to reduce NOx emission levels. SCR was determined by DPS Group to be appropriate for the DFTO system and has been incorporated into the design.

Recovery and abatement techniques for inorganic compounds considered were wet scrubbing and sorbent injection. Wet scrubbing was selected by DPS Group as the appropriate recovery and abatement technology.

As noted above, the operating temperature of the DFTO is c. 1,100°C. The option of recovering useful heat using the waste gas after the thermal oxidation was considered. To minimise energy requirements, and environmental effects, a heat exchanger will be provided after the TO to recover useful heat from the waste gas after the thermal oxidation, leading to a reduction of the natural gas consumption and of the carbon footprint of the installation.

The proposed technologies have been selected as they comply with Best Available Techniques and Regulations, with economical use of natural gas and/or other utilities.

### ***Alternative Mitigation***

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 measure appropriate to the environmental setting the project design. In making a decision on the most suitable mitigation measure the specialist has considered relevant guidance and legislation. In each case, the specialist has reviewed the possible mitigation measures available and considered the use of the mitigation in term 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 are set out in each of the EIA Report Chapters 5-16.

### ***Conclusion***

Based on the assessment of reasonable alternatives (in relation to location, layout, design, technology, mitigation) relevant to the Proposed Development and its specific characteristics as set out in this chapter, the selected site is considered to be a suitable location for the Proposed Development from an environmental perspective.

In terms of processes/technologies, the selected technologies comply with Best Available Techniques and Regulations and facilitate economical use of natural gas and/or other utilities.

## 5.0 POPULATION AND HUMAN HEALTH

This chapter evaluates the impacts if any, of the Proposed Development on population and human health. In respect of the site receiving environment this chapter has considered the “*existence, activities and health of people*” with respect to those topics which are manifested in the environment, such as employment and housing areas, amenities, extended infrastructure or resource utilisation and associated emissions” (EPA, 2015). Issues examined in this in respect of the Site Context and Receiving Environment include: Population and Demographics, Socioeconomics, Population Health, Natural Resources, Tourism and Amenity, Social Infrastructure and Health and Safety. Identification of principal potential receptors and an analysis of impacts of the project on these receptors has been conducted.

In accordance with the EPA EIA Report Guidelines 2022, the assessment of impacts on human health and population should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIA Report. The likely significant impacts on with Human Health and Population in regards to issues such as soils, geology and hydrogeology, water, air quality, noise and vibration, traffic and landscape are addressed within the following EIA chapters:

- Chapter 6 - Soils, Geology and Hydrogeology;
- Chapter 7 - Hydrology;
- Chapter 9 - Air Quality and Climate;
- Chapter 10 - Noise and Vibration;
- Chapter 11 - Landscape and Visual Impact; and
- Chapter 13 - Traffic and Transportation.

### **Construction Phase**

#### 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, **imperceptible, short-term** socioeconomic impact. The presence of these site personnel in the area during the construction phase will create a small 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, imperceptible, temporary to short-term** socioeconomic impact.

Overall, the construction phase is considered to have the potential to have an **imperceptible, temporary to short term** 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.

### Amenity and Tourism

With reference to Chapter 11 (Landscape and Visual), the significance of construction stage impacts is deemed to be **slight-imperceptible** within the immediate surrounds of the site, however this quickly reduces to **imperceptible** within the wider study area where construction activities will not be discernible. The quality of the construction stage effects will be **Negative**. The Proposed Development will have no discernible effect on local tourism.

### Natural Resources and Material Assets

The implementation of mitigation measures outlined above will ensure that the residual impacts during the construction phase in respect of the environmental factor of Soils, Geology and Hydrogeology is **short term-imperceptible-neutral**, and in respect of the environmental factor of Hydrology is **short term-imperceptible-neutral**.

### Air Quality on Human Health

As detailed in Chapter 9 (Air Quality and Climate) Section 9.7.1.3, 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 impact of construction of the Proposed Development is likely to be **neutral, temporary** to **short-term** and **imperceptible** with respect to human health.

### Noise and Vibration

As detailed in Chapter 10 (Noise and Vibration), there will be some impact on nearby commercial and residential receptors during construction due to noise emissions from site activity and traffic. The application of noise limits and limits on the hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration impact is kept to a minimum. Due to the distance between the site and the nearest sensitive locations, vibration impacts generated during construction are expected to be **negligible** and **temporary to short term**. Construction noise and vibration will be typically limited to daytime periods only. In terms of health effects these are typically associated with long term exposure to elevated levels of noise and/or vibration which will not be the case in relation to construction sources which would be expected to be the order of or below existing ambient levels in the vicinity of the site for the vast majority of the construction period. There are no health risks associated with operational noise resulting from the construction of the development subject to implementation of good site management practices and mitigation measures as required, as outlined in the relevant sections of the noise assessment and referenced documents.

### Traffic and Transportation

The assessment of the additional traffic movements associated with the Proposed Development during the construction phase is presented in Chapter 13 (Traffic and Transportation). Based on the assessment of the network junctions there will be imperceptible impacts on the receiving traffic and transportation environment. The impact of construction works will be temporary to **short term, imperceptible** and **neutral**.

### 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.

## ***Operational Phase***

### Businesses and Residences

The predicted impacts on local businesses and residences in relation to air quality, noise, visual impact, and traffic has been summarised below.

### Amenity and Tourism

With reference to Chapter 11 (Landscape and Visual), the Low-negligible landscape sensitivity judgement attributed to the study area, coupled with a Low magnitude of operational stage landscape impact is considered to result in an overall significance of no greater than ***slight-imperceptible / Neutral***. The Proposed Development will have no discernible effect on local tourism.

### Natural Resources and Material Assets

The implementation of mitigation measures outlined above will ensure that the residual impacts during the operational phase in respect of the environmental factor of Soils, Geology and Hydrogeology is ***short term-imperceptible-neutral***, and in respect of the environmental factor of Hydrology is ***short term-imperceptible-neutral***.

### Air Quality

As detailed in Chapter 9 (Air Quality and Climate) Section 9.7.2.3, Air dispersion modelling was undertaken to assess the impact of the development with reference to EU ambient air quality standards which are based on the protection of human health. As demonstrated by the dispersion modelling results, pollutant concentrations with the Proposed Development operational are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant impact on human health. The air dispersion modelling assessment has considered the ambient air quality impact from the operation of the Proposed Development and a conservative approach was adopted when making assumptions for the air modelling inputs which over-estimates the actual levels that will arise. In relation to the spatial extent of air quality impacts from the site, ambient concentrations will decrease significantly with distance from the site boundary. The impacts to human health are predicted to be ***long-term, negative and imperceptible***.

### Noise and Vibration

In essence, the noise levels from the Proposed Development at the nearest noise sensitive locations are predicted to be within relevant noise criteria that have been adopted here for the operation of the proposed development. The noise limits at the nearest noise sensitive locations are set in line with the EPA NG4 (2016) guidelines. In addition, the predicted operational noise levels associated with the normal operation of the facility are below those set by the WHO Guidelines for Community Noise (WHO 1999) document in order to avoid any daytime annoyance or speech interference and/or night time sleep disturbance, etc.

Taking the above into consideration, operational noise predictions from the facility are below the adopted criteria that are based on the thresholds below which, there is no evidence of significant effects in relation long-term exposure to noise on human health. There are no potential health risks associated with operational noise resulting from the development.

The Proposed Development will not generate any perceptible levels of vibration during operation and therefore there will be no impact from vibrations on human health.



### Traffic and Transportation

There are no additional traffic movements associated with the Proposed Development during the operational phase as presented in Chapter 13 (Traffic and Transportation). Therefore, Proposed Development will have a **neutral** effect on traffic with no residual impacts, once operational.

### 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.

## **6.0 LAND, SOILS, GEOLOGY AND HYDROGEOLOGY**

This chapter of the EIA Report assesses and evaluates the potential impacts of the development on the land, soil, geological and hydrogeological aspects of the site and surrounding area.

Inspection of the available GSI maps show that the bedrock geology underlying the site belongs to Lucan Formation consisting of dark-grey to black, fine-grained, occasionally cherty and micritic limestones that. Site investigations indicate that bedrock would be located at depths between 1.5-3.0 m below ground level (mbgl). According to site investigations and GSI vulnerability classification, the bedrock aquifer underlying the site would have an 'Extreme' vulnerability (0-5 m of overburden thickness).

The GSI/Teagasc subsoil mapping database of the quaternary sediments in the area of the subject site indicates that the majority of the site and surrounding area is underlain limestone till carboniferous (TLs) which are typically associated with low permeability clays. Site investigations have encountered a profile composed of top soil, made ground (clay) and cohesive deposits (clay) overlying the bedrock.

The Groundwater Body (GWB) underlying the site is the Dublin GWB. Currently, this GWB is classified under the WFD Risk Score system (EPA, 2021) as 'Under Review'. The Dublin GWB was given a classification of 'Good' for the last WFD cycle (2013-2018).

Overall, the soil quality results were all below the most conservative threshold value for the LQM/CIEH for HHRA (Human Health Risk Assessment) Residential and Commercial Threshold at 1% SOM for almost all parameters and all sample points, with some exceptions only for residential use. WAC analysis identified that the representative samples are suitable for classification as Category A – Inert. The material sampled across the site, if being considered a waste, can be classified as non-hazardous. Asbestos was not detected in throughout the site.

Based on the TII criteria (refer to Appendix 6.1) for rating the importance of geological and hydrogeological features, the importance of the bedrock, soil and hydrogeological features at this site is rated as '*Low Importance*' with low quality, significance or value on a local scale. The aquifer is a Locally Important but is not widely used for public water supply or generally for potable use. In addition, there would not be direct or indirect hydrogeological connection between the site and any protected sites (SAC, SPA, NHA).

Excavations across the site are required for the site preparation and levelling works. The maximum depth of excavation required to facilitate installation of services and

foundations for facilities is c. 1 m below original ground level. It is not anticipated that excavation of bedrock will be required; therefore, no bedrock aquifer dewatering is foreseen.

It is estimated that approximately 3,900 m<sup>3</sup> of soils will be excavated to facilitate construction of the contractor's compound. It is anticipated that all of this soil can be reused onsite for to create a temporary berm along the northern perimeter of the temporary contractor's compound and for landscaping purposes. In addition, it is estimated that c. 7,400 m<sup>3</sup> of soils and fill material will be excavated to facilitate construction of the TO, utilities building and ancillary services. Volume of clean material to be imported to site (i.e. under roads, pavements, building, etc.) is approximately 1,745 m<sup>3</sup>.

The potential impacts of construction and operation and mitigation measures proposed have been identified and will be included in the Construction Environmental Management Plan (CEMP) for the Proposed Development.

Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving environment and the material will be stored away from any open surface water drains. In the event that potentially contaminated soils are encountered, they should be segregated, tested and classified as hazardous or non-hazardous in accordance with the EPA Guidance Document: Waste Classification – List of Waste and Determining if Waste is Hazardous or Non-Hazardous (2015) and Council Decision 2003/33/EC. It should then be removed from site by a suitably permitted waste contractor to an authorised waste facility.

All fill and aggregate for the Proposed Development will be sourced from reputable suppliers. All suppliers will be vetted for the appropriate certificates, management status and regulatory compliance standards.

All fuel tanks shall be stored in designated areas, and banded to a volume of 110% of the capacity of the tank within the bund (plus an allowance of 30 mm for rainwater ingress). Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (or where possible off the site) which will be away from surface water gulley's or drains.

During the Operational phase, there are limited activities that could potentially impact on the land soils, geological and hydrogeological environment. There will be an increase in hardstanding area (c. 226 m<sup>2</sup>) associated with the development area which will drain to the existing onsite surface water drainage system. This increase in area represents less than 0.1% of the total hardstanding area on the overall site. This will have a minor effect on local recharge to ground; however, the impact on the overall hydrological regime will be imperceptible.

Following implementation of mitigation measures detailed in Chapter 6 of the EIA Report, the predicted impact during construction of the Proposed Development will be **temporary, imperceptible** and **neutral**. In addition, the residual cumulative impact on hydrogeology for the construction phase is anticipated to be **neutral, imperceptible, and temporary**.

The predicted impact during operation of the Proposed Development, following implementation of mitigation measures detailed in Chapter 6 of the EIA Report will be **long-term, imperceptible** and **neutral**. In addition, the residual cumulative impact on hydrogeology for the operation phase is anticipated to be **neutral, imperceptible, and long term**.

## 7.0 HYDROLOGY

This chapter of the EIA Report assesses and evaluates the potential impacts of the development on the hydrological aspects of the site and surrounding area.

The Proposed Development site lies within the Liffey and Dublin Bay Catchment (Hydrometric Area 09) and River Liffey sub-catchment (WFD name: Liffey\_SC\_090, Id 09\_15) (EPA, 2022). The Griffeen River flows along the eastern boundary of the overall TILGC site across the Grange Castle Business Park road and along part of the southern boundary. It flows in a northerly direction where it is culverted beneath the Grand Canal and from there it flows north through Lucan. The Griffeen River enters the River Liffey just north of Lucan town. A section of the Griffeen River originally ran through the overall TILGC site but it was realigned during the construction of the Grange Castle Business Park and associated access roads and its original route may have been infilled with imported material. It now runs alongside the internal access road of the Business Park in a northerly direction.

With regard to the local drainage, the TILGC site discharges its surface water run-off from roofs and hardstanding areas currently to one location (EP-WS-01) which is an existing licensed emission point. This discharge point discharges uncontaminated surface water run-off to the public surface water system, which ultimately discharges to the Griffeen River, which is a tributary of the River Liffey. The overall TILGC site has an existing surface water drainage system which collects surface water runoff from the hardstanding areas (excluding bunded areas) and roof areas of the site, which falls into monitoring chamber at the north of the site.

As the River Griffeen is a tributary of the River Liffey it is in direct hydraulic connection to a number of national and European protected sites: North Dublin Bay SAC, South Dublin Bay SAC, North Bull Island Special Protection Area SPA, South Dublin Bay and River Tolka Estuary SPA.

The Griffeen River belongs to the Liffey\_170 WFD surface water body. The most recent published status ([www.epa.ie](http://www.epa.ie) – River Waterbody WFD Status 2013-2018) of this waterbody is 'Moderate' and its WFD risk score is 'At risk of not achieving good status'. This 'Moderate' status is related to its biological conditions (Phytobenthos Status or Potential) and its nitrate conditions which have been recorded as 'Moderate'.

With regard to wastewater drainage at overall TILGC site, the process effluent from the site is monitored (at MP-WW-01) prior to connection with the site sanitary waste stream arising from P1 and the Administration Building, then it gets discharged to the SDCC sewer at EP-WW-01. The wastewater ultimately discharges to Ringsend WWTP for treatment. The TILGC load contributions to the Ringsend WWTP are a very small fraction of the overall influent load to the WWTP.

The Proposed Development will set its FFL above the 1% AEP MRFS flood level to ensure that the development is not at risk of flooding. The Proposed Development design has no potential impact on flood risk for the overall TILGC site and other neighbouring properties.

The importance of the hydrological features at this site is rated as 'Low Importance', based on the assessment that the attribute has a low quality significance or value on a local scale.

The potential impacts of construction and environmental control measures proposed have been identified as follows:

- Increased Sediments Loading in Run-off
- Potential Contamination of Local Water Courses

There are no discharges to any open water courses included in the design. SUDs measures have been incorporated into the design including permeable asphalt, swales and a soakaway. Discharge flow is restricted to the greenfield equivalent runoff for the catchment areas.

Following implementation of mitigation measures detailed in Chapter 7 of the EIA Report, the predicted impact on the hydrological environment during construction of the Proposed Development will be **temporary, imperceptible** and **neutral**. In addition, the residual cumulative impact on hydrology for the construction phase is anticipated to be **neutral, imperceptible**, and **temporary**.

The predicted impact during operation of the Proposed Development, following implementation of mitigation measures detailed in Chapter 7 of the EIA Report will be **long-term, imperceptible** and **neutral**. In addition, the residual cumulative impact on hydrology for the operation phase is anticipated to be **neutral, imperceptible**, and **long term**.

## 8.0 BIODIVERSITY

This chapter provides an assessment of the impacts of the Proposed Development in question on the ecological environment, i.e. flora and fauna. The Proposed Development is to take place on a brownfield site within the existing developed light industrial campus of TILGC. The Proposed Development areas currently comprise recolonising bare ground, amenity grassland and buildings and artificial surfaces.

There is no potential for otter habitats on site. There will be no direct or indirect impact on otters downstream on the Griffeen River. There will be no direct or indirect impact on badgers. There will be no direct or indirect impact on bats. There will be no direct or indirect impact on birds. There are no rare or protected habitats recorded in the study area. The site development areas are considered of Low Local Ecological Value.

The Proposed Development will have no predicted significant impacts Biodiversity, therefore cumulative impacts can be ruled out.

The conclusion of a report for AA Screening is that the possibility of any adverse effects on the integrity of the European Sites considered, or on the integrity of any other European Site (having regard to their conservation objectives), arising from the Proposed Development, either alone or in combination with other plans or projects, can be excluded.

## 9.0 AIR QUALITY AND CLIMATE

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

The existing climate baseline can be determined by reference to data from the EPA on Ireland's total greenhouse gas (GHG) emissions and compliance with European Union's Effort Sharing Decision "EU 2020 Strategy" (Decision 406/2009/EC). Data from the EPA in 2021 estimates that Ireland had total GHG emissions for 2020 of 57.7 million tonnes carbon dioxide equivalent (Mt CO<sub>2</sub>eq). This is 6.73 Mt higher than Ireland's emission ceiling for 2020 as set under the EU's Effort Sharing Decision (ESD), 406/2009/EC. Emissions are predicted to continue to exceed the targets in future years.

### ***Air Quality***

During the construction phase there is the potential for dust emissions to impact nearby sensitive receptors resulting in potential dust soiling and human health impacts. Best practice mitigation measures have been proposed for the construction phase of the Proposed Development in order to mitigate potential dust impacts. Provided the mitigation measures outlined within Chapter 9 are implemented construction dust impacts will be short-term, negative, localised and imperceptible at nearby sensitive receptors.

Air dispersion modelling of operational phase emissions from the installation of one new emission points (a thermal oxidizer) associated with the development was carried out using the United States Environmental Protection Agency's regulatory model AERMOD. The aim of the study was to assess the contribution of operational emissions of nitrogen dioxide (NO<sub>2</sub>) and total volatile organic compounds (VOC) from the Proposed Development operating under normal and bypass conditions and existing development to off-site levels of this pollutant. The results of the modelling assessment determined that emissions from the proposed emission points on site will be in compliance with the ambient air quality standards for NO<sub>2</sub> and environmental assessment levels for VOC.

### ***Climate***

Based on the scale and short-term nature of the construction works, the potential impact on climate change from the construction of the Proposed Development is deemed to be short-term and imperceptible in relation to Ireland's obligations under the EU 2030 target.

No significant on-site CO<sub>2</sub> emissions will occur as a result of the operation of the Proposed Development.

### ***Human Health***

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

As demonstrated by the dispersion modelling results, pollutant concentrations with the Proposed Development operational are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant impact on human health.

### ***Sensitive Ecosystems***

As demonstrated by the dispersion modelling results, pollutant concentrations with the Proposed Development operational are compliant with all National and EU ambient air quality limit values at nationally and internationally designated ecological sites and, therefore, will not result in a significant impact on sensitive habitats. Thus, the impact to air quality from operation of the Proposed Development on designated habitat sites is therefore deemed long-term, imperceptible, localised and negative.

### ***Mitigation Measures***

A dust management plan will be implemented during the construction phase of the Proposed Development to ensure that no significant dust nuisance occurs outside the site boundary.

With regards to the operational phase, provided the new emission point stack is built to the minimum heights determined by the air dispersion modelling, no further mitigation measures are required.

### ***Residual Impacts***

If the mitigation measures outlined in this assessment are implemented, there will be no residual impacts of significance on air quality or climate from the construction or operational phases of the Proposed Development.

## **10.0 NOISE AND VIBRATION**

This chapter assesses the anticipated noise and vibration impact associated with the Proposed Development at nearby noise sensitive locations.

The existing noise climate has been surveyed during both daytime and night-time periods and has been found to be typical of the noise climate near an industrial area. Prevailing noise levels are primarily due to road traffic movements.

The potential noise & vibration impact on the nearest noise sensitive locations were assessed for the temporary to short-term construction phase and the longer-term impact of the operational phase once the scheme is in operation.

Subject to good working practice during the construction phase and not exceeding any limits proposed within the EIAR, it is anticipated that noise and vibration will not cause any significant impact or noise and vibration nuisance. During the operational phase, a number of plant items will generate noise; however, none of these will increase the existing noise climate sufficiently so as to be likely to cause a significant impact. Noise levels due to the new plant items during the operation of the Proposed Development are all within the recommended daytime and night-time noise criteria and the EPA IE Licence limits.

## **11.0 LANDSCAPE AND VISUAL**

The LVIA describes the landscape context of the Proposed Development and assesses the likely landscape and visual impacts of the Proposed Development on the receiving environment. Although closely linked, landscape and visual impacts are assessed separately.

Production of this Landscape and Visual Impact Assessment involved a desk study to establish an appropriate study area, fieldwork to establish the landscape character of the receiving environment and assessment of the significance of the landscape and visual impacts of the development.

It is anticipated that the Proposed Development will be difficult to discern and not likely to give rise to significant landscape/townscape or visual impacts beyond 2km. As a result, a 2km study area is to be used in this instance with a focus on those receptors within 1km of the site.

The application site is situated within land designated as "Employment and Enterprise" by the CDP's Land Use Zoning Map no. 4. According to Table 11.18 of the CDP, the key principles within Enterprise and Employment Zones entail the three broader categories of 'Access & Movement,' 'Open Space and Landscape" and 'Built Form and Corporate Identity.' According to the South County Dublin Landscape Character Assessment, the study area is located within the 'Urban' Landscape Character Area. There are no designated scenic views or prospects to be preserved located within the study area.

The Proposed Development is located in Grange Castle Business Park in an area of relatively flat terrain. In terms of land use, the site and its surrounds are heavily influenced by large scale commercial and industrial facilities. The TILGC site is one of several large-scale manufacturing plants located within Grange Castle Business Park, with many other large scale industrial units currently under construction. The nearest residential receptors to the Proposed Development are located immediately west of the site along the R120 regional road, whilst a small farmstead is located to the north of the site on the southern side of the Grand Canal corridor. The study area encompasses a number of local parks, some of which are located within Grange Castle Business Park itself. The most notable recreation feature is the Grand Canal Way National Waymarked Trail. The most notable heritage feature in relation to the site is the ruins of Grange Castle, which is located some 600m east of the site.

In terms of landscape impacts, the Proposed Development will have a direct physical impact on the site's land cover, but only to a relatively minor extent as the Proposed Development is entirely contained within the existing extensive TILGC site. As the Proposed Development represents the intensification of an existing land use, it has limited potential to substantially alter the character of the local and broader landscape, which is principally influenced by other large scale industrial and commercial developments. This is a robust landscape context that can accommodate large-scale industrial developments, which is reinforced by the sites land use zoning for 'Employment and Enterprise'.

Regarding visual impacts, 5 viewpoints represent a range of viewing angles, distances, and contexts. In most cases, the Proposed Development will be entirely screened by a combination of the surrounding existing built development and mature vegetation in the surrounds of the site. Even where glimpsed, the Proposed Development will have little to no impact on the visual amenity of the study area as it represents such a minor intensification of built development in this already highly modified and anthropogenic landscape context.

Overall, the Proposed Development is not considered to give rise to any significant residual impacts. Instead, residual landscape and visual impact are considered to be in the lower order of significance, even in the immediate surroundings of the proposal site.

## 12.0 ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

This chapter assesses the predicted impacts of the Proposed Development on archaeological, architectural and cultural heritage using a number of sources including the Record of Monuments and Places, the National Inventory of Architectural Heritage, the Excavations Database, cartographic, aerial photography and documentary sources.

There are no recorded archaeological sites or monuments within the Proposed Development lands, as listed in the Record of Monuments and Places for Co. Dublin. There are five recorded archaeological sites within the study area. None of these sites will be impacted, either directly or indirectly, by the Proposed Development works.

There are no recorded archaeological finds from the site, though a stone axe found in the area suggests settlement in the Neolithic Period.

Archaeological excavations in the area in advance of development works over the past two decades has also revealed a number of previously unrecorded archaeological sites. The results of the excavation of these sites further indicate prehistoric and medieval settlement and activity in the area.

There are no architectural heritage structures within the site boundary. There are fourteen within the wider study area, recorded in the National Inventory of Architectural Heritage. None of these will be impacted on by the Proposed Development.

The survey indicated that the majority of the site of the Proposed Development has been extensively and significantly impacted by previous development.

As no features of archaeological or architectural heritage were identified along the route of the Proposed Development, and the land required for the Proposed Development has been extensively and significantly developed in the past, no mitigation is required with respect to archaeology, architectural or cultural heritage.

Please note that the recommendations given here are subject to the ongoing approval of the National Monuments Service, Department of the Culture, Heritage and the Gaeltacht.

## 13.0 TRAFFIC AND TRANSPORTATION

This chapter assesses the traffic impact that the Proposed Development will have on the surrounding road network during construction and operation. The proposed site is located on lands within the existing TILGC site at the northwest section of the Grange Castle Business Park. The site is accessed via the existing northern campus access off the internal business park road. The business park is accessed via the R136 Outer Ring Road known locally as the Grange Castle Road to the east and the R134 New Nangor Road to the south.

At the construction stage the site will generate a maximum of 20 operatives' vehicles per day accessing the site together with up to 72 HGV vehicles the latter which will peak over a period of a fortnight.

During the operational phase the Proposed Development does not require any additional staff to operate it from that of the existing facility.



Vehicular and pedestrian access to the development will be from the main TILGC campus entrance off the Grange Castle Business Park Road with onward access from the internal access road.

Construction activities will be largely contained within the boundary of the site. There will be a requirement for construction materials to be brought to the site as well as specialist plant. It is anticipated that these deliveries will occur throughout the day and will be infrequent.

The traffic flows from a 2022 survey on the surrounding road network have been collected in order to set the baseline traffic for peak hours for the roundabout junction adjacent to the TILGC site. These figures were then compared to the assigned additional flows arising from the construction traffic.

On the basis of the TII Traffic and Transport Guidelines (May 2014), if the impact on a junction does not exceed 10% of the existing two-way traffic flow (or 5% at sensitive locations), then modelling is not required for the junction. As the generated traffic flows for the roundabout junction are above the threshold further analysis was carried out. The junction assessment established that there will be an imperceptible impact on the capacity of the roundabout.

The estimated impact of increase in traffic associated with the construction phase of the Proposed Development will be **temporary, imperceptible and neutral** effect.

It is expected that the overall development will be operational by 2023. The VOC unit is a replacement of an existing process element, and therefore no additional staff will be necessary for its operation, and no additional trips on the road network would be expected. The Proposed Development will have an imperceptible impact on the road network, in particular the junction in the proximity of the development. Overall, the impact of the development will be **long term** in duration of **imperceptible neutral** effect.

#### 14.0 MATERIAL ASSETS

This chapter of the EIA Report evaluates the impacts, if any, which the Proposed Development may have on Material Assets. The EPA EIA Report Guidelines 2022 state that material assets are taken to mean “built services and infrastructure, roads and traffic and waste management”. The EPA Draft Advice Notes for EIS 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 several examples of material assets including buildings, other structures, mineral resources and water resources.

- Chapter 5, Population and Human Health;
- Chapter 6, Land, Soils, Geology & Hydrogeology;
- Chapter 7, Hydrology;
- Chapter 9, Air Quality & Climate;
- Chapter 10, Noise and Vibration);
- Chapter 12, Cultural Heritage;
- Chapter 13, Traffic and Transportation;
- Chapter 15, Waste Management.

This chapter assesses ownership and access, built services and infrastructure, which have not already been addressed elsewhere in this EIA Report. The likely

significant effects on built services and infrastructure, if any, are assessed in under the following subheadings:

- Land Use, Property, and Access;
- Power and Electrical Supply;
- Surface water infrastructure;
- Foul drainage infrastructure;
- Water supply;

### ***Ownership and Access***

The Proposed Development is located within the existing TILGC campus. The area subject to the planning application is entirely within the ownership of the Applicant.

The main entrance to the site is security controlled and monitored at the northern end of the Campus. Access is provided via the New Nangor Road the Grange Castle Business Park internal road network and is located within 2km of the M7 motorway.

### ***Power and Electrical Supply***

Electricity is provided to the existing TILGC campus via the national grid.

Any excavations within the vicinity of existing electrical services will be carried out in consultation with relevant service providers to ensure there is no impact on existing users. The electrical connection should have no disruptions to the national grid during connection works. During the construction phase the potential impact on power and electrical supply in the absence of mitigation, is ***neutral, imperceptible and short term.***

During the operational phase, maintenance of utilities infrastructure on the site will be carried out in accordance with the relevant requirements of the various utilities' providers / authorities. As such, no significant impacts on services or utilities themselves are predicted to occur as a result of the operational phase. During the operational phase the potential impact on power and electrical supply, in the absence of mitigation, is considered to be ***neutral, imperceptible, and long term.***

### ***Surface Water Infrastructure***

During the construction phase, there is potential for an increase in run-off due to the introduction of impermeable surfaces and the compaction of soils. This would potentially temporarily reduce the infiltration capacity and increase the rate and volume of direct surface run-off. The potential impact of this is a possible slight increase in surface water run-off and sediment loading which could potentially impact local drainage. Run-off containing amounts of silt can cause damage to surface water systems and receiving watercourses. However, this potential effect is unlikely due to the scale and extent of the construction activity proposed and the mitigation measures included within the design and set out in Section 14.6. During the construction phase the potential impact on surface water, is ***neutral, imperceptible, and short term.***

SUDs measures have been incorporated into the design to minimise any increase in surface water discharge into the existing system, this means there is an imperceptible impact on the downstream surface water system which currently operates on the site and no impact on the discharge capacities. During the operational phase the potential impact on surface water, in the absence of mitigation, is considered to be ***neutral, imperceptible, and long term.***

### ***Foul Drainage***

Welfare facilities will be provided for the construction workers on site during the construction works and wastewater will be sanitary waste only. The works contractor will be required to apply to Irish Water for connection to discharge any contaminated surface water which collects in excavations, if it is required. The works contractor will be obliged to comply with any conditions of the discharge license to control discharge quality and rate of flow. During the construction phase the potential impact on foul sewer and process wastewater infrastructure is ***neutral, imperceptible, and short term.***

During the operational phase the foul sewer and process wastewater discharged from the site will ultimately discharge to the Ringsend Wastewater Treatment Plant. The discharge will be in compliance with the IE licence requirements. During the operational phase the potential impact on foul sewer and process wastewater infrastructure is considered to be ***neutral, imperceptible, and long term.***

### ***Water Supply***

It is estimated that a maximum of 30 people will be required during the construction phase. A potable water supply will be provided from the existing TILGC campus mains. During the construction phase the potential impact on potable water infrastructure, in the absence of mitigation, is considered to be ***neutral, imperceptible, and short term.***

During operation, water demand for the project will be provided from onsite water storage within the limits of the existing connection agreement. During the operational phase the potential impact on potable water infrastructure, in the absence of mitigation, is considered to be ***neutral, imperceptible, and long term.***

During construction, the contractor will be contractually obliged to put best practice measures in place and work in accordance with the CEMP and relevant planning conditions. In addition, the implementation of mitigation measures detailed each chapter and detailed in Section 14.6.1 will ensure that the residual effects on the material assets during the construction phase will be ***neutral, imperceptible and short-term.***

The implementation of mitigation measures within each chapter and detailed in Section 14.6.2 and adhered to TILGC site procedures and IE Licence requirements will ensure that the residual effects on the material assets during the operational phase will be ***neutral, imperceptible and long-term to permanent.***

## **15.0 WASTE MANAGEMENT**

AWN Consulting Ltd. carried out an assessment of the potential impacts associated with waste management during the construction and operational phases of the Proposed Development. The receiving environment is largely defined by South Dublin County Council as the local authority responsible for setting and administering waste management activities in the area through regional and development zone specific policies and regulations.

During the construction phase, typical C&D waste materials will be generated which will be source segregated on-site into appropriate skips/containers, where practical and removed from 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 of new foundations and the

installation of underground services will require the excavation of c.11,300m<sup>3</sup> of material, it is likely that 3,900m<sup>3</sup> of this excavated material will be able to be reused onsite. The balance of excavated materials, which is either unsuitable for use as fill, or not required for use as fill, will be exported off site. Excavated material which is to be taken offsite will be taken for offsite reuse, recovery, recycling and/or disposal.

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

There will be no solid or liquid waste generated from the Proposed Development, once operational. As such the operational phase will have a neutral effect on waste management.

## **16.0 INTERACTIONS – INTERRELATIONSHIPS BETWEEN THE ASPECTS**

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 construction and operational phase of the Proposed Development.

In the main, the majority of EIA Report chapters have already included and described assessments of potential interactions between aspects however this section of the assessment presents a summary and assessment of the identified interactions. In summary, the majority of interactions are *neutral*.

Planning Application to South Dublin County Council

**Environmental Impact Assessment Report**

**VOC Abatement System Project  
Takeda Ireland Ltd.  
Grange Castle Business Park,  
Nangor Road,  
Clondalkin,  
Dublin 22.**

Prepared by  
**AWN Consulting**  
July 2022



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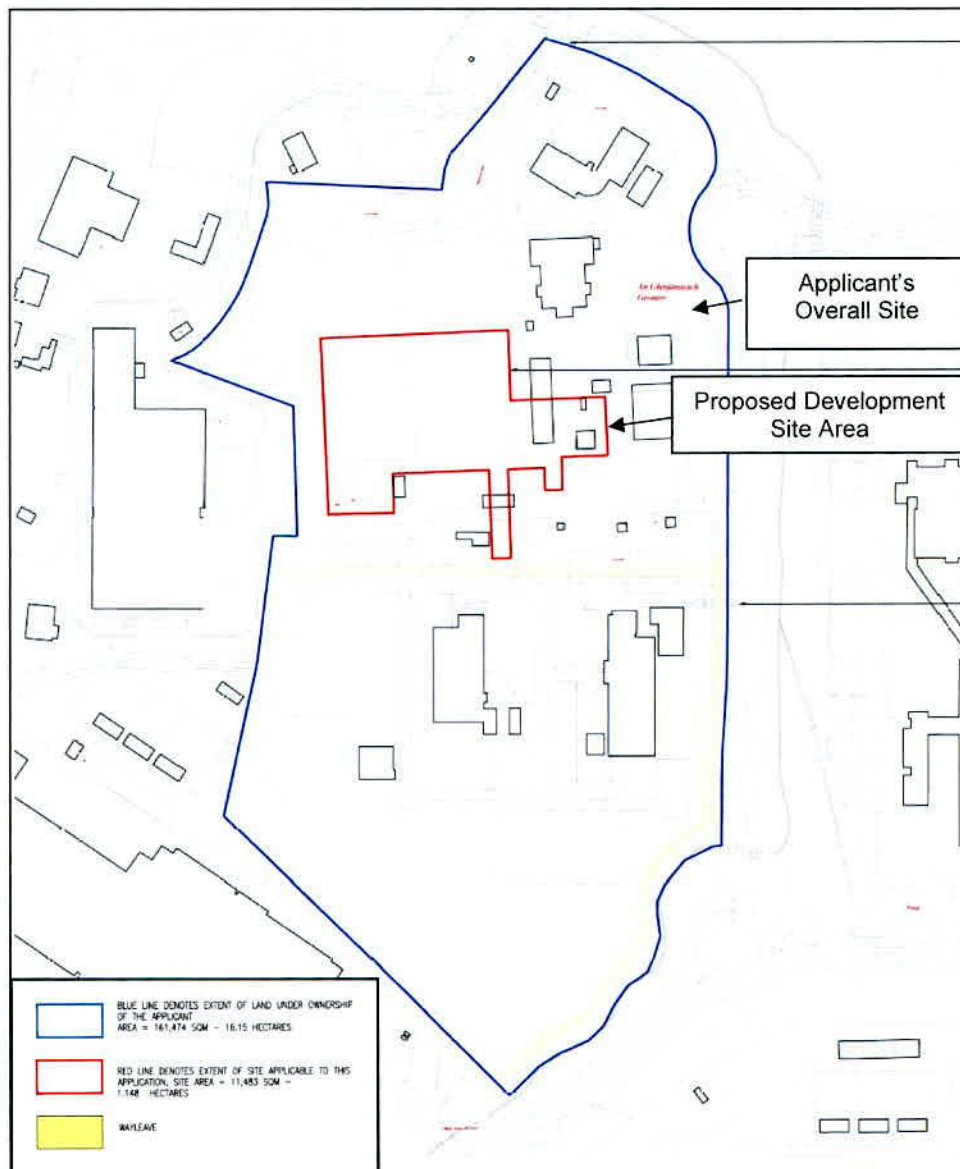


## 1.0 INTRODUCTION

### 1.1 PROPOSED DEVELOPMENT

This Environmental Impact Assessment (EIA) Report has been prepared and coordinated by AWN Consulting ('AWN') alongside various experienced subject matter experts on behalf of Takeda Ireland Ltd. ('the Applicant'), to accompany a planning application to South Dublin County Council ('SDCC') for planning permission for a new volatile organic compound (VOC) abatement system, a supporting utilities workshop and associated ancillary services to replace the existing VOC abatement system at the Takeda Ireland Ltd. (herein referred to as TILGC) site in Grange Castle Business Park, Nangor Road, Clondalkin, Dublin 22.

The overall site area which is within TILGC's ownership (blue line boundary) is 16.15 hectares in extent. The Proposed Development site area (red line boundary) is within the overall site area and is c. 1.49 hectares in extent. Figure 1.1 presents the site location showing the overall TILGC site area and Proposed Development site area.



**Figure 1.1** Site location plan showing the Applicants site ownership boundary (blue line boundary) and Proposed Development site boundary (red line boundary) (Source: DPS Group, July 2022)

Figure 1.2 illustrates the Proposed Development site area in the context of the existing TILGC facility.



**Figure 1.2** Site location plan showing the Proposed Development site boundary (red line boundary) on aerial photograph. (Source: Macro Works Ltd., July 2022)

The Proposed Development (as described in the Site Notice) consists of:

- A Volatile Organic Compound (VOC) Abatement system comprising of a thermal oxidiser (TO), associated plant equipment and scrubbers positioned on a bunded concrete plinth with a maximum single stack height of 12m along with two access platforms at 2.5 high and 5.0m high used for maintenance only. The system is set within a 489m<sup>2</sup> (including a bunded area of 213m<sup>2</sup>) concrete compound enclosed by a 2.4m high security fence to match the existing utilities perimeter fence.
- A 135m<sup>2</sup> single storey utilities workshop will sit adjacent to the Volatile Organic Compound (VOC) abatement system compound with associated hardstanding area and soakpit.
- A 55m (L) x 3.2m (W) x 5.6m (H) pipe rack extension with the addition of a second tier extension 118.6m (L) X 3.2M (W) 1.2m (H) to the existing pipe rack is required to service the new VOC abatement system compound.

- A contractor's compound 3,420m<sup>2</sup> comprising single stacked portacabins, workshops, parking for 30 contractors, materials delivery and set down area. The compound will be enclosed by a 2.4m tall timber hoarding painted to selected colour.
- Modifications to the existing internal access road will include the addition of a new 7m wide access circulation road and footpath around the VOC abatement system compound and utilities workshop.
- A permanent pedestrian crossing including associated signage at the existing access road giving access between the contractor's compound and the VOC abatement system compound.
- Modifications to the existing site lighting, signage, surface water, foul and process wastewater drainage, hard and soft landscaping including a 3m high planted berm to the north of the contractor's compound.

A detailed description of the development is provided in Chapter 2 (Description of the Proposed Development), Chapter 3 (Planning and Development Context), and the included planning documentation. This EIA Report should be read in conjunction with all the particulars of the planning application.

### **1.1.1 Need for the Development**

The TILGC site in Grange Castle Business Park has an Environmental Protection Agency (EPA) Industrial Emissions Licence (IED Licence Register No. P0693-02).

The current carbon-based VOC abatement system is used to treat the waste gas streams generated by manufacturing operations and tank farm vessels.

The existing VOC carbon abatement system is not considered Best Available Technology (BAT) for current EPA licencing requirements. A new VOC abatement system has been requested by TILGC for the treatment of the waste gas stream.

The new VOC abatement system will ensure the compliance with the EPA emission limits, in line with Best Available Techniques and Regulations, with economical use of natural gas and/or other utilities. The new system will also facilitate future product expansion at this site.

### **1.1.2 Company Background**

Takeda Pharmaceutical Company Limited is a Japanese pharmaceutical company with manufacturing sites throughout the world. It was founded in 1781 and has its headquarters in Osaka, Japan.

Takeda specialises in research and development (R&D), manufacturing, sales and marketing and the import / export of pharmaceutical drugs. It has many manufacturing sites in Japan, Ireland, Germany, Austria, Denmark, Belgium, Norway, Poland, Russia, China, Indonesia, Mexico, Brazil, Argentina, Columbia, Estonia, India and the US. It also has a large network of R&D sites in the US and Japan. It has a wide variety of products in the gastrointestinal, oncology, CNS (Central Nervous System) and the cardiovascular and metabolic areas.

Takeda Ireland Limited (TIL) has played a key role in Takeda's worldwide operations since October 1997. In 1999, following the opening of custom-built premises, they began manufacturing drug products in Bray, County Wicklow.

In 2002, TIL located its overseas manufacturing centre for Active Pharmaceutical Ingredients (API) in Grange Castle and is an important strategic site established to produce API for global markets. The operation licenses key products and takes responsibility for activities from research, development and manufacturing through to distribution.

TIL's bulk pharmaceutical manufacturing facility at Grange Castle comprises three main manufacturing buildings including a multi-purpose pharmaceutical plant, a high potency dedicated pharmaceutical building, and a biopharmaceutical building.

TIL is committed to the health and wellbeing of patients, both nationally and globally. In many areas of oncology and numerous other serious illnesses, TIL are redefining what can rightfully be expected by patients in terms of longevity and improvements in quality of life.

### **1.1.3 Consultation and Scoping**

DPS and AWN have liaised with the relevant departments of South Dublin County Council (herein referred to as SDCC) in advance of lodgement of this application. A pre-planning meeting was held with SDCC on the 26<sup>th</sup> April 2022. Representatives of the Planning, Drainage, Roads/Transportation and Public Realms - Parks departments of SDCC attended. AWN and the other respective EIA contributors have incorporated advice and comments received from consultees into the relevant chapters of this EIA Report.

The structure, presentation and the non-technical summary of the EIA Report, all facilitate the dissemination of the information contained in the 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.

Informal scoping of potential environmental impacts was undertaken with the Planning Authority through the pre-application meeting. Public participation in the EIA process will be affected through the statutory planning application process. Information on the EIA Report has also been issued for the Department of Housing, Planning and Local Government's EIA Portal.

A copy of this EIA Report document and Non-Technical Summary of the EIA Report document is available for inspection and/or purchase at the offices of South Dublin County Council (the relevant Planning Authority) at a fee not exceeding the reasonable cost of reproducing the document.

## **1.2 RELEVANT LEGISLATIVE REQUIREMENTS**

### **1.2.1 Environmental Impact Assessment**

An Environmental Impact Assessment (EIA) is the process of examining the anticipated environmental effects of a proposed project. The Environmental Impact Assessment Report (EIA Report) is prepared by the developer and is submitted to a Planning Authority as part of the Planning Permission process.

The requirement for EIA for certain types and scales of development is set out in the EIA Directives (2011/92/EU and 2014/52/EU), European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (the bulk of which came into operation in September 2018), the European Communities (Environmental Impact Assessment) Regulations 1989-2006, Planning and



Development Act 2000 (as amended) and the Planning and Development Regulations 2001-2019. It should be noted that this EIA Report is prepared in accordance with the 2011 EIA Directive (2011/92/EU), as amended by the 2014 EIA Directive.

The EIA Directives list those projects for which an EIA is mandatory (Annex I) and those projects for which an EIA may be required (Annex II). With regard to Annex II projects, Member States can choose to apply thresholds or use case by case examination or a combination of both to assess where EIA is required. In Ireland, a combination of both has been applied.

The project proposed is not listed under Annex I EIA Directives and is not mandatorily required for the Proposed Development. However, the development may be considered 'sub threshold' development for the purposes of EIA i.e. the addition of new main emission point means that the project has the potential to have significant effects on the environment. An EIA Report has been prepared, conservatively, with the intention of assessing the potential for significant effects, on that basis.

The main objective of an EIA, as set out in Article 3(1) of the 2014 EIA Directive, is to identify, describe and assess the direct and indirect significant impacts of a project on population and human health, biodiversity, land, soils, water, air & climate (including noise), material assets, cultural heritage and the landscape and the interaction between the aforementioned factors. This EIA Report describes the findings of the EIA process to the Planning Authority, to help determine if consent should be granted. It also informs statutory consultees, other interested parties, and the public in general, about the likely effects of the project on the environment.

### **1.2.2 Habitats and Birds Directive**

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species.

Natura 2000 sites in Ireland are European sites, including Special Protection Areas (SPAs), and Special Areas of Conservation (SACs).

The Directives set out a key protection mechanism to consider the possible nature conservation implications of any plan or project on the Natura 2000 site network before any decision is made to allow that plan or project to proceed; the process known as Appropriate Assessment (AA).

An Appropriate Assessment (Stage 1) Screening 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.

An Appropriate Assessment Screening has been undertaken for the Proposed Development, the results of which are presented in Appendix 8.1 of Chapter 8 (Biodiversity).

### **1.2.3 Integrated Pollution Prevention and Control / Industrial Emissions Directive**

The Integrated Pollution Prevention and Control (IPPC) Directive was transposed into Irish law by the Protection of the Environment Act, 2003, and the Industrial Emissions Directive 2010/75/EU under the European Union (Industrial Emissions) Regulations 2013, S.I. 138 of 2013.

These Regulations primarily amend the EPA Act 1992 to introduce a system of licensable activities from both the Integrated Pollution Prevention and Control (IPPC) and Industrial Emissions (IE) Directives. First Schedule of EPA Act lists the activities that are licensable.

As detailed in Section 1.1.1, the TILGC site has an EPA Industrial Emissions Licence (IE Licence Register No. P0693-02). TILGC will be submitting an IE Licence Review application to the EPA (Licence review application number LA010134) to address the changes to the facility as a result of the operation of the Proposed Development and other minor amendments to the operation of the TILGC facility.

#### 1.2.4 Seveso Directive / COMAH Regulations

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 TILGC site is currently not a Seveso/COMAH facility. The Proposed Development will not introduce any substances that will make it a Seveso/COMAH facility.

The Health and Safety Authority (HSA) register<sup>1</sup> shows that the Proposed Development is not located within close proximity or within statutory consultation distances of any Notified Seveso Establishment. The nearest Seveso site is Irish Distillers Ltd. located 6 km linear distance from the proposed development. Due to separation distances the proposed development is not likely to be affected by an accident at any Seveso site in the wider area; and vice versa, nor is any Seveso site likely to be affected by the proposed development itself.

### 1.3 FORMAT OF THIS EIA REPORT

This EIA Report has been prepared in accordance with the requirements of EIA Directives (2011/92/EU and 2014/52/EU) and the associated legislation and relevant guidance, including:

- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018;
- European Communities (Environmental Impact Assessment) Regulations 1989-2006;
- Planning and Development Act 2000 (as amended);
- Planning and Development Regulations 2001 (as amended);
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA, 2022);
- Draft Advice Notes for Preparing Environmental Impact Statements (EPA, 2015);

<sup>1</sup> [https://www.hsa.ie/eng/Your\\_Industry/Chemicals/Legislation\\_Enforcement/COMAH/List\\_of\\_Establishments/](https://www.hsa.ie/eng/Your_Industry/Chemicals/Legislation_Enforcement/COMAH/List_of_Establishments/)

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment” (August 2018);
- Guidance on the preparation of the Environmental Impact Assessment Report (European Commission, 2017);
- Environmental Impact Assessment of Projects – Guidance on Scoping (European Commission, 2017).

Using a grouped format structure, the EIA Report examines each environmental aspect in a separate chapter. Each chapter generally covers the following:

- Assessment Methodology;
- Receiving Environment;
- Characteristics of the Proposed Development;
- Potential Impacts of the Proposed Development;
- Remedial and Mitigation Measures;
- Predicted Impacts of the Proposed Development;
- Residual Impacts of the Proposed Development;
- Cumulative Impacts of the Proposed Development.

While the EIA has the focus on the Proposed Development, each specialist chapters also considers the potential cumulative impact (as far as practically possible) of the Proposed Development with developments in the locality (including planned and permitted developments).

Interactions i.e. the interrelationship between each environmental aspect, are assessed as they occur in each chapter. The final chapter of the EIA Report, Chapter 16 shows where interactions have been identified and how they have been addressed.

A Non-Technical Summary of the findings of the EIA Report is provided as a separate document.

### **1.3.1 Contributors to the EIA Report**

The preparation and co-ordination of this EIA Report has been completed by AWN Consulting in conjunction with specialist subcontractors. Specialist inputs were provided by the following (Table 1.1):

**Table 1.1** Roles and Responsibilities in the EIA Report

Role		Company
EIA Project Director		AWN – Dr. Fergal Callaghan
EIA Project Management		AWN – Elaine Neary
Engineering Design		DPS Group
EIA Chapter No.	Chapter Title	Company & Consultant
Chapter 1	Introduction	AWN – Elaine Neary
Chapter 2	Description of the Proposed Development	AWN – Elaine Neary
Chapter 3	Planning and Development Context	AWN – Jonathan Gauntlett
Chapter 4	Alternatives	AWN – Dr. Fergal Callaghan/Elaine Neary
Chapter 5	Population and Human Health	AWN – Jonathan Gauntlett
Chapter 6	Land, Soils, Geology & Hydrogeology	AWN – Marcelo Allende and Teri Hayes
Chapter 7	Hydrology	AWN – Marcelo Allende and Teri Hayes
Chapter 8	Biodiversity (including AA)	Moore Group – Ger O'Donoghue
Chapter 9	Air Quality & Climate	AWN – Jovanna Arndt and Dr. Edward Porter
Chapter 10	Noise & Vibration	AWN – Mike Simms
Chapter 11	Landscape and Visual	Macro Works Ltd. – Cian Doughan
Chapter 12	Archaeological, Architectural and Cultural Heritage	CRDS Ltd. – Stephen Mandal
Chapter 13	Traffic & Transportation	CST Group – Philip Bayfield
Chapter 14	Material Assets	AWN – Jonathan Gauntlett
Chapter 15	Waste Management	AWN – Chonaill Bradley
Chapter 16	Interactions- Interrelationship between the Aspects	AWN – Elaine Neary

**Project Director;** Dr Fergal Callaghan, Fergal is the Director with responsibility for EIA and Licensing with AWN Consulting. He undertakes consultancy in all aspects of environmental impact assessment and licensing and water quality, wastewater, and sludge treatment with respect to water quality input to EIA. Extensive experience of the impact of the Seveso III directive on the planning process. B.Sc. (Industrial Biochemistry) and Ph.D. Chemical Engineering (Waste and Wastewater Treatment). A Chartered Waste Manager (MCIWM), Associate Member of The Institution of Chemical Engineers (AMIChemE), Member of the Environmental Protection Subject Group, IChemE, Graduate Member of The Chartered Institute of Water and Environmental Management, a Member of the IChemE Water Group, 30 years engineering and consultancy experience in the Irish, UK and European environmental industry.

**Project Manager/EIA Co-ordinator/Selected Chapters, Elaine Neary,** BA (Natural Sciences), MAppSc. (Environmental Science) and is a Chartered Member of the Institute of Waste Management (MCWIM). Elaine is an Associate in AWN and has 18 years' experience in environmental consultancy with extensive experience in Environmental Impact Assessment and EPA IED/IPPC and Waste Licence Application and Co-Ordination. She has project managed, coordinated and prepared specialist inputs for numerous EIA Reports.

**Selected Chapters, Jonathan Gauntlett** is a Principal Environmental Consultant in AWN Consulting with ongoing roles in impact assessment, licensing, environmental compliance and project management. Recent projects include; SID and planning applications for ICT facilities; EPA Licence applications for biopharma and ICT

facilities. Jonathan has over 9 years' experience in environmental compliance, planning and management of Environmental Impact Assessments, licensing, and urban planning. Jonathan has a BSocSc (Environmental Planning) and BBA (Economics) from the Waikato University in New Zealand and has experience working in the environmental consultancy, planning, and regulatory fields from Ireland, the UK and New Zealand.

**Land, Soils, Geology & Hydrogeology, 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.

**Land, Soils, Geology & Hydrogeology, Hydrology, Teri Hayes** BSc MSc PGeol EurGeol 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.

**Biodiversity/Appropriate Assessment, Ger O'Donohoe**, Ger graduated from GMIT in 1993 with a B.Sc. in Applied Freshwater & Marine Biology and completed an M.Sc. in Environmental Sciences, graduating from TCD in 1999. Ger has over 20 years of experience as an environmental consultant with experience in the planning and management of numerous complex Environmental Impact Assessments for large scale developments nationwide. He has wide ranging experience as an expert witness at public hearings.

**Air Quality & Climate, Dr. Jovanna Arndt** is an Environmental Consultant in the Air Quality section of AWN Consulting. She holds a BSc (Hons) in Environmental Science from University College Cork and completed a PhD in Atmospheric Chemistry at University College Cork in 2016. She is a Member of the Institute of Air Quality Management and specialises in assessing transportation impacts on air quality using dispersion modelling and source apportionment of particulate matter. Jovanna has been involved in assessing air quality impacts from major Highways England road schemes, Clean Air Zones and major rail infrastructure in the form of HS2. She has also provided Air Quality Action Plan (AQAP) and Air Quality Management Area (AQMA) support to several UK councils.

**Air Quality & Climate, Dr. Edward Porter** is a Director with responsibility for Air Quality & Climate within AWN. He holds a BSc(Hons) from the University of Sussex (Department of Chemistry), has completed a PhD in Environmental Chemistry (Air Quality) in UCD and is a Full Member of the Royal Society of Chemistry (C Chem MRSC). He specialises in the fields of air quality, EIA and air dispersion modelling.

**Noise & Vibration, Mike Simms** (Senior Acoustic Consultant) holds a BE and MEngSc in Mechanical Engineering and is a member of the Institute of Acoustics and of the Institution of Engineering and Technology. Mike has worked in the field of acoustics for over 20 years. He has extensive experience in all aspects of

environmental surveying, noise modelling and impact assessment for various sectors including, wind energy, industrial, commercial and residential.

**Archaeology Cultural Heritage, Dr Stephen Mandal** holds an honours science in geology (1991) and a PhD in geoarchaeology (1995) from Trinity College Dublin. He is founder and managing director of CRDS Ltd. (established in 1997; incorporated in 1999), archaeological, cultural and architectural heritage consultants. He has over 25 years' experience in the management of archaeological projects of all scale, from EIA Reports to large scale excavations. He is a professional member of the Institute of Archaeologists of Ireland, the Institute of Geologists of Ireland, and the European Federation of Professional Geologists.

**Landscape Architect, Cian Doughan**, Macro Works is a leading landscape consultancy firm specialising in Landscape and Visual Impact Assessment (LVIA). Established in 1999, Macro Works provide a full suite of LVIA related tools and skills for a broad spectrum of energy, infrastructure and commercial developments. Cian Doughan is as an honours graduate of Landscape Architecture from UCD and is now a full corporate member of the Irish Landscape Institute. His main field of interest in landscape Architecture is that of landscape planning and, in particular LVIA. Cian has completed assessments for a wide range of development types across our portfolio, including important water supply projects, as well as a range of wind farm and solar farm applications. Recent work includes Draft Landscape Design Guidelines for Irish Water Infrastructure projects, Ballinagree Wind Farm SID, Croaghnaun Wind Farm, numerous Solar Farm developments, in addition to a wide range of infrastructure developments.

**Traffic & Transportation, Philip Bayfield**, BE MSc CEng MIEI MICE). Phillip is a Chartered Engineer with over 30 years' experience in the industry. He has overseen civil and structural engineering design of variety of projects including several road and bridge schemes, commercial, educational, public and residential buildings as well as works in the public domain and has been responsible for project team management, resourcing, programming and account management. Projects include the Sutherland School of Law Enabling Works Contract on behalf of UCD, Thornton Hall Access Road and Thornton Hall Offsite Works projects on behalf of the Irish Prison Service, Scotch Hall Development, Kildare Civic Offices infrastructure and Beacon Gateway. Philip is also an experienced PSDP coordinator.

**Waste Management (including C&D Waste Management Plan) Chonail Bradley**, (Bsc ENV AssocCIWM) of AWN Consulting. Chonail 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 (CIWM). Chonail has over seven years' experience in the environmental consultancy sector and specialises in waste management.

## 1.4 DESCRIPTION OF EFFECTS

The quality, magnitude and duration of potential effects are defined in accordance with the criteria provided in the EPA '*Guidelines on the information to be contained in Environmental Impact Assessment Reports*' (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
	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
Describing the Significance of Effects	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
	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

Characteristic	Term	Description
	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
	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)

## 1.5 ADDITIONAL ASSESSMENTS REQUIRED

This section addresses the additional approvals and assessments and reports required under other EU Directives and legislation, and as may be required by the Planning Authority:

- **Appropriate Assessment (AA) Screening Report** had been completed by Moore Group for the Proposed Development, as required under the Habitats and Birds Directive (92/43/EEC and 79/409/EEC) and is included as Appendix 8.1 of Chapter 8 (Biodiversity) of this EIA Report;
- **Arboricultural Report and Tree Survey**, Arboricultural Impact Assessment & Arboricultural Method Statement were completed by Charles McCorkell Arboricultural Consultant and is included as an appendix to the DPS, Planning Report submitted with the planning application documentation as Appendix 4 to the Planning Report.
- **Flood Risk Assessment (FRA)** – A site specific Stage 3 FRA was carried out by Malachy Walsh Partners in 2017 for the TILGC site and is included with the planning documentation as Appendix 5 to the Planning Report;



## **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.

