Unit 15
Melbourne Business Park
Model Farm Road
Cork T12 WR89

O'Callaghan Moran & Associates
ENVIRONMENTAL MANAGEMENT FOR BUSINESS

T: 021 434 5366
E: admin@ocallaghanmoran.com
www.ocallaghanmoran.com

VOLUME 2

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

STARRUS ECO HOLDINGS LTD

MATERIALS RECOVERY FACILITY

MILLENNIUM BUSINESS PARK

BALLYCOOLIN

DUBLIN 11

Prepared For: -

Starrus Eco Holdings Ltd
Millennium Business Park
Ballycoolin
Dublin 11

Prepared By: -

O'Callaghan Moran & Associates
Unit 15
Melbourne Business Park
Model Farm Road
Cork
T12 WR89

March 2023

Project	Environmental Impact Assessment Report Millennium Business Park			
Client	Starrus Eco Holding Ltd			
Report No	Date	Status	Prepared By	Reviewed By
221381901	19/12/2022	Draft Client Review		
	19/01/2023	Draft Rev A		
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221381901	06/03/2023	Final		

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1 INTRODUCTION

Starrus Eco Holdings Ltd (SEHL), trading as Panda and Greenstar, operates a Materials Recovery Facility (MRF) at Millennium Business Park, Ballycoolin, Dublin 11. This Environmental Impact Assessment Report (EIAR) examines the potential impacts and significant effects on the environment of a proposal to increase the annual waste intake at the facility

1.1 Development Overview

The facility operates under planning permission granted by Fingal County Council and an Industrial Emissions (IE) licence (W0183-01) granted by the Environmental Protection Agency (EPA), both of which authorise the acceptance and processing of 270,000 tonnes of non-hazardous municipal solid waste, commercial and industrial and construction and demolition waste. The facility operates 24 hours a day, seven days a week.

The majority of the wastes are processed to recover recyclable materials, which are sent to recycling plants, and to manufacture solid recovered fuel (SRF) and refused derived fuel (RDF), while the remainder of the wastes is compacted/bulked up to facilitate transport to other authorised facilities for additional treatment.

The EPA licence specifies the infrastructural and operational controls that must be implemented to ensure waste activities do not give rise to environmental pollution or nuisance/impairment of amenity outside the site boundary. A copy of the licence is in Appendix 1.1.

It is proposed to increase the annual waste intake from 270,000 to 450,000 tonnes. This is to accommodate the increasing amount of wastes arising from SEHL's customers, which is estimated to increase to 400,000 tonnes annually over the coming years and to provide contingency treatment capacity of 50,000 tonnes/year in the event of a disruption of the national recycling processing capacity and/or overseas thermal waste treatment plants.

The increased intake does not require either new buildings, or extensions to existing ones and does not involve any changes to the layout of external areas, with the exception of the provision of a new odour control system in one of the processing buildings. The existing current staff complement and the existing plant and equipment have the capacity to process the additional wastes and additional staff numbers and processing equipment are not required. The development will not result in any material change to the emissions associated with the permitted activities.

In addition to requiring planning approval, the current IE licence must be reviewed to accommodate the proposed increase in the annual waste intake.

1.2 Need for Environmental Impact Assessment (EIA)

The need for EIA derives from European Union (EU) Directive 85/337/EEC, as amended by Directives 97/11/EC 2003/35/EC, 2009/31/EC, 2011/92/EU and 2014/52/EU) on the assessment of the effects of certain public and private projects on the environment (EIA Directive).

The EIA Directive was initially transposed into Irish law by the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989), with subsequent amendments under the Planning and Development Regulations 2001 (SI No. 600 of 2001), as amended. The most recent amendment of the Directive was transposed by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI 296 of 2018).

The primary objective of the EIA Directive is to ensure that projects that are likely to have 'significant effects' on the environment are subject to an assessment of their likely impacts.

The Environmental Protections Agency's *Guidelines on the Information to be contained in Environmental Impact Statements May 2022* define a staged process to determine if a proposed project is subject to EIA.

An initial determination is required to establish if the project type falls into any of the activities listed in Annexes I and II of the EIA Directive, as transposed by Parts 1 and 2 of Schedule 5 of the Planning and Development Regulations 2001, as amended.

If it is not listed in the Annexes there is no statutory requirement for EIA, however regard must be had to the Directive's 'wide scope and broad purpose' and it may be necessary to go beyond the general project description and consider the component parts and/or any processes.

If any such parts or processes are significant and, in their own right, fall within a class of development covered by the Directive the proposed project as a whole may fall within the requirements of the Directive.

If a project is listed in Annexes I and II of the Directive, but is of a type where the need for EIA is based on a threshold, then it must be assessed against the thresholds specified in Part 2 of Schedule 5 of the Planning and Development Regulations. If the project exceeds the threshold EIA is mandatory.

The proposed development is of a type listed in Annexe II of the Directive - Installations for the disposal of waste (projects not included in Annex I), but is of a type where the need for EIA is based on a threshold. The threshold as specified in Class 11 (b) of Part 2 of Schedule 5 of the Planning and Development Regulations - Installations for the disposal of waste with an annual intake greater than 25,000 tonnes not included in Part 1 of this Schedule.

The project will be located entirely within the boundary of the existing facility that is already permitted to accept 270,000 tonnes of waste annually and for which an EIA was completed (PL 06F.202468). Therefore the relevant type is Class 13 (a)(ii) of Part 2 of Schedule 2, which states:

Any change or extension of development already authorised, executed or in the process of being executed (not being a change or extension referred to in Part 1) which would:-

> *(i) result in the development being of a class listed in Part 1 or paragraphs 1 to 12 of Part 2 of this Schedule (the existing development is within class 11b of Part 2) as discussed above), and*
>
> *(ii) result in an increase in size greater than 25 per cent, or an amount equal to 50 per cent of the appropriate threshold, whichever is the greater.*

The project will result in the acceptance of an additional 130,000 tonnes, which is more than 50 percent of the threshold (12,500 tonnes) and therefore an EIA is required.

1.3 Purpose of an EIAR

An EIAR is defined in the EIA Regulations[1] as '*a report of the effects, if any, which proposed development, if carried out, would have on the environment and shall include the information specified in Annex IV of the Environmental Impact Assessment Directive*.'

An EIAR is prepared by the developer and is submitted to a Competent Authority as part of a consent process. The Competent Authority uses the information provided to assess the environmental effects of the project and, in the context of other considerations, to help determine if consent should be granted. The information in the EIAR is also used by other parties to evaluate the acceptability of the project and its effects and to inform their submissions to the Competent Authority.

Article 5 of the EIA Directive requires that the information to be provided in the EIAR should at least include:

(a) a description of the project comprising information on the site, design, size and other relevant features of the project;

(b) a description of the likely significant effects of the project on the environment;

(c) a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;

(d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;

(e) a non-technical summary of the information referred to in points (a) to (d); and (f) any additional information specified in Annex IV relevant to the specific characteristics of a particular project or type of project and to the environmental features likely to be affected.

To ensure the completeness and quality of an EIAR it must be prepared by competent experts.

1.4 EIA Scoping

The objective of scoping is to identify the key areas of concern related to a project and identify those 'effects' that may reasonably be seen as 'likely'. 'Likely' effects are those are planned to take place (e.g. earth works, land take, building construction) and those that are the inevitable consequences of the normal operation of the project (e.g. emissions, traffic and resource consumption).

The scoping should also determine the need for evaluating reasonably foreseeable 'worst-case' scenarios. In the case of waste management facilities the 'worst case' is a large scale fire in the operational stage.

An EIA must assess the likely significant effects on the following:

(a) population and human health;

[1] http://www.irishstatutebook.ie/eli/2018/si/296/made/en/print

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape;

(e) the interaction between the factors referred to in points (a) to (d).

The effects must include the expected impacts associated with the vulnerability of the project to risks of major accidents[2] and/or relevant disasters.

O'Callaghan Moran & Associates (OCM) completed a scoping exercise based on the nature of the proposed development, the available baseline information on the subject site, and the feedback on the pre-application meetings held with the Bord.

As the proposed development does not involve land take, excavation and construction works or habitat disturbance, archaeological and ecological field surveys and ground investigations were not required.

Although under normal circumstances the annual waste intake will be 400,000 tonnes, the EIA addresses the contingency scenario of an annual intake of 450,000 tonnes.

1.5 EIAR Methodology

This EIAR presents an evaluation of the likely significant environmental impacts and applicable mitigation and monitoring measures associated with the construction and operation of the proposed development.

The EIAR addresses all of the aspects listed in Schedule 6 of the Planning and Development Regulations 2001 (SI No. 600 of 2001) (as amended), having regard to the requirements of Article 5(1) and Annex IV of Directive 2011/92/EU as amended by Directive 2014/52/EU (the EIA Directive).

The information contained in the EIAR complies with the requirements of Article 5 (1)(a) to (e), Article 3(1)(a) to (e) and Annex IV of Directive 2014/52/EU on the effects of certain public and private projects on the environment. The overall approach took into consideration the guidance and recommendations in the following:

- EPA *Advice Notes for Preparing Environmental Impact Statements (2003).*
- European Commission's *Environmental Impact Assessment of Projects - Guidance on Screening (2017).*
- European Commission's *Environmental Impact Assessment of Projects - Guidance on Scoping Report (2017).*
- European Commission's *Environmental Impact Assessment of Projects - Guidance on the preparation of the Environmental Impact Assessment Report (2017).*

2

- Government of Ireland *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018).*

- EPA *Guidelines on the Information to be contained in Environmental Impact Assessment Reports (May 2022).*

Additional legislation and guidance pertinent to the particular environmental factor under consideration is referenced in the relevant Chapters of this EIAR.

The assessment of the effects on climate and water included the implications for climate change. The assessment of impacts on biodiversity included an evaluation of the significance of effects on Natura 2000 Sites.

The effects on population and human health took into consideration the likely effects of traffic, noise, air quality impacts, major accidents and/or natural disasters and the existing local amenities.

The EIA Directive and transposing regulations do not generally require assessment of the need for a proposed development, land-use planning, demographic issues and detailed socio-economic analysis and the EPA Guidance (2022) states that this should be avoided in an EIAR, unless issues such as economic or settlement patterns give rise directly to specific new developments and associated effects[3]. Given the nature of the proposed development these aspects have not been considered.

The interactions between impacts on different environmental factors are addressed, as is the potential for the cumulation of many minor or significant effects, including effects of other projects to create larger and more significant effects.

To avoid repetition Chapter 3 is a detailed description of the Project Characteristics and in the subsequent Chapters only those aspects of the development that are relevant to the environmental factor being assessed are described[4]. Similarly, where as a result of interaction(s) between two or more factors there is a need for mitigation measures already described in detail in other Chapters these are cross referenced and not repeated.

The EIAR follows a grouped format structure, where each relevant topic is dealt with in a separate chapter that describes the baseline conditions (receiving environment), the direct and indirect significant impacts associated with the proposed activity, and the measures to avoid, prevent, reduce or, if possible, offset any identified significant adverse impacts and assesses the effects and the residual impacts.

1.6 Anticipation, Preventing, Avoiding and Mitigating Significant Effects

The anticipation of impacts is the most effective means of avoiding adverse effects when applied at the design stage of a project. This involves forming preliminary opinions, usually in the absence of complete data, on the approximate significance, magnitude, character, duration and type of the likely effects.

The anticipation of effects allows the exploration of potential ways to avoid them by sharing the preliminary opinions with the members of the project design team to facilitate changes to the proposed

[3] Section Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA 2022).

design and method of operation. Where significant adverse effects are likely to occur then alternative options must be evaluated to determine the combination that presents the best balance between avoidance of significant adverse environmental effects and achieving the project objectives.

Avoidance measures are identified through the consideration of alternatives e.g. site location, site layouts, technologies or operational plans and mitigation and any monitoring measures. Consideration of alternatives in the early design stages usually affords the greatest potential for avoidance of significant adverse effects.

1.7 Cumulation of Effects

Cumulative assessment provides the baseline for full environmental assessment of the potential effects arising from the proposed development in combination with other relevant plans and projects. The assessment of the cumulative impacts took into consideration the existing land use patterns, population, local infrastructure, environmental setting and the existing permitted activities in the vicinity of the subject site.

1.8 Assessment of Effects

Effects were assessed in terms of the likely natural or physical changes to the environment resulting either directly, or indirectly from the proposed development taking into consideration a 'baseline' scenario, cumulative effects and accidents. Effects are, where possible, described in terms of, quality, significance, extent & context, probability, duration and type listed in the EPA 2022 Guidelines[5]. Effects were also described in accordance with guidance relevant to the particular topic being assessed and where this occurs they are referenced in the Chapters.

Quality.

- Positive: A change which improves the quality of the environment (for example, by increasing species diversity; or the improving reproductive capacity of an ecosystem, or by removing nuisances or improving amenities).

- Neutral: No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.

- Negative: A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem; or damaging health or property or by causing nuisance).

Significance.

- Imperceptible: An effect capable of measurement but without significant consequences.

- Not Significant: An effect that causes noticeable changes in the character of the environment, but without significant consequences.

[5] EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022).

- Slight: An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.

- Moderate: An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends

- Significant: An effect which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment

- Very Significant: An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.

- Profound: An effect which obliterates sensitive characteristics.

Extent & Context.

- 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?).

Probability:

- 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.

Duration:

- Momentary seconds-minutes.

- Brief < 1day.

- Temporary <1 year.

- Short-term 1-7 years.

- Medium Term 7-15 years.

- Long Term 15-60 year.

- Permanent >60 years.

- Reversible effects that can be undone, for example through remediation or restoration.

- Frequency: how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly).

Type.

- Indirect: Impacts 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: The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects.
- Do Nothing: The environment as it would be in the future should the subject project not be carried out.
- Worst Case: The effects arising from a project in the case where mitigation measures substantially fail.
- Indeterminable: When the full consequences of a change in the environment cannot be described.
- Irreversible: When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
- Residual: The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
- Synergistic: Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of air pollutants to produce smog).

The significance of an effect was determined by a combination of objective (scientific) and subjective (social) concerns and the potential for the development to either have significant effect on an aspect of the environment that has been formally or systematically designated as being of importance, or to significantly alter the existing character of some aspects of the environment.

Prevention and mitigation measures and monitoring were only considered for those effects that were deemed likely to be significant.

1.9 Residual Impacts

Residual impacts are the final or intended effects that occur after the proposed mitigation measures have been implemented. It is not always either possible, or practical to mitigate all adverse effects. The effects that remain after all assessment and mitigation are the remaining environmental 'costs' of a proposed development that could not be reasonably avoided and are a key consideration in deciding whether a development should be permitted or not.

1.10 Consultation

A pre-application meeting was held with An Bord Pleanála on 6th October 2022. The proposed development was discussed in the context of the recent decision by the Board to grant permission (ABP – 310332-21) for an increase in the annual waste intake at the SEHL Panda facility at Cappagh Road, which is approximately 400 m south of Millennium Business Park.

The Board's representatives noted that the traffic assessment completed for the SEHL Panda Cappagh Road facility identified that one of the roundabouts was operating at overcapacity and that this should be taken into consideration. In relation to odour SEHL stated that the proposed development would include a negative air odour control system to mitigate odour issues that could arise due to the increased annual intake.

1.11 Project Team: Competent Experts

O'Callaghan Moran & Associates (OCM) were the prime consultants and, unless otherwise referenced, were responsible for the assessment of impacts. ORS Consulting Engineers completed the Traffic and Transport Assessment and prepared the site drawings. dBA carried out the noise assessment surveys. Katestone conducted odour dispersion modelling and completed an air quality and climate impact assessment.

OCM has twenty five years' experience in the completion of environmental impact assessments for large scale waste management, industrial, commercial, residential and renewable energy developments and has particular expertise geology, hydrogeology, hydrology, environmental risk assessment, waste management policy and regulation and the preparation of EPA licence applications.

The consultancy firms who prepared and or contributed to the Chapters are in Table 1.1, with details of the qualifications and experience of the individual competent experts provided in the relevant Chapters.

Table 1.1 Competent Experts

Chapter	Title	Prepared By	Contributor
1	Introduction	OCM	
2	Site Description	OCM	SEHL
3	Development Description	OCM	SEHL
4	Alternatives	OCM	
5	Climate	OCM/Katestone	Katestone
6	Land & Geology	OCM	
7	Water	OCM	
8	Biodiversity	OCM	
9	Air	OCM /Katestone	
10	Population & Human Health	OCM	dBA/ SEHL
11	Landscape & Visual Impact	OCM	ORS
13	Archaeology, Architecture & Cultural Heritage	OCM	
14	Materials Assets: Traffic & Transport	OCM/ ORS	
15	Interactions	OCM	
16	Summary of Mitigation	OCM	

1.12 Difficulties in Compiling the Required Information

Where difficulties were encountered in compiling the required information these are described in the relevant Chapters.

2 EXISTING SITE DESCRIPTION

2.1 Site Location

The site location is shown on Figure 2.1. It is in Millennium Business Park, which is one of a number of industrial estates in the area. The Business Park is accessed via Cappagh Road, which connects the M50 to the south and the N2 to the north.

2.2 Site History

2.2.1 *Planning*

Prior to development as a Business Park the lands had been used for agricultural purposes. In 2003, Fingal County Council (the Council) granted Celtic Waste planning permission (Ref F02A/1474) for the construction of the MRF and a Biological Treatment Plant.

The planning application included an Environmental Impact Statement and the permission approved the acceptance of 270,000 tonnes of waste annually. There was a first party appeal to An Bord Pleanála (PL 06F.202468) and the Bord issued its Decision in 2004.

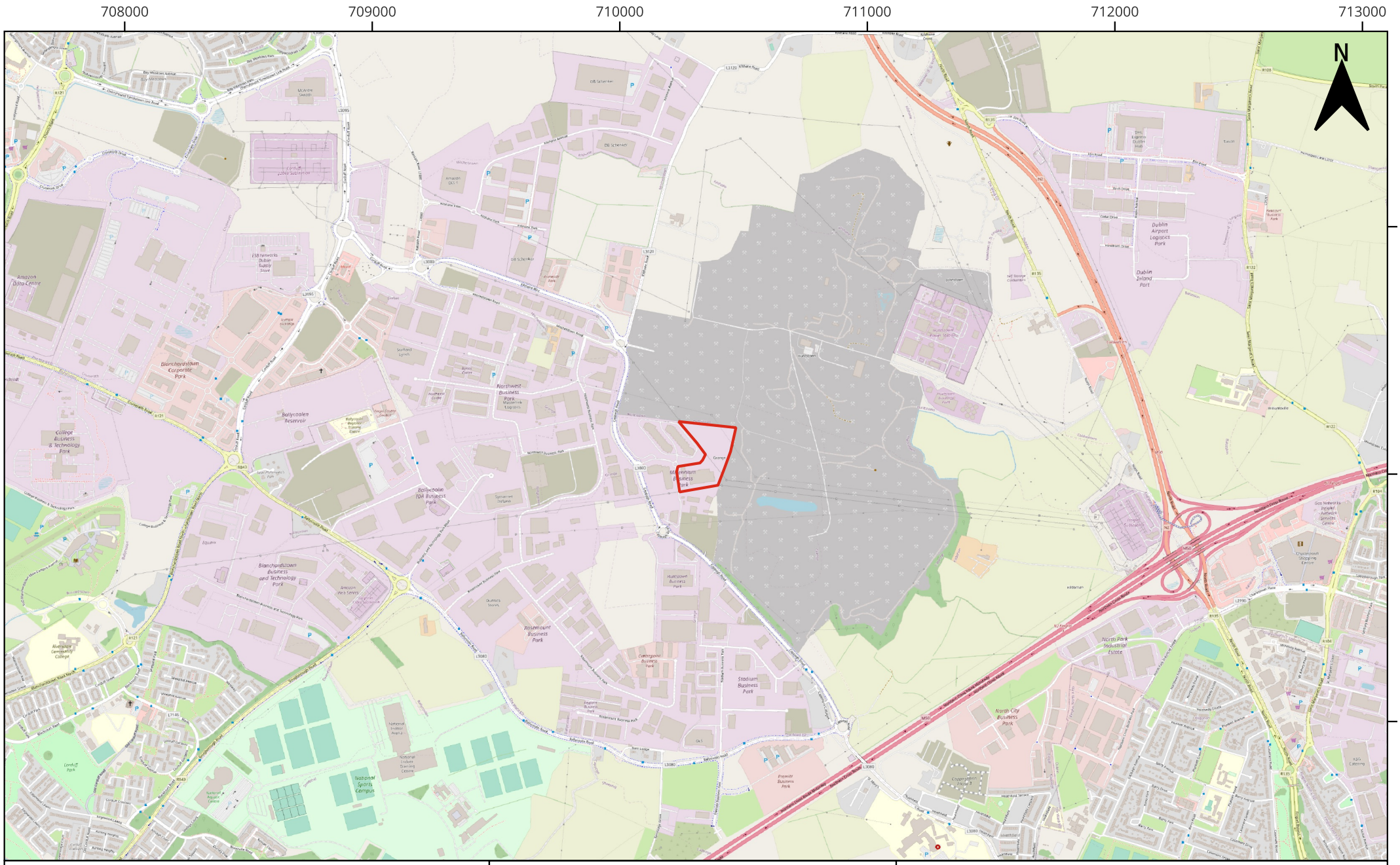
The Materials Recovery Facility (MRF) was constructed and waste operations began in 2006; however the Biological Treatment Plant was not built. In 2006 the Council granted permission (F05A/1764) to erect two high level signs at the facility. In November 2008, the Council granted permission (F08A/0980) for two temporary portakabins for office and storage use, and a separate permission (F08A/0981) for a vehicle maintenance building.

In April 2018, the Council granted permission (FW18A/0016) to install roof mounted solar panels on the MRF. In September 2018, permission (FW18A/0079) was granted for the development of a single storey recycling building in the footprint of the Biological Treatment Plant building and to operate 24 hours a day, 7 days a week. This was constructed and operations began in June 2020. In May 2022, permission (FW/22A/0016) was granted to retain the building constructed under FW/18A/0079 and to install a storm water attenuation system.

In 2021 the facility accepted 304,180 tonnes, which exceeded the permitted annual intake. The exceedance of the annual intake limit was due to shortfall in waste handling capacity in the Dublin Region following a fire in another large scale materials recovery facility in January 2021. This was regularised by way of a Section 56 Notice, under the Waste Management Act, and subsequently the exempted development provisions under the Planning and Development Act 200 (as amended) and the Planning and Development Regulations 2001 (as amended).

2.2.2 *EPA Licence*

The EPA issued a Waste Licence to Greenstar Ltd in April 2004. This limited the annual waste intake to 220,000 tonnes pending the construction of the Biological Treatment Plant and also restricted the operational hours. In February 2006, the EPA amended the licence (Technical Amendment A) to allow 24/7 operation.



O'Callaghan Moran & Associates

Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
email: info@ocallaghanmoran.com

Environmental Management for Business

CLIENT

Starrus Eco Holdings Ltd

TITLE

Site Location

DETAILS

Site Boundary

0 200 400 m

FIGURE 2.1

In 2006, the EPA amended the licence (Technical Amendment A) to allow 24/7 operation. The Licence was transferred to SEHL on the 4th March 2014 and in 2015 the EPA transitioned the licence to an IE licence.

In 2016, the EPA amended the licence (Technical Amendment B) to insert conditions regarding fire safety measures which were to apply to all licensed waste management facilities. In March 2020 the EPA amended the Licence (Technical Amendment C) to increase the annual waste intake to 270,000 tonnes and approving the operation of the new waste processing building.

In July 2021, SEHL applied to the EPA for a temporary increase in the annual waste input to 320,000 to address a shortfall in waste processing capacity in the Dublin region as the result of the fire at a major recycling plant in January 2021. The EPA refused the temporary increase, but as referred to above the exceedance of the annual waste intake limit in 2021 was regularised by way of a Section 56 Notice under the Waste Management Act

2.3 **Facility Layout**

The facility layout is shown on Drawing No. 211_066-ORS-ZZ-00_DR-AR-210. It covers 4.43ha and includes two waste processing buildings, one in the south of the site comprising two adjoining units (MP1 and MP2) with a total area of 4,388m^2 and one (MP3) in the north (4,226m^2); an administration building/staff amenity (625m^2); two weighbridges and associated control rooms; back-up generator; above ground bunded fuel tanks, paved open operational yards (5,170m^2); vehicle parking and a vehicle wash area. Overhead high voltage overhead power line runs from north-west to south-east through the centre and north east of the site.

2.3.1 *Buildings*

The building floor plans and elevations are shown on Drawing No. 211_066-ORS-Z1-ZZ-DR-AR-211 Drawing No. 211_066-ORS-Z1-ZZ-DR-AR-212, Drawing No. 211_066-ORS-Z1-ZZ-DR-AR-213 and Drawing No. 211_066-ORS-Z1-ZZ-DR-AR-214. MP1 & MP2 are single storey steel portal frames with reinforced concrete floors and 5m high surrounding concrete walls, above which is composite cladding. There are seven roller shutter doors at front and two at the rear. MP3 is a single story steel portal frame with a reinforced concrete floor and composite cladding on the side walls. There are nine designated storage bays, separated by 6m high reinforced concrete walls.

2.4 **Surrounding Land Use**

The surrounding land use is shown on Figure 2.2. The site is in the east of an area that has been extensively developed for commercial and industrial use. The lots to the west in the Business Park are occupied by commercial units and warehousing. To east and north is Huntstown Quarry. The lot to the south is occupied by a cement manufacturing plant and further south and south-west are the Stadium and Rosemont Business Parks. The SEHL Panda Cappagh Road MRF is approximately 400 m to the south. The nearest occupied dwelling is approximately 1km to the south.

A1

EXISTING SITE LAYOUT

SCALE 1:500

INFORMATION

REV NO:	DATE:	REVISION NOTE:	DWN BY:	CKD BY:
P01	21/02/2023	ISSUED FOR COMMENT	CB	CB
P02	03/03/2023	ISSUED FOR PLANNING	CB	CB

CLIENT:	STARRUS ECO HOLDINGS LIMITED (SEHL) TRADING AS GREENSTAR
PROJECT:	PROPOSED ODOUR ABATEMENT SYSTEM MILLENNIUM BUSINESS PK, CAPPAGH ROAD, TOWNLAND OF GRANGE, BALLYCOOLIN, DUBLIN 11
TITLE:	EXISTING SITE LAYOUT

DRAWN:	CHECKED:	APPROVED:	JOB NO:	REV:
CB	CB	OD	211_066	P02
DATE: 03/03/2023	SCALE: 1:500		DRAWING NO: 211_066-ORS-ZZ-00-DR-AR-210	

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Mullingar | Dublin | Galway | Donegal
T: +353 1 5242060 | W: www.ors.ie | E: info@ors.ie
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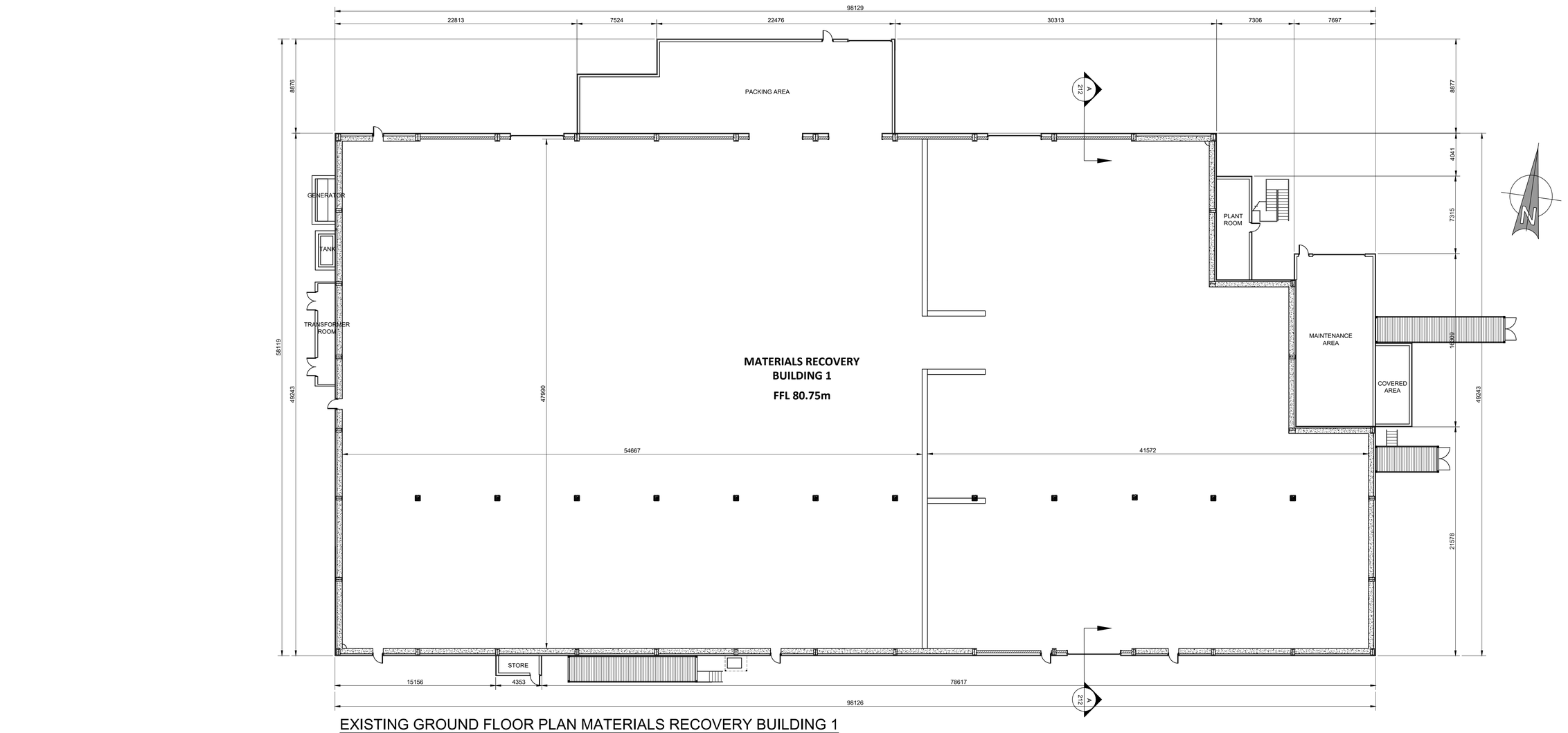
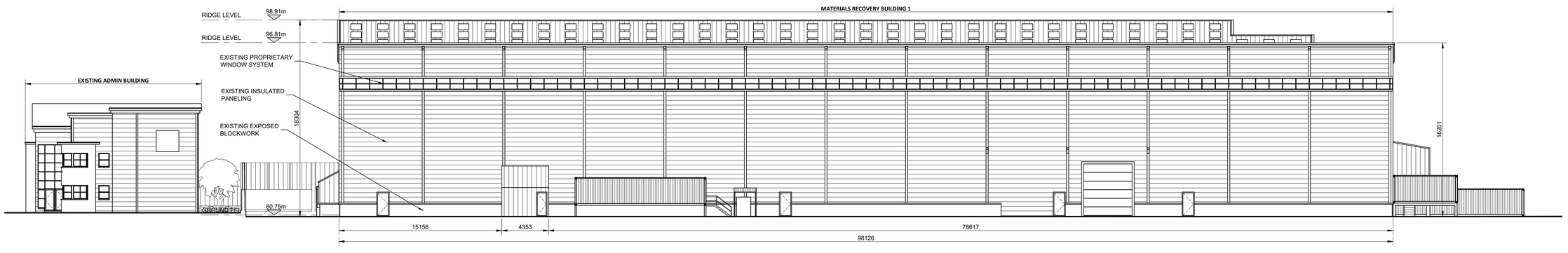


EXISTING GROUND FLOOR PLAN MATERIALS RECOVERY BUILDING 1

SCALE 1:200



EXISTING SOUTH ELEVATION MATERIALS RECOVERY BUILDING 1

SCALE 1:200

INFORMATION

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P01	21/02/2023	ISSUED FOR COMMENT	CB	CB
P02	03/03/2023	ISSUED FOR PLANNING	CB	CB

CLIENT:	STARRUS ECO HOLDINGS LIMITED (SEHL) TRADING AS GREENSTAR			
PROJECT:	ODOUR ABATEMENT SYSTEM MILLENNIUM BUSINESS PK, CAPPAGH ROAD, TOWNLAND OF GRANGE, BALLYCOOLIN, DUBLIN 11			
TITLE:	EXISTING GROUND FLOOR PLAN AND ELEVATION OF MATERIALS RECOVERY BUILDING 1			
DRAWN: CB	CHECKED: CB	APPROVED: OD	JOB NO: 211_066	REV: P02
DATE: 03/03/2023	SCALE: 1:200		DRAWING NO: 211_066-ORS-Z1-ZZ-DR-AR-211	

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Mullingar | Dublin | Galway | Donegal
T: +353 1 5242060 | W: www.ors.ie | E: info@ors.ie
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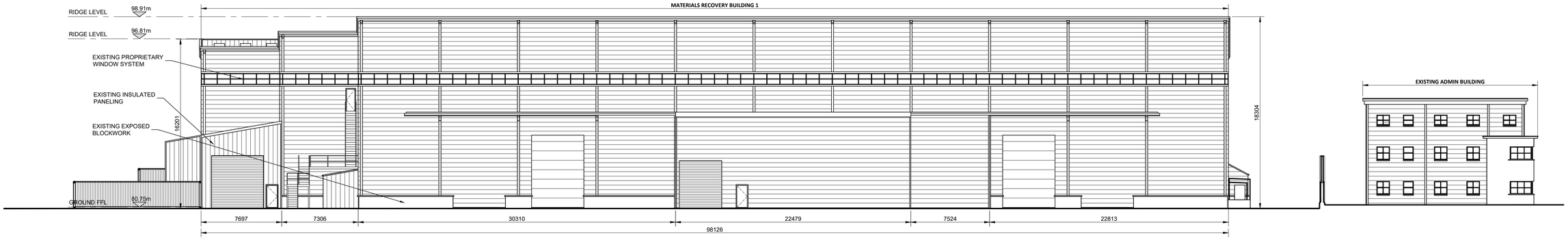
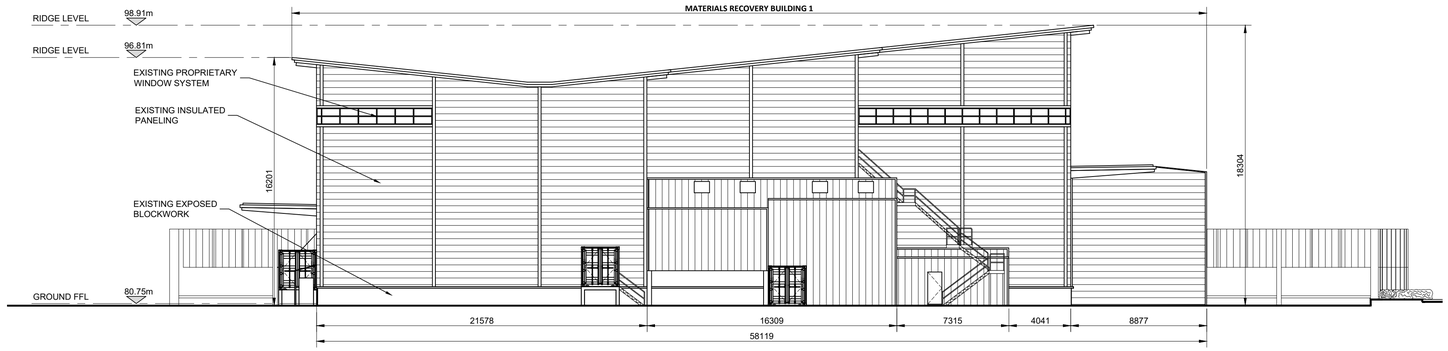
A1



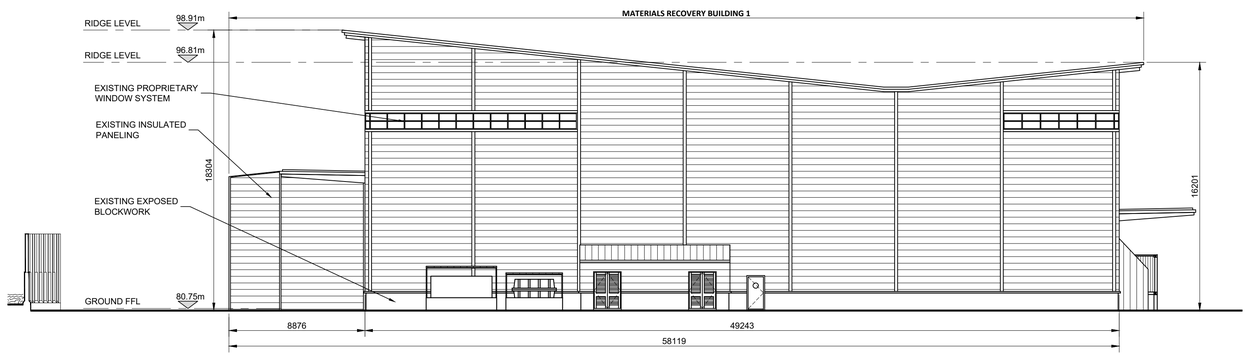
EXISTING NORTH ELEVATION MATERIALS RECOVERY BUILDING 1

SCALE 1:200



EXISTING EAST ELEVATION MATERIALS RECOVERY BUILDING 1

SCALE 1:200



EXISTING WEST ELEVATION MATERIALS RECOVERY BUILDING 1

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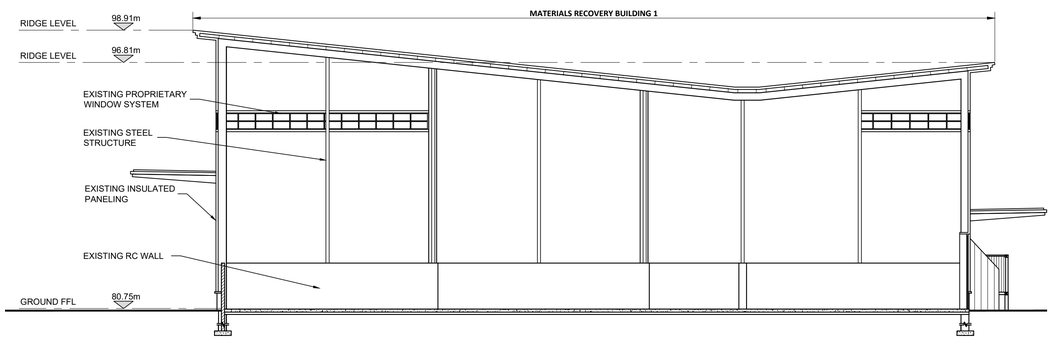

EXISTING SECTION A-A MATERIALS RECOVERY BUILDING 1

SCALE 1:200

INFORMATION

REV NO:	DATE:	REVISION NOTE:	DWN BY:	CKD BY:
P01	21/02/2023	ISSUED FOR COMMENT	CB	CB
P02	03/03/2023	ISSUED FOR PLANNING	CB	CB

CLIENT:	STARRUS ECO HOLDINGS LIMITED (SEHL) TRADING AS GREENSTAR			
PROJECT:	ODOUR ABATEMENT SYSTEM MILLENNIUM BUSINESS PK, CAPPAGH ROAD, TOWNLAND OF GRANGE, BALLYCOOLIN, DUBLIN 11			
TITLE:	EXISTING ELEVATIONS AND SECTION A-A OF MATERIALS RECOVERY BUILDING 1			
DRAWN: CB	CHECKED: CB	APPROVED: OD	JOB NO: 211_066	REV: P02
DATE: 03/03/2023	SCALE: 1:200		DRAWING NO: 211_066-ORS-Z1-ZZ-DR-AR-212	

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Mullingar | Dublin | Galway | Donegal
T: +353 1 5242060 | W: www.ors.ie | E: info@ors.ie
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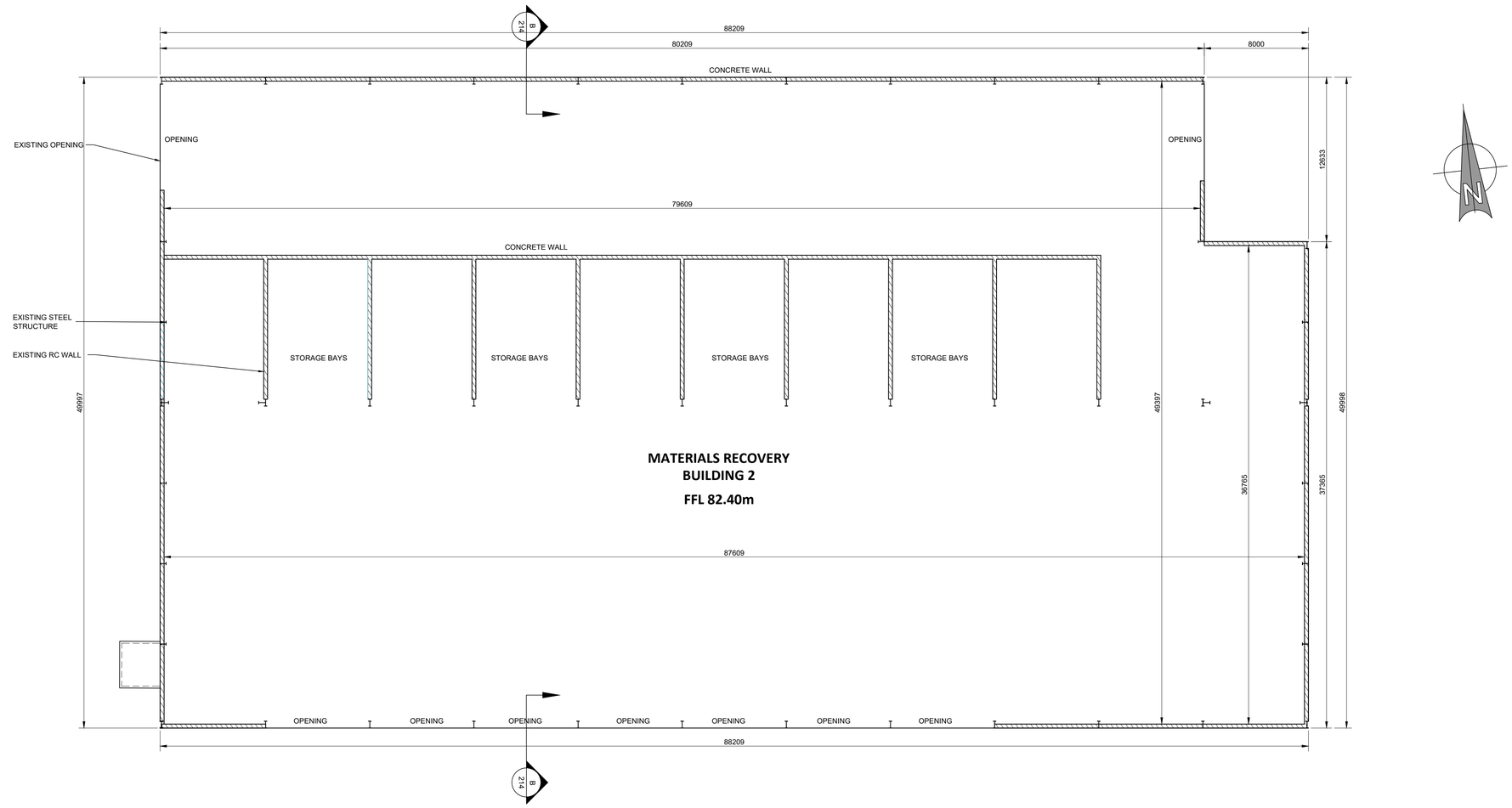
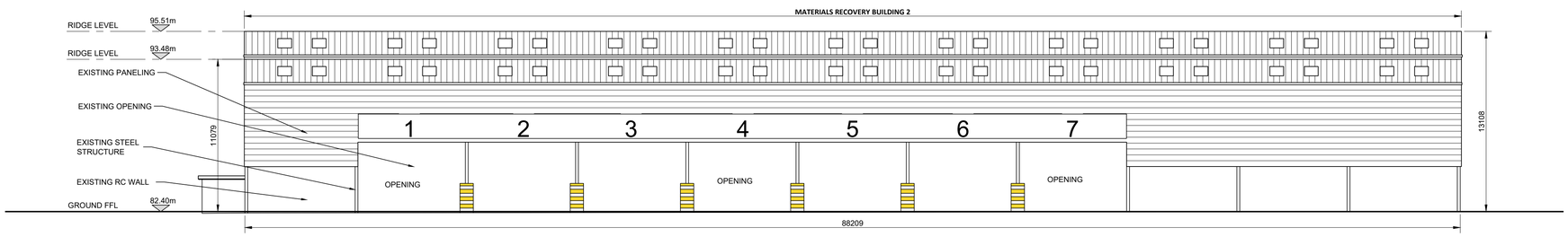


EXISTING GROUND FLOOR PLAN MATERIALS RECOVERY BUILDING 2

SCALE 1:200



EXISTING SOUTH ELEVATION MATERIALS RECOVERY BUILDING 2

SCALE 1:200

INFORMATION

REV NO:	DATE:	REVISION NOTE:	DWN BY:	CKD BY:
P01	21/02/2023	ISSUED FOR COMMENT	CB	CB
P02	03/03/2023	ISSUED FOR PLANNING	CB	CB

CLIENT:	STARRUS ECO HOLDINGS LIMITED (SEHL) TRADING AS GREENSTAR			
PROJECT:	ODOUR ABATEMENT SYSTEM MILLENNIUM BUSINESS PK, CAPPAGH ROAD, TOWNLAND OF GRANGE, BALLYCOOLIN, DUBLIN 11			
TITLE:	EXISTING GROUND FLOOR PLAN AND ELEVATION OF MATERIALS RECOVERY BUILDING 2			
DRAWN: CB	CHECKED: CB	APPROVED: OD	JOB NO: 211_066	REV: P02
DATE: 03/03/2023	SCALE: 1:200		DRAWING NO: 211_066-ORS-Z2-ZZ-DR-AR-213	

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T: +353 1 5242060 | W: www.ors.ie | E: info@ors.ie
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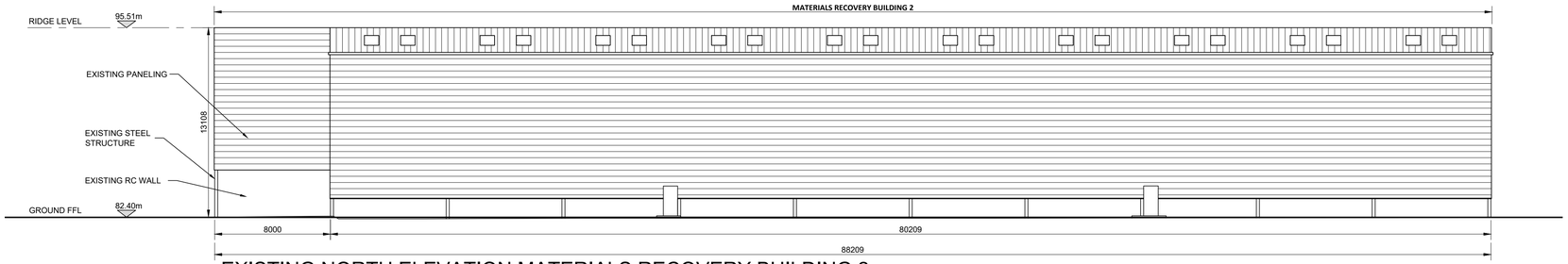

EXISTING NORTH ELEVATION MATERIALS RECOVERY BUILDING 2

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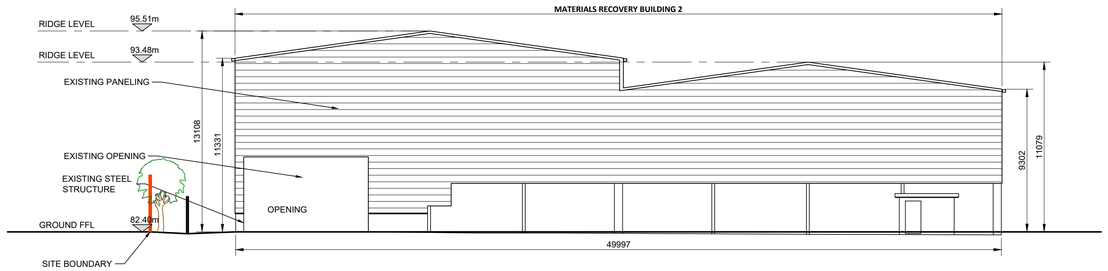

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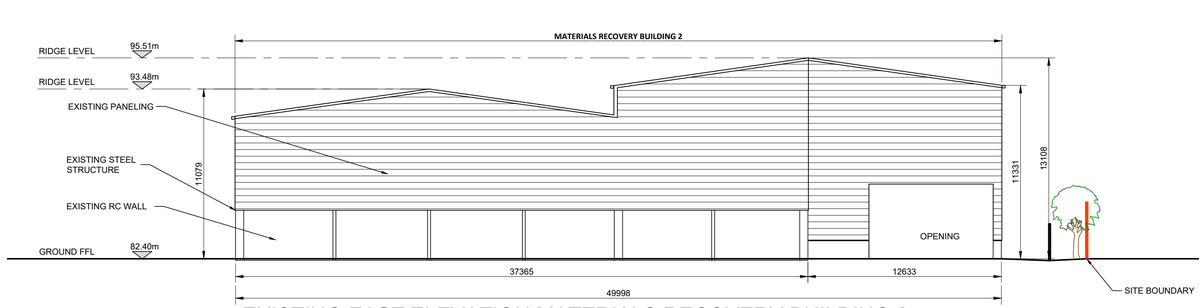

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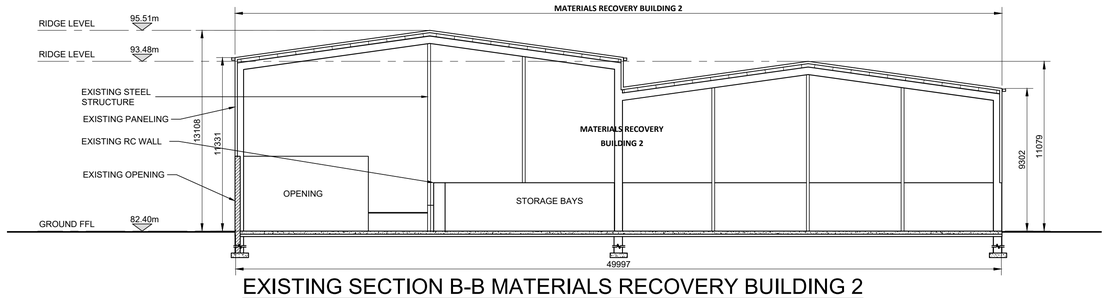


EXISTING SECTION B-B MATERIALS RECOVERY BUILDING 2

SCALE 1:200

INFORMATION

REV NO:	DATE:	REVISION NOTE:	DWN BY:	CKD BY:
P01	21/02/2023	ISSUED FOR COMMENT	CB	CB
P02	03/03/2023	ISSUED FOR PLANNING	CB	CB

CLIENT:	STARRUS ECO HOLDINGS LIMITED (SEHL) TRADING AS GREENSTAR			
PROJECT:	ODOUR ABATEMENT SYSTEM MILLENNIUM BUSINESS PK, CAPPAGH ROAD, TOWNLAND OF GRANGE, BALLYCOOLIN, DUBLIN 11			
TITLE:	EXISTING ELEVATIONS AND SECTION B-B OF MATERIALS RECOVERY BUILDING 2			
DRAWN: CB	CHECKED: CB	APPROVED: OD	JOB NO: 211_066	REV: P02
DATE: 03/03/2023	SCALE: 1:200		DRAWING NO: 211_066-ORS-Z2-ZZ-DR-AR-214	

ORS
Mullingar | Dublin | Galway | Donegal
T: +353 1 5242060 | W: www.ors.ie | E: info@ors.ie
ISO 9001:2015 QUALITY ASSURED COMPANY

O'Callaghan Moran & Associates

Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
email: info@ocallaghanmoran.com

Environmental Management for Business

CLIENT
Starrus Eco Holdings Ltd

TITLE
Surrounding Land Use

DETAILS

Site Boundary

500m radius

0 100 200 m

FIGURE 2.2

2.5 Road Network

The road network in the vicinity of the site is shown on Figure 2.3. The site is accessed off Cappagh Road, which connects the M50, approximately 1.3km to the south, with the N2 to the north.

Figure 2.3 Local and Regional Road Network (Google Earth).

2.6 Facility Management

The Facility Manager, who has the appropriate training and experience as required under the IE Licence, is responsible for day-to-day facility operations. All facility personnel are provided with appropriate training and have the requisite qualifications and experience to complete their assigned tasks.

SEHL implements an Integrated Management System (IMS) in accordance with the requirements of International Standard Organisation (ISO) 14001 Environmental Management System and Occupational Health and Safety Assessment Series (OHSAS) 18001:2007 and, at a site specific level has prepared and effectively implemented documented procedures and instructions in accordance with the requirements of both the OHSAS 18001:2007, ISO 14001 and the EPA licence.

2.7 Operational Hours & Staffing

The facility operates 24 hours a day, 7 days a week and there are approximately 30 full time staff comprising management, administration and general operatives.

2.8 Waste Types and Quantities

The planning permission and IE licence authorises the acceptance for 270,000 tonnes of non-hazardous Municipal, Commercial, Industrial and Construction & Demolition wastes.

2.9 Waste Acceptance

SEHL has, in accordance with the EPA licence requirements, prepared documented waste acceptance procedures. All incoming waste is subject to a documented waste acceptance procedure. Wastes are delivered by waste collectors that have up to date Waste Collection Permits or are deemed exempt. Wastes are not accepted from either members of the public, or commercial waste collectors that do not have a contract with SEHL.

All deliveries arrive in fully enclosed vehicles that are weighed in at the weighbridge road and the accompanying documentation is checked. The driver is then directed to the waste intake areas in the appropriate building.

2.10 Waste Processing

Municipal Solid Waste (MSW) Dry Mixed Recyclables (DMR), Brown Bin (food) waste), sterilised non-hazardous plastic medical waste and Solid Recovered Fuel (SRF) is accepted in the southern building (MP1 and MP2). Construction and Demolition (C&D) and Commercial & Industrial (C&I) wastes are accepted in the northern building (MP3).

The MSW is off loaded in MP2 where it is inspected for contamination and unsuitable materials are moved to a quarantine area. The materials are then processed to remove the organic, metal fraction and recoverable 'lights' (plastics). Metals are sent for recycling, organic fines fraction sent for composting. The recoverable 'lights' are sent to the SRF production line in MP1. The residue, which contains some putrescible matter, is suitable for use as refuse derived Fuel (RDF) and is baled in an on-site baler and stored externally.

The sterilised medical waste is off loaded inside MP1, inspected and then loaded into the granulator which produces a granulated 'floc' that is sent to the SRF production line. The SRF is stored pending onward transfer to incinerators or cement kilns in Ireland and abroad where it is used as a fuel.

The operators of the Irish incinerators and kilns require the SRF to be delivered loose, whereas for export the SRF must be baled. The incinerators/ kilns regularly close down for maintenance and when this occurs the SRF that is delivered to the facility along with that produced on-site is baled in the-onsite baler to facilitate longer term storage.

The Brown Bin waste is off loaded in a dedicated area inside MP2. Currently the Brown Bin waste is not processed, but is bulked up and sent off-site to authorised biological treatment plants. The DMR is off loaded in MP 1, where it is temporarily stored before being loaded into articulated trailers and sent off-site for further treatment at authorised facilities.

The C&I and C&D waste is handled in the northern building (MP3). The waste are off loaded in dedicated bays and are initially sorted using a mechanical grab to remove large items such as timber, metal and oversized light materials, which are removed to other storage areas in the building. The segregated materials are stored pending consignment to authorised treatment plants for further processing.

2.11 Plant & Equipment

The type of fixed and mobile plant and the processing capacities are listed in Table 2.1 and Table 2.2. SEHL implements a preventative maintenance programme to ensure plant items operate efficiently and to minimise the risk of break-downs. Critical spares are maintained in the workshop in MP2.

Table 2.1 Fixed Plant & Equipment

Item	Processing Capacity Tonnes/Hour
M & J Shredder M & J Shredder Lindner Shredder	20 tonnes per hour (C& I) 40 tonnes per hour (MSW) 25 tonnes/hour
1 Trommel	60 Tonnes per hour
3 Overband Magnets 3 Eddy Current Separators 1 Density Separator	15 Tonnes per hour 30 Tonnes per hour 50 tonnes per hour
1 Optical Sorter	20 tonnes per hour
1 Ballistic Separator r	30 Tonnes per hour
Plastic Granulator	70 tonnes per hour
Baler	720 Tonnes per day

Table 2.2 Mobile Plant

Item	Processing Capacity (Tonnes/Day)
4 Grab Handlers	400
3 Forklifts	900 Each
2 360^0 Excavator	500
3 Front End Loaders	8,640
1 Road Sweeper	

2.12 Materials Storage

Recovered materials are stored inside and outside the buildings in accordance with a Materials and Waste Storage Plan agreed with the EPA, a copy of which is in Appendix 2.1. The Plan takes into consideration the EPA Guidance Note: Fire Safety at Non-Hazardous Waste Transfer Stations, (2013) and the EPA Guidance on Fire Risk Assessment for Non-Hazardous Waste Facilities, 2016. Any proposal to extend external storage areas must be approved in advance by the EPA.

The wastes stored inside the buildings include unprocessed and processed materials of which there is a maximum of 2,270 tonnes at any one time. The wastes stored outside are baled SRF/RDF, tyres, waste electronic and electrical equipment (WEEE), rubble and plastic. The maximum amount of waste stored externally any one time is 6,500 tonnes, which includes 6,200 tonnes of SRF/RDF bales.

2.13 Waste Arising

The wastes arising from the operation of the facility include:

- Office waste including miscellaneous electrical and electronic items and light bulbs;
- Canteen waste from staff welfare facilities;
- Waste oils from plant and equipment maintenance;
- End of life plant and equipment
- Wash water from the vehicle wash, and
- Sanitary wastewater.

All solid wastes are processed on site. Waste oils are sent off-site for treatment at an appropriately authorised waste management facility. End of life plant and equipment items are sent to a metal recycling facilities. The washwater from the vehicle wash and sanitary waste water discharge to the foul sewer.

2.14 Services

The site has connections to the Irish Water mains supply and foul sewer, electricity supply and telecoms systems.

2.14.1 *Water Supply*

Potable water is obtained from the mains supply. Water is also abstracted from an on-site well for use in dust suppression in the paved yards during dry weather.

2.14.2 *Foul Water*

Wash water from the vehicle wash is discharged to the foul sewer serving the Business Park. Sanitary wastewater is discharged directly to foul sewer serving the Business Park. Rainwater run-off from areas

of open yard that are susceptible to contamination is discharged to the foul sewer via a silt trap and oil interceptor.

2.14.3 *Surface Water Drainage*

The current drainage system is shown on Drawing No 21-138-17-01. The southern part of the site was constructed in 2004 and comprised Phase 1 of the overall permitted development and involved the construction of the processing building (MP1 and MP2) and yards in the southern part of the site.

The storm water drainage system was designed to direct storm water run-off to the attenuation system serving the entire Millennium Park, with the additional provision of on-site storm water attenuation measures, comprising an underground storage tank that in addition to controlling the flow rate would also provide 'grey water'.

Rainwater run-off from building roofs and open areas where waste are not stored was discharge to the storm sewer serving the Business Park. Run-off from the area where vehicles are refuelled passes through a silt trap and Class I Oil interceptor. Run-off from open areas where waste are stored was directed to the foul water sewer serving the Business Park.

In 2013, contamination was detected in the storm water discharge. As part of the investigation SEHL contacted the Millennium Business Park Management Company which is responsible for maintaining the storm and foul water drainage systems serving the Business Park. The Management Company who informed it that there was a problem with the flow in the sewer system serving the Business Park, which was causing back flow into the facility resulting in contamination at the monitoring locations.

Responsibility for addressing the drainage problems rests with the Management Company and, pending the resolution, the surface water run-off from the site was diverted to the foul sewer. Therefore there are currently no emissions to surface water; however it is intended to recommence emissions to the storm sewer serving the Business Park once the Management Company has resolved the drainage problems.

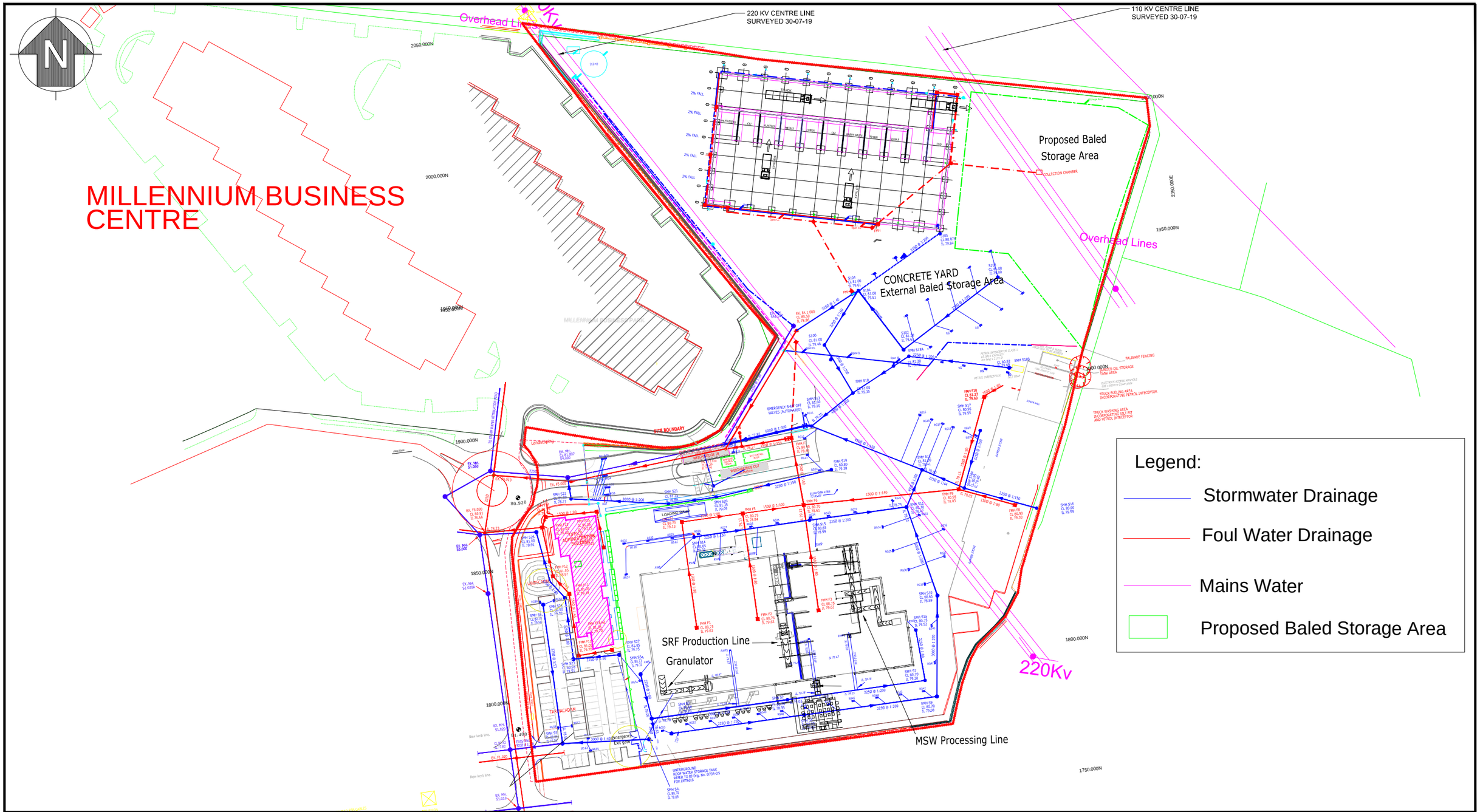
Phase 2 of the permitted F02A/1474 was not constructed. In 2022 FW/22A/0016 approved the retention of MP3 in the north of the site and the installation of additional storm water attenuation capacity. The drainage system designed in accordance with the principles of Sustainable Urban Drainage Systems (SuDS).

An attenuation tank designed to store a 1:100 year storm event will be installed. It will have a 2,391m^3 storage capacity, which includes a 10% allowance for climate change. The greenfield run-off rate for the site is 6.36 litres/second (l/s) and the out flow from the tank will be restricted to this rate.

A silt trap and full retention interceptor will be installed up stream of the attenuation tank. The outfall from the tank will connect to the a silt trap and existing 900mm surface water drainage pipe at the eastern entrance of the site, once the drainage issues in the Business Park have been resolved. Pending this the run-off will continue to be discharged to the foul sewer.

2.14.4 *Electricity*

SEHL has been granted planning permission to install roof mounted solar panels on two of the building roofs, which when installed will reduce reliance on non-renewable power sources.



O' Callaghan Moran & Associates.
Unit 15 Melbourne Business Park
Model Farm Road, Cork, Ireland.
Tel. (021) 4345366
email: info@ocallaghanmoran.com
environmental management for business

CLIENT

Starrus Eco Holdings Ltd

FIGURE No.

21-138-17-01

TITLE

External Storage/Granulator and SRF Line

Project

Specified Engineering Works

Date

08.03.21

2.14.5 *Natural Gas*

There is a connection to the national gas grid and the offices are heated using a gas fired boilers

2.15 Oil/Battery Storage

A self-bunded 5,000 litre diesel tank is located to the south of the weighbridge for fuelling the mobile plant. A self-bunded 2,500 litre diesel tank is located in the north of the site. The back-up generator at MP2 has an internal 2,500 litre diesel storage tank. Hydraulic and engine oils are stored on bunded pallets in the maintenance shop in MP2.

Batteries are not processed on the site but arrive in the waste streams such as MSW and bulky/skip waste. These are removed to a quarantine area and stored temporarily in 'Battery Bins' before being removed to a suitable licensed facility.

2.16 Resource Consumption

The waste fixed waste processing plant, the offices, staff welfare facilities and yard lighting use electricity. There is a natural gas fired heating system in the offices. The mobile plant are diesel fuelled, as are the vehicles that transport materials to and from the site.

Waste processing requires significant energy inputs and energy costs are a significant component of the business overheads. The SEHL ISO 14001 EMS requires regular reviews of energy efficiencies at the operational facilities. In addition SEHL has a policy of engaging with plant and equipment suppliers to ensure that only the most energy efficient are procured and is committed to complying with the requirements of the European Commission's Reference Document on Best Available Techniques (BAT) for Energy Efficiency.

2.17 Emissions

2.17.1 *Noise*

The waste processing is a source of continuous noise emissions. Waste transport vehicles, staff private cars and the mobile plant are sources of intermittent emissions occurring during the waste acceptance and processing hours. Condition 5.5 of the IE licence stipulates that there shall be no clearly audible tonal component or impulsive component in the noise emissions from the activity at the noise sensitive locations.

2.17.2 *Surface Water*

Prior to the drainage problems in the Business Park the emissions to surface water comprised rainwater run-off from the building roofs and yards. This was weather dependent and periodic. Condition 5.4 of the IE licence specifies the following emission limits for the discharge to the storm water sewer:

- Biochemical Oxygen Demand (BOD) 25 milligrams/litre (mg/l)
- Suspended Solids 35mg/l

- Mineral Oils 5mg/l

2.17.3 *Foul Sewer*

Sanitary wastewater, wash water from the vehicle wash and rain water run-off from the entire site discharges to foul sewer. This is periodic, depending on operations and the weather. Table 2.3 lists the emission limit values specified in Schedule C3 of the licence for a range of pollutants present in the wastewater discharge.

Table 2.3 Foul Sewer Discharge Limits

Parameter	Emission Limit Value		
	Grab Sample (mg/l)	Daily Mean Concentration (mg/l)	Daily Mean Loading (kg/day)
BOD	6,000	5,000	50
COD	12,000	10,000	100
Ammoniacal Nitrogen	100	70	0.7
Suspended solids	2,500	2,000	20
Sulphate as (SO_4)	1,000	1,000	10
PH	6-10	6-10	-
Temperature	42°C	42°C	-
Detergents	100	100	1.0
Fats, Oils & Greases	100	100	1.0
Phosphates (as P)	100	100	1.0

2.17.4 *Air*

The MSW and Brown Bin wastes are sources of odours. The plastics granulator is a source of dust generation inside MP1. In dry weather, vehicles travelling across paved areas are a potential source of dust emissions. Vehicle and mobile plant exhausts contain a range of compounds that affect air quality, for example carbon monoxide, methane, carbon dioxide, and particulates.

2.17.5 *Ground & Groundwater*

There no direct or indirect emissions to ground and groundwater.

2.18 **Emission Controls**

The EPA licence specifies the emission controls that SEHL is obliged to implement to ensure operations do not cause environmental pollution and do not give rise to nuisance or impairment of amenity outside the site boundary. The controls are based on the requirements of the European Union BAT Reference Document for Waste Treatment (2018.).

2.18.1 *Noise*

All waste reception and processing is carried out inside the buildings. The plastic waste granulator in MP1 is housed in an acoustically screened area with mass concrete walls on two sides and insulated panels on the other two. The roof of the screened area is also fitted with insulated panels.

2.18.2 *Surface Water & Groundwater*

Condition 8.3 of the EPA licence requires SEHL to have an adequate supply of containment booms and/or suitable absorbent material on-site to contain and absorb any spillage at the facility. Once used the absorbent material must be disposed of at an appropriate facility

Condition 3.11 requires that all tank and drum storage areas must be impervious to the stored materials and that all storage areas be bunded, either locally or remotely, to a volume not less than the greater of the following:

a) 110% of the capacity of the largest tank or drum within the bunded area; or

b) 25 % of the total volume of substance, which could be stored within the bunded area

2.18.3 *Air*

2.18.3.1 Dust

Waste processing is and will continue to be located inside the buildings. The granulator is fitted with two dust cyclone collection units, installed in compliance with Condition 3.15.3 (iii) of the EPA licence, that effectively control the dust emissions. SEHL cleans the paved yards and building floors regularly using a road sweeper and damps down the yard using hoses in dry periods.

2.18.3.2 Vehicle Exhausts

The diesel fuelled heavy goods vehicles based at the facility are fitted with Selective Catalytic Reduction (SCR) systems. A diesel fuel additive (AdBlue) is used in the SCR to reduce the nitrous oxide levels in the exhaust gases.

2.18.3.3 Odours

The only wastes accepted at the facility that are a significant source of malodours are the mixed solid waste and brown bin waste, which are handled and stored in MP1. SEHL has prepared an Odour Management Plan (OMP) that specifies the control measures that are implemented to ensure operations do not cause off-site odour nuisance. A copy of the current OMP is in Appendix 2.2. The control measures include:

- Fast turn-around times for the wastes prevents the accumulation of large volumes of odour generating waste. Condition 6.5.1 of the EPA licence requires that “all waste for disposal to be removed from the facility within forty eight hours of its arrival at the facility”;

- All ‘brown bin’ waste is bulked up and transferred as soon as possible to designated facilities for processing. The segregated fractions from the MSW processing line are sent off-site to their destinations as soon as possible after processing;

- At any one time there is a maximum of 200 tonnes of MSW and 100 tonnes of’ brown bin’ waste inside the building;

- Weekly cleaning of all bays where MSW and’ brown bin’ waste is stored;

- Fast acting doors on the entrances to MP2 that minimise the door opening times when vehicles enter and leave the building, and

- A mobile odour neutralising atomiser is maintained at the site and deployed in the event of extended periods of warm weather or if a particularly odorous load is delivered.

2.18.4 *Nuisance*

SEHL implements the nuisance control measures specified in the EPA licence to mitigate the impacts of litter, pests and vermin and minimise the risk of site activities being a source of nuisance to neighbours and members of the general public.

2.19 **Environmental Monitoring**

SEHL conducts the environmental monitoring programmes specified in Schedules B and C of the EPA licence to assess the significance of emissions from site activities. The programmes includes surface water, noise and dust monitoring. Further details on the scope and the results are provided in the following Chapters when discussing the receiving environment.

2.20 **Safety and Hazard Control**

SEHL has adopted an Accident Prevention Policy and has prepared a Safety Statement for the site that makes provision for hazard identification and risk assessment. All personnel and visitors are obliged to comply with site guidelines regarding access to and from the facility and on-site traffic movement. All site personnel are provided with and are obliged to wear, personal protective equipment (PPE) appropriate for their particular functions. PPE includes facemasks, gloves, safety glasses, steel-toed footwear, overalls, reflective jackets and helmets.

2.21 **Accidents and Emergencies**

An emergency is an accident/incident that has the potential to result in harm to human health, damage to off-site assets and give rise to environmental pollution. The EPA licence requires SEHL to prepare an Emergency Response Procedure (ERP) and ensure that all staff are made aware of their requirements. A copy of the current ERP is in Appendix 2.3.

The ERP identifies all potential hazards at the site that may cause damage to the environment and also specifies roles, responsibilities and actions required to deal quickly and efficiently with all foreseeable major incidents and to minimise environmental impacts.

SEHL has documented procedure on the handling and storage of potentially polluting substances used at the facility, e.g. oils and the filling of tanks and mobile plant. The procedure describes how filling the fuel storage tanks and refuelling/servicing the mobile plant should be carried out to minimise the risk of accidental spills and ensure that if these occur there is a rapid and effective response.

2.22 **Fire Safety**

SEHL has completed a site specific fire risk assessment and prepared a Procedure on Fire Prevention and Detection that takes into consideration the Agency's Guidance Note on Fire Safety at Non Hazardous Waste Sites and the UK Environment Agency's Technical Guidance Note TGN7-01 Reducing Fire Risk at Sites Storing Combustible Materials. The Fire Risk Assessment Report is in Appendix 2.4 and the principal elements are summarised below.

2.22.1 *General Prevention Measures*

Members of the public do not have access to the facility and only authorised personnel are permitted inside the waste processing buildings. Site visitors are informed of the safety and fire prevention procedures that must be followed while they are on site. There is a policy of only smoking in designated areas.

2.22.2 *Fire Spread*

To limit the spread of potential fires, wastes are stored in accordance with a Materials & Storage Plan prepared in accordance with EPA guidance and approved by the EPA. A copy of the current Plan is in Appendix 2.1. The Plan is a dynamic document that is subject to regular review and update. The Plan requires:

- Maximum height of waste stockpiles 4m and width/length 20m;
- 6m separation distance between combustible waste stockpiles;
- 6m separation distance between waste stockpiles and the site perimeter or adjacent infrastructure/materials, and
- Distances may be reduced by using fire walls or bays.

Fire walls and storage bays are utilised to separate processing areas in each building.

2.22.3 *Fire Detection Systems*

General fire detection and warning measures are maintained throughout the site. There are smoke detectors located in all indoor areas. MP 1 and MP2 are monitored by 24-hour Thermal Imaging CCTV.

2.22.4 *Fire Suppression*

There are 7 No on site fire hydrants located around the site. Fire extinguishers and hose reels are positioned at strategic locations recorded in Fire Register. The extinguishers are subject to annual inspection and replenishment/replacement as required by a fire safety contractor. There are seven fire hydrants located around that site in areas accessible by the Fire Service.

Site staff are trained to extinguish small fires with appropriate hand held fire extinguishers as per the site Fire Explosion Procedure. If staff members cannot tackle a fire safely and effectively, the evacuation of all personnel will be the primary priority. Emergency exit doors are provided in all of the buildings and fitted with emergency exit signs with back-up lighting.

2.22.5 *Firewater Retention*

An assessment of firewater retention requirements was completed in 2021 in accordance with the EPA's Guidance on Retention Requirements for Firewater Run-Off (2019) and a copy of the report is in Appendix 2.5. This identified the need for a retention capacity of 3,746m^3. The retention capacity can be achieved within the site boundary by the provision inter alia of a minimum 0.15m high perimeter containment kerb. SEHL has set up a programme to implement the recommended actions.

2.23 **Environmental Liabilities Risk Assessment**

SEHL has, as required by the EPA licence, completed an environmental liability risk assessment (ELRA) that assesses the environmental effects, including impacts on humans, of foreseeable incidents and worst case 'incidents and identifies the scope of the remedial measures to effectively mitigate those effects. The 'worst case' accident is a large scale fire. The current EPA approved ELRA is in Appendix 2.6. This will be revised and updated to take account of the operations in MP 3 and the increase in the annual waste intake, if permitted.

2.24 **Decommissioning**

Although the facility does not have a defined lifetime, SEHL has prepared a Decommissioning Management Plan (DMP) for as required by Condition 10.6 of the IE licence. The Plan defines the scope of the decommissioning which includes the removal of all wastes and hazardous substances, clean out of all tanks and buildings, and disconnection of service

The Plan identifies the actions that will be taken to ensure that the decommissioning works will not cause environmental pollution and that when complete the site will not present any significant risk of environmental pollution. The Plan was submitted to and approved by the EPA and a financial provision has been agreed with the EPA to underwrite cost of an unexpected closure. A copy of the current DMP is in Appendix 2.7 and this will be revised and updated to take account of operations in MP3 and the increase in waste intake, if permitted.

3 PROJECT CHARACTERISTICS

3.1 Proposed Development

It is proposed to increase the annual waste intake from 270,000 to 450,000 tonnes. This is to accommodate the increasing amount of waste arising in the Dublin Region linked to population change and to provide for contingency treatment of wastes in the event of disruption to the national waste treatment capacity, including indigenous and overseas treatment facilities on which the country relies to meet its recycling and recovery targets.

The existing site infrastructure, plant and equipment, in combination with the permitted operational hours and existing staff complement, can accommodate an increase in the annual intake to 450,000 tonnes without any significant disruption to the preventative maintenance programmes required to maintain operational efficiencies.

Under normal circumstance the annual waste intake will be 400,000 based on current market trends. To avoid the reoccurrence of the 2019 and 2021 shortfalls in national waste treatment capacity due to the unexpected shut down of a waste to energy facility in the Netherlands (2019) and fire at the large recycling facility in Dublin (2021), approval is sought for the acceptance of an additional 50,000 tonnes as a contingency measure.

The existing plant and equipment have the capacity to accommodate 450,000 tonnes in the short term, supported by additional like for like plant items brought to site to provide back-up to allow the preventative maintenance programmes to continue. It is emphasised that under normal circumstances the maximum annual intake will be 400,000 tonnes and that the acceptance of 450,000 tonnes in one year is contingent on a major disruption to the national waste treatment capacity.

The proposed increased intake does not require either the construction of new buildings, or extensions to existing ones and does not involve any changes to the layout of external areas, with the exception of the provision of a new odour control system in one of the processing buildings. The existing current staff complement and the existing plant and equipment have the capacity to process the additional wastes and additional staff numbers and processing equipment are not required.

There will be an increase in traffic movements by the vehicles delivering and removing materials to the facility and in the first year of operation there will be no significant change to the types of the vehicles. In the short term (1-7 years) there will be a significant change as SEHL rolls out its programme of changing its waste collection fleet to compressed natural gas and electric fuelled vehicles.

The development will not result in any material change to the emissions from the waste processing, but there will be an increase in the direct and indirect greenhouse gas emissions associated with the increase in on-site fossil and fuel electricity consumption and the additional diesel powered vehicle movements to and from the facility.

3.2 Odour Control System

Although current operations are not causing off-site odour nuisance, as a precautionary measure due to the proposed increased in the volume of odorous waste accepted, an odour control system will be installed

The system will comprise a negative air extraction system and an odour control unit (OCU) consisting of a dust filter to remove dusts and a carbon filter to reduce odour levels, will be installed at MP1. Prior to the installation of the system the inside of the building will be cleaned and a thick foam spray applied to all cladding joints and other parts of the building fabric that could be susceptible to air leaks. Rapid action doors will be fitted to the vehicle access points. The objective is to achieve an air leakage rate of $< 2m^3/m^2/hour$

Air will be drawn from the building using one extraction fan and a system of internal ceiling mounted ducts provided with grills. The fan will have a flow capacity to achieve 2 air changes per hour. The air will pass through a jet pulse dust filter before entering the carbon filter. A damper will be fitted to the inlet of the unit to allow the air flow to be balanced. The treated air will vent to atmosphere via a single stack. The exhaust odour threshold concentration will be less than 1.5 odour units (OU_E/m^3).

The proposed design of the odour management system will comply with Best Available Techniques for Waste Management and will submitted to the EPA for its prior approval. The installation will be the subject of a Quality Assurance Plan to ensure it is installed and commissioned in accordance with the approved design parameters.

The OCU and associated air extraction ducting will be fabricated off-site and assembled on site. The assembly will not involve any concrete break out or excavation works.

3.3 Cumulation

3.3.1 *Scoping*

The cumulative impacts of existing and permitted developments within one kilometre zone of influence (ZoI) of the subject site were included in the assessment of the effects on Land & Soil, Air, and Population and Health. This ZoI was determined by the fact that such impacts are effectively mitigated by distance.

The ZoI for climate was defined by the national boundary given Ireland's binding commitments to meet national greenhouse gas emission targets. The ZoI of the Materials Assets: Traffic & Transport was defined by the consultation with the Bord.

The ZoI for Biodiversity and Water was determined by the viable pathways between the subject site and Natura 2000 Sites. The ZoI for the Landscape & Visual Impact Assessment was determined by the scale of the development and the public view points within the Business Park.

3.3.2 *Cumulative Projects*

A search of Fingal County Council planning website and An Bord Pleanála website identified a number of recently permitted developments in the vicinity of the site of relevance to the proposed development, including:

PA06F.310332 granted in July 2022 for an increase in the annual waste intake limit from 250,000 tonnes to 450,000 tonnes and continued extension of operational hours at the SEHL Panda Materials Recovery Facility at Cappagh Road, and

FW21A/0111 granted in April 2022 for a HGV parking and tanker washing facility at Cappagh Corporate Park.

FW22A/0066 granted in July 2022 for the construction of a high technology manufacturing unit in Northwest Logistics Park

FW22A/0038, granted in August 2022 for the construction of a warehouse logistics unit in Blanchardstown

4 ALTERNATIVES

4.1 Introduction

This Chapter describes the reasonable alternatives to the proposed development that were considered, including location, site layout and drainage systems and describes the likely baseline scenario of the evolution of the current state of the environment without the implementation of the project.

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4.2 Alternative Locations

The facility location is well suited for the treatment of waste to maximise recovery and recycling rates for the following reasons:

- The waste recovery activities are compatible with the land zoning and the current land use in the surrounding area;
- The current planning permission and IE licence already authorise the acceptance and processing of wastes;
- The existing infrastructure can accommodate the proposed increase in the annual waste intake, and
- Existing ground conditions (soil type/geology/hydrology) and distances from sensitive environmental receptors minimise the risk of unexpected emissions given rise to pollution

All of the other SEHL operated facilities in the Greater Dublin Region are operating at maximum capacity and cannot accommodate the additional waste volumes. The only alternative would be to acquire a new site, procure planning permission and an EPA licence and provide the required infrastructure and processing plant and equipment. This offers no environmental and economic benefits compared to the continued operation of the existing facility.

4.3 Alternative Layout, Design and Processes

The existing site layout and design and processes comply with best practice and facilitate the implementation of effective mitigation measures.

4.4 Alternative Prevention & Mitigation Measures

The prevention and mitigation measures described in the following Chapters comply with the regulatory requirements of the IE licence, are appropriate for the proposed development and represent best practice and therefore alternative measures were not considered.

4.5 Do Nothing

If the proposed development does not proceed the facility will continue to operate at an annual intake of 270,000 tonnes/year. There will be no expansion of waste treatment capacity to meet the projected demands of SEHL's customers in the Dublin region and no contribution to meeting national recovery and recycling targets and the national contingency waste treatment capacity.

An inability to meet customer demands due to limited treatment capacity presents a significant business risk to SEHL and impedes the achievement of national recycling and recovery targets. The absence of contingency capacity means that future disruptions to the waste market will have to be accommodated by the use of emergency provisions in the Waste Management and Planning and Development Acts.

5 CLIMATE

5.1 Introduction

This Chapter examines the potential effects of the proposed development on climate and the vulnerability of the development to the potential effects of climate change. It identifies the prevention and mitigation and monitoring measures that will be implemented to reduce the significance of the effects and assesses the residual potential impacts.

The Chapter was prepared by Mr. Jim O'Callaghan of OCM and Dr Micheal Fogarty of Katestone. Mr O'Callaghan has a BA (Mod) in Geography and MSc in Environmental Science. He is a Chartered Member of the Institution of Waste Management and a Chartered Environmentalist, with over thirty-five years' experience of environmental impact assessment including land use, climate change, appropriate assessment screening, socio-economics and visual impact assessment.

Dr Fogarty is a Senior Air Quality Consultant with 12 years of experience in Ireland and Australia. He holds a B.Eng, M.Eng and PhD from the UCD College of Engineering and Architecture. He specialises in the areas of air quality and odour impact assessment.

5.2 Relevant Legislation and Guidance

The legislation and guidance documents relating to EIA are listed in Section 1.5. The legislation and guidelines relevant to climate that were taken into account in the preparation of this Chapter include:

- European Commission (2019) 2030 Climate & Energy Framework.
- European Commission (2013) The EU Strategy on Adaptation to Climate Change.
- European Commission (2021) Communication from the commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Forging a climate-resilient Europe - the new EU Strategy on Adaptation to Climate Change.
- European Commission (2018) Revised Energy Performance of Buildings Directive (EPBD) (2018/844/EU).
- United Nations (1992) United Nations Framework Convention on Climate Change.
- United Nations (1997) Kyoto Protocol to the United Nations Framework Convention on Climate Change.
- United Nations (2016) The Paris Agreement 'Accord de Paris'. The United Nations Framework Convention on Climate Change (UNFCCC).
- United Nation (1992) United Nations Framework Convention on Climate Change. First steps to a Safer Future.

- DECC, (2013) National Policy Position on Climate Action and Low Carbon Development (National Policy Position) 2013.
- Department of the Environment, Climate and Communications (2017) National Mitigation Plan.
- Department of the Environment, Climate and Communications (2021) Climate Action Plan 2021 (DECC, 2021).
- Department of the Environment, Climate and Communications (2018) National Adaptation Framework (NAF).
- Department of the Environment, Climate and Communications (2015) Ireland's Transition to a Low Carbon Energy Future 2015-2030.
- Department of Environment, Heritage and Local Government (2016) Climate Action and Low Carbon Development Act 2015, as amended.
- Department of the Environment, Climate and Communications (2021), Climate Action and Low Carbon Development (Amendment) Act 2021 (Act 32 of 2021).
- European Commission (2009a) Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.
- EPA (2019) Integrating climatic factors into the strategic environmental assessment process in Ireland - A Guidance Note.
- Fingal County Council (2019) Climate adaption strategy 2019 – 2024.

5.3 **Methodology**

The methodologies used to calculate greenhouse gas (GHG) emissions associated with the proposed development are presented in this section including GHG emission from:

- The handling and processing of MSW at the proposed development
- The transportation of waste input materials and outgoing processed materials from the proposed development.

5.3.1 *Handling & Processing of MSW*

The methodology adopted involved:

- Assessing the MSW processing in Do-Nothing and Do-Something Scenarios
- Assigning a GHG emission factor to MSW for the Do-Nothing and Do-Something Scenarios
- Determining the difference in GHG emissions generated from MSW as part of the Do-Nothing and Do-Something Scenarios

In the do-nothing scenario all the additional MSW arising would be sent to waste-to-energy facilities in Ireland as:

- There would be no capacity to either handle or process the additional wastes in Dublin and to segregate materials and recover valuable waste streams from the MSW
- It is not possible to send MSW directly to landfill in Ireland as all landfills require organic waste to be biostabilised before it can be accepted.

In the do-something scenario the proposed development will facilitate the handling and processing of additional MSW to produce the following outputs:

- Refuse Derived Fuel (RDF) including:
  - SRF
  - RDF
- Separated Organic Fines
- Separated Metals
- Separated Glass
- Separated Wood.

The SRF goes to cement kilns as a source of fuel. The RDF is sent to waste-to-energy facilities. The separated organic fines go to composting facilities for biostabilisation. Separated metals and glass go to dedicated recycling facilities.

A review of literature was undertaken to determine a suitable emission factor for the waste streams under the Do-Nothing and Do-Something Scenarios. GHG emission factors for various types of household waste generated in Ireland in 2019 were sourced from The Carbon Footprint of Waste (Ireland) (ACRplus, 2021). These emission factors include emissions associated with the material category being:

- Generated
- Recycled
- Incinerated
- Landfilled

5.3.2 *Traffic*

The assessment was based on Design Manual for Roads and Bridges (DMRB) (Highways England, 2021), which provides a framework for assessing, mitigating and reporting the effects of motorway and all-purpose trunk road projects on climate.

The impact of a project on climate is initially determined by a scoping assessment that identifies if there is a need to undertake a detailed assessment of the potential effects of the project on climate. The

scoping is based on whether, in the operational stage, will roads meet or exceed any of the following criteria:

a) a change of more than 10% in the annual average daily traffic (AADT);

b) a change of more than 10% to the number of heavy goods vehicles; and

c) a change in daily average speed of more than 20 km/hr.

Where the answer to one or more of the scoping questions is 'yes', further assessment must be undertaken and the study area must be consistent with the affected road network (ARN) defined by the proposed development's traffic model.

The Air Quality Spreadsheet issued by the Highways Agency in England provides a tool for the calculation of emissions of carbon dioxide from road transport (Highways Agency, 2021). The latest version of the Spreadsheet is Version 8 (Highways Agency, 2021), which incorporates emissions derived from the Emissions Factor Toolkit Version 10.1 (DEFRA, 2020).

5.4 Development Description

Chapters 2 and 3 include a detailed description of the existing site and the proposed developments. The aspects relevant to Climate are:

- Impacts on climate in the operational phase linked to waste processing and the additional traffic, and.
- Impacts on the proposed development by the effects of climate change.

5.5 Receiving Environment

5.5.1 *Greenhouse Gas Emissions*

Ireland's Final Greenhouse Gas Emissions 1990-2020 (EPA, 2022) presents a detailed summary of national emissions for 2020 together with an overview of national emissions from 1990 until 2020. Ireland's national GHG emissions for 2020 were estimated to be 57,716 $ktCO2^{-e}$ (excluding Land Use, Land-use Change and Forestry or LULUCF) with 925.39 $ktCO_2eq$ (1.6%) attributable to the waste management sector.

In 2022, the EPA published a report entitled *Ireland's Greenhouse Gas Emissions Projections 2020-2040* (EPA, 2021), which provides an assessment of Ireland's total projected greenhouse gas emissions from 2020 to 2040, updated using the latest inventory data for 2020. The report also assesses Ireland's progress towards achieving its emission reduction targets for 2020 and 2030, as set out under the EU Effort Sharing Decision (ESD)[6] and Effort Sharing Regulation (ESR)[7].

Key findings include:

[6] Decision No 406/2009/EC of 23 April 2009 (EC, 2009)
[7] Regulation (EU) 2018/842 (EC, 2018)

- Implementation of "Additional Measures" (including those in the 2019 Climate Action Plan) is projected to save 58 Mt CO_2eq over the period 2021-2030 compared to the "With Existing Measures". This represents a reduction of 1.8% per annum in emissions over the period.

- These projections made in the report indicate that Ireland can meet its non-ETS EU targets over the period 2021 to 2030 assuming full implementation of the 2019 Climate Action Plan and the use of the flexibilities available. Future more ambitious targets, as presented in the European Climate Law and Ireland's Climate Bill, will require many (as yet unidentified) additional measures.

- Increased renewable electricity generation, including a projected 5 GW of offshore wind generation, is expected to make a 70% contribution of renewable energy in electricity generation by 2030. Energy industries emissions are projected to decrease by one third by 2030 compared to the most recent figures in 2019.

- The Covid-19 pandemic highlighted the need for homes to become far more energy efficient, particularly in the context of encouraging working from home. Implementing the 2019 Climate Action Plan measure for the installation of over 600,000 heat-pumps by 2030 as well as retrofitting 500,000 homes to a B2 equivalent building energy rating (BER) will help achieve this.

As well as defining legally binding emission reduction commitments, the Climate Action and Low Carbon Development (Amendment) Act (DECC, 2021) supports Ireland's transition to net-zero and the achievement of a climate neutral economy no later than 2050. It also establishes a legally binding framework, with clear targets and commitments, to ensure the necessary structures and processes are in place to deliver national, EU and international climate goals and obligations in the near and long term.

Given the increased ambition in the Climate Action Plan, significant additional measures have been introduced to achieve the level of change required to meet the 2030 target. The Climate Action Plan also assumes full implementation of the 2019 Plan and in the medium term, Ireland is still projected to meet its 2030 target under the Climate Action and Low Carbon Development (Amendment) Act.

The binding annual greenhouse gas emission target for Ireland under the ESR for non-ETS sectors is a reduction of 30% in emissions by 2030 compared to 2005 levels. This target will be amended following the European Council's decision to increase ambition from its existing EU-wide 2030 target of a 40% reduction to at least 55%, compared to 1990 levels. Annual greenhouse gas emissions for non-ETS sectors were 47,869 Mt CO_2 eq in 2005 (SEAI, 2021). Ireland's obligation under the ESR is a greenhouse gas emission target for non-ETS sections of 33,508 kt CO_2 eq in 2030.

The binding annual greenhouse gas emission target for Ireland under the Climate Action and Low Carbon Development (Amendment) Act is a reduction of 51% in emissions by 2030 compared to 2018 levels. Annual greenhouse gas emissions for Ireland were 60,242 kt CO_2 eq in 2018 (comprised of 13,441 kt CO_2 eq of ETS emissions and 46,801 kt CO_2 eq of non-ETS emissions). According to Ireland's obligation under the Climate Action and Low Carbon Development (Amendment) Act Ireland's greenhouse gas emission target is 29,886 kt CO_2 eq in 2030.

The baseline greenhouse gas emissions for the assessment were taken from EPA (2022) and are presented in Table 5.1. The projected figures do not take into consideration the effects of the measures required by the Climate Action and Low Carbon Development (Amendment) Act.

Table 5.1 Baseline Greenhouse Gas Emissions.

Projected emissions	Year	non-ETS emissions (kt CO_2-e)	Total emissions (kt CO_2-e)
Projected emissions (with existing measures)	2024	42,991	61,727
Projected emissions (with additional measures)	2024	40,044	56,897
Projected emissions (with existing measures)	2039	42,067	62,650
Projected emissions (with additional measures)	2039	33,226	50,623

5.5.2 *Climate Vulnerability*

In addition to the impact of the proposed development on climate change as a result of greenhouse gas emissions, its potential vulnerability to the impacts of climate change were considered. The baseline climate of the receiving environment is described the Air Quality Chapter (Chapter 9). The future climate impacts, vulnerabilities and risks are identified in Fingal County Council's Climate Action Plan 2019 – 2024 include:

- Extreme Weather Events
- Sea Level Rise
- Flooding.

5.6 **Impacts**

5.6.1 *Construction Stage*

The proposed development does not involve any construction works, apart from the assembly of the of the odour control system, and therefore there will be no construction stage impacts.

5.6.2 *Operational Stage*

The negative impact will be an increase in greenhouse gas emissions associated with the additional waste processing and the HGV movements to and from the site. The positive impact will be greenhouse gas emissions off-sets linked to the increase recyclable materials recovery rates from the residual MSW. The net impact of the proposed development is determined by the greenhouse gas emissions generated minus the emissions offset.

5.6.2.1 GHG Emissions: Additional Processing

The type and proportion of the constituent materials present in the residual MSW was sourced from data published by EPA (RPS, 2018) and are shown in Table 5.1.

Table 5.2 Residual MSW Composition

Waste Type	Proportion of MSW (%)
Plastics	19
Organic Waste (Food and Garden)	16
Paper, Card and Beverage Container	15
Fines	11
Textiles	10
Nappies	10
Metal	4.7
Glass	3.2
Wood	1.1
Hazardous waste	2

The proposed development will increase the facility's MSW processing capacity by 66,667 tonnes/annum. The quantities of each waste constituent of the MSW that will be processed are presented in Table 5.3.

Table 5.3 Additional MSW Processed

Waste Category	Additional Quantity Processed
	tonnes/annum
Plastics	13,768
Organic Waste (Food and Garden)	11,594
Paper, Card and Beverage Container	10,870
Fines	7,971
Textiles	7,246
Nappies	7,246
Metal	3,406
Glass	2,319
Wood	797
Hazardous waste	1,449

The GHG emissions calculated for the Do-Nothing and Do-Something scenarios are presented in Table 5.4.

Table 5.4 GHG Emissions Do-Nothing and Do-Something Scenarios

Waste Category	GHG Emission emissions (tCO_2-e/t)	
	Do-Nothing	Do-Something
Plastics	24,507	24,507
Organic Waste (Food and Garden)	-812	-232
Paper, Card and Beverage Container	-3,478	-3,478
Fines	1,754	1,754
Textiles	2,319	2,319
Nappies	1,594	1,594
Metal	-2,520	-13,759
Glass	70	-1,925
Wood	-271	-510
Hazardous waste	5,65	-1,333
Total	**23,728**	**8,936**

The processing of MSW facilitated by the proposed development will result in GHG emission reduction of 14,791 tCO_2-e/annum.

5.6.2.2 GHG Emissions Additional Traffic

The traffic data compiled for the Transport and Traffic Assessment was use to assess traffic related emissions associated with the proposed development. The scoping assessment methodology described in Section 5.3 was used as a basis to determine if further assessment was required.

The GHG emissions were calculated using the air quality spreadsheet issued by the Highways Agency in England (Highways Agency, 2021). The emissions are a function of the increase in AADT and the length of the road link on the ARN. The proposed development will result in an increase in GHG emissions of 107.3 tCO_2-e/annum

5.7 Baseline Scenario

If the development does not proceed there will be no increase in GHG emissions from the additional electricity and diesel consumption associated with the increased waste processing and traffic. There will be no net reduction in GHG emissions.

5.8 Prevention & Mitigation Measures

5.8.1 *Design Stage*

The detailed design of the OCU will involve an assessment of the energy efficiency of the extraction fans to minimise electricity usage when operating and thereby minimise to the greatest extent possible the indirect greenhouse gas emissions form off site electricity generation.

5.8.2 *Construction Stage*

As the development does not involve any construction works, construction stage mitigation measures are not required.

5.8.3 *Operational Stage*

SEHL conducts regular reviews of energy efficiencies at the operational facilities and has a policy of engaging with plant and equipment suppliers to ensure that only the most energy efficient are procured. SEHL implements a preventative maintenance programme for all fixed and mobile plant to ensure their energy efficiency is optimised.

Diesel fuelled plant engines are only turned on when wastes are being processed and SEHL has a policy of not allowing engine idling. This also applies to waste transport vehicles serving the facility. SEHL has begun changing its diesel fuelled collection and transport vehicles to compressed natural gas and electricity powered units. The installation of the roof solar panels will reduce demand on the national electricity grid.

5.9 Monitoring

Electricity consumption is metered and the energy usage of the individual plant items is recorded during the energy efficiency reviews.

5.10 Cumulative Impacts

The assessment of cumulative effects consdiered Ireland's legally binding obligations on greenhouse gas emission reduction and the impacts of traffic assoicated with the proposed development and in the surrounding area.

5.11 Residual Impacts

5.11.1 *Normal Operations*

The GHG emissions that will result from the proposed development include:

- Increased emissions from additional traffic, and
- A net reduction in GHG emissions facilitated by the processing of MSW based on the difference between GHG emissions calculated for the:

- Do-something scenario
- Do-nothing scenario

The GHG emissions that will result from the proposed development are presented in Table 5..

Table 5.5 GHG Emissions From The Proposed Development

Activity	tCO_2-e/annum
Increase in GHG emissions in the study area	107
Reduction in emissions facilitated by the processing of MSW	-14,791
Net GHG emissions resulting from the proposed development	-14,684

The GHG emissions from the proposed development as a percentage of projected non-ETS emissions in Ireland are presented in Table 5.6. The results show that the proposed development will result in a net positive impact on GHG emissions in Ireland in the opening and design years.

Table 5.6 GHG Emissions as % of Projected non ETS Emissions.

Parameter	Opening Year	Design Year
	kt/Year - CO_2e	
Operational Emissions (NET)	-14.68	-14.68
Projected non-ETS GHG emissions (with additional measures)[1]	40,044	33,226
GHG emissions from the proposed development as a % of projected non-ETS emissions (with additional measures)	-0.037%	-0.044%
[1] From EPA (2021) Ireland's Greenhouse Gas Emissions Projections. 2020 - 2040		

The proposed development will result in additional GHG emissions which is a negative impact; however there will be a net reduction in GHG emissions between the Do-Nothing and Do-Something scenario of 14.68 k tCO2-e/annum. The reduction is equivalent to;

- -0.037% of Ireland's non-ETS emissions in the opening year
- -0.044% of Ireland's non-ETS emissions in the design year.

The proposed development will have a **negative, imperceptible, likely, national** and **long term** impact on climate.

5.11.2 *Worst Case*

In the operational stage in the event of a fire greenhouse gas emissions would be generated by the combustion of materials and wastes. Based on the brief duration of the fire the residual impact will be negative, imperceptible, likely, national and long term.

5.12 References

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6 LAND & SOIL

6.1 Introduction

This Chapter describes the land and geology at the facility and the impacts the proposed development will have on the land and geology within the development boundary, including a 'baseline' scenario. It identifies the prevention and mitigation measures and monitoring that will be implemented to reduce the significance of the impacts and assesses the residual impacts.

The Chapter was prepared by Mr Austin Hynes of OCM. Mr Hynes has BSc in Geology and an MSc in Geology with over 6 years' experience of the supervision of environmental and geotechnical site investigations, soil sample collection, the completion of interpretative geological and land use assessment reports and environmental impact assessment.

6.2 Relevant Legislation & Guidance

In addition to the legislation and guidance listed in Section 1.5, the assessment took into consideration the Institute of Geologists of Ireland (IGI) 'Guidelines for the Preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013).

6.3 Methodology

The assessment was based on a desk study of databases maintained by the Geological Survey of Ireland (GSI), EPA and Teagasc and the findings of a geotechnical investigation carried out during the development of the Millennium Business Park. It took into consideration the Institute of Geologists of Ireland (IGI) 'Guidelines for the Preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013) and the EPA guidelines described in the Introduction.

Given the available information on the ground conditions and, as the site has already been extensively developed and the proposed development does not involve either any land take outside the existing site boundary or construction works/ground disturbance inside the boundary, a site investigation was not required.

6.4 Development Description

Chapters 2 and 3 describe the existing site and the proposed development. Those aspects of the development of relevance to Land & Soils are the Increased amounts of hazardous materials (oils) handling and storage associated with the operation of the processing equipment and mobile plant, and the cumulative effects of operations in conjunction with the existing permitted activities.

6.5 Receiving Environment

6.5.1 *Land Use*

The site occupies 4.43 hectares (ha) and is entirely covered by buildings and paved areas.

6.5.2 *Geology*

6.5.2.1 Subsoil

The GSI Subsoil Distribution Maps indicate the subsoils across most of the site are Tills derived from Limestone of Carboniferous age (Figure 6.1). The subsoils beneath the site are between 1.3 and 8.45 m thick and comprise sandy gravelly boulder clays.

6.5.2.2 Bedrock

The GSI Bedrock Geology map (Figure 6.2) indicates the site is underlain by calcareous, shale, limestone, conglomerate of the Tober Coleen Formation. Immediately to the south, the bedrock comprises massive unbedded fine grained limestones of the Waulsortian Formation.

6.6 Impacts

6.6.1 *Land Take*

Land take is the loss of agricultural, forest and other semi-natural and natural land to urban and other artificial land development. It affects habitats and ecosystems, both directly by reducing their area, and indirectly through fragmentation and degradation. This in turn can affect the delivery of important ecosystem services, such as producing e.g. food crops and water; regulating, e.g. the control of climate and disease; supporting, such as nutrient cycles and crop pollination; and cultural, such as spiritual and recreational benefits.

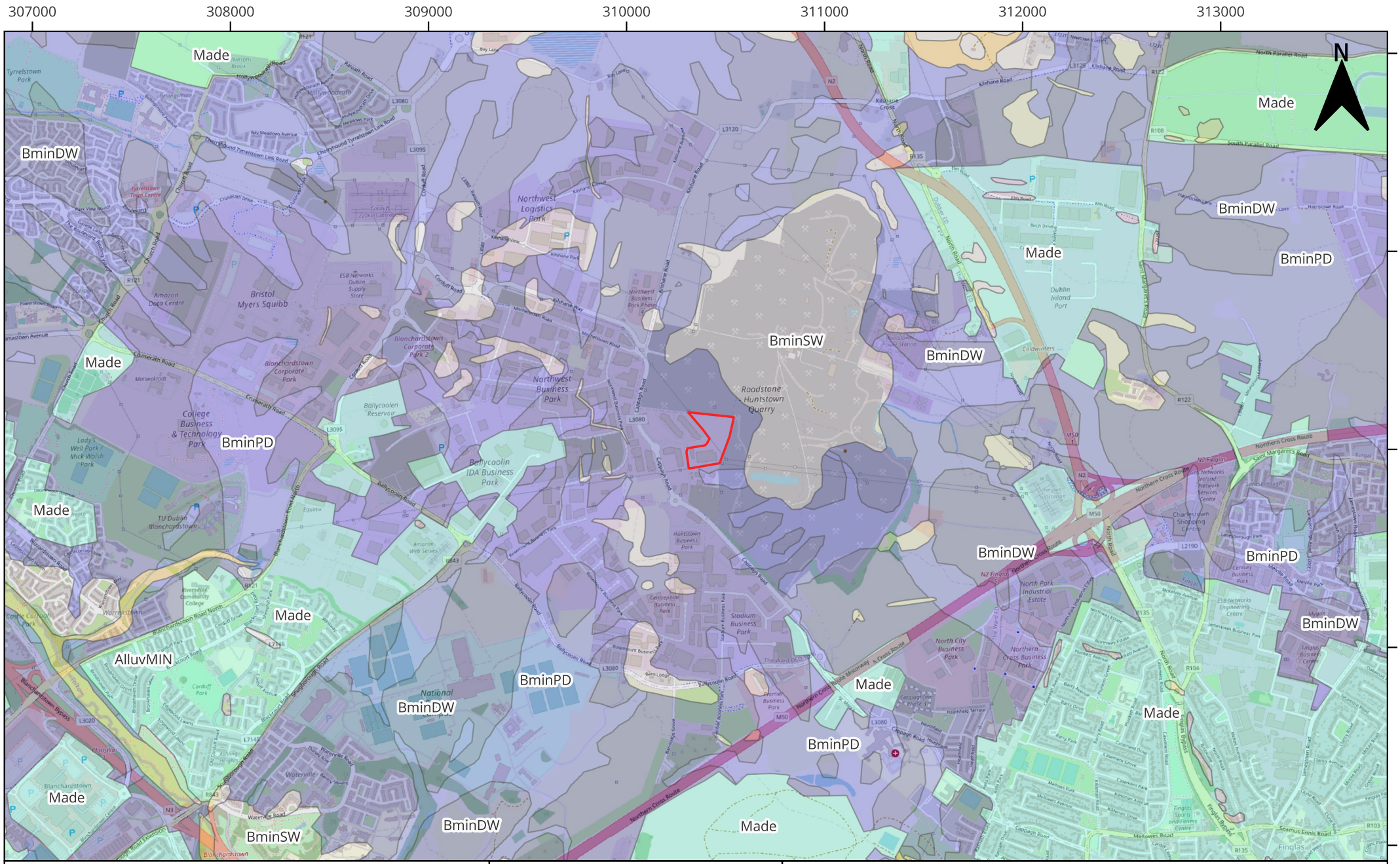
The proposed development does not involve either any land take or ground disturbance and therefore will have no impact on land take.

6.6.2 *Construction Stage*

The development does not involve any construction works, apart from the assembly of the odour control system, and therefore there will be no construction stage impacts.

6.6.3 *Operational Stage*

In the operational stage, the proposed development will not result in any direct or indirect emissions to ground, but there is the cumulative potential, in conjunction with the permitted operations, for negative impacts on soil associated with accidental spills and oil leaks from the mobile plant to infiltrate to ground via damaged paving; leaks from foul sewers and for contaminated firewater run-off to infiltrate to ground in the event of a fire. The latter would be the 'worst case' scenario.



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O'Callaghan Moran & Associates

Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
email: info@ocallaghanmoran.com

CLIENT

Eco Starrus Holdings Ltd

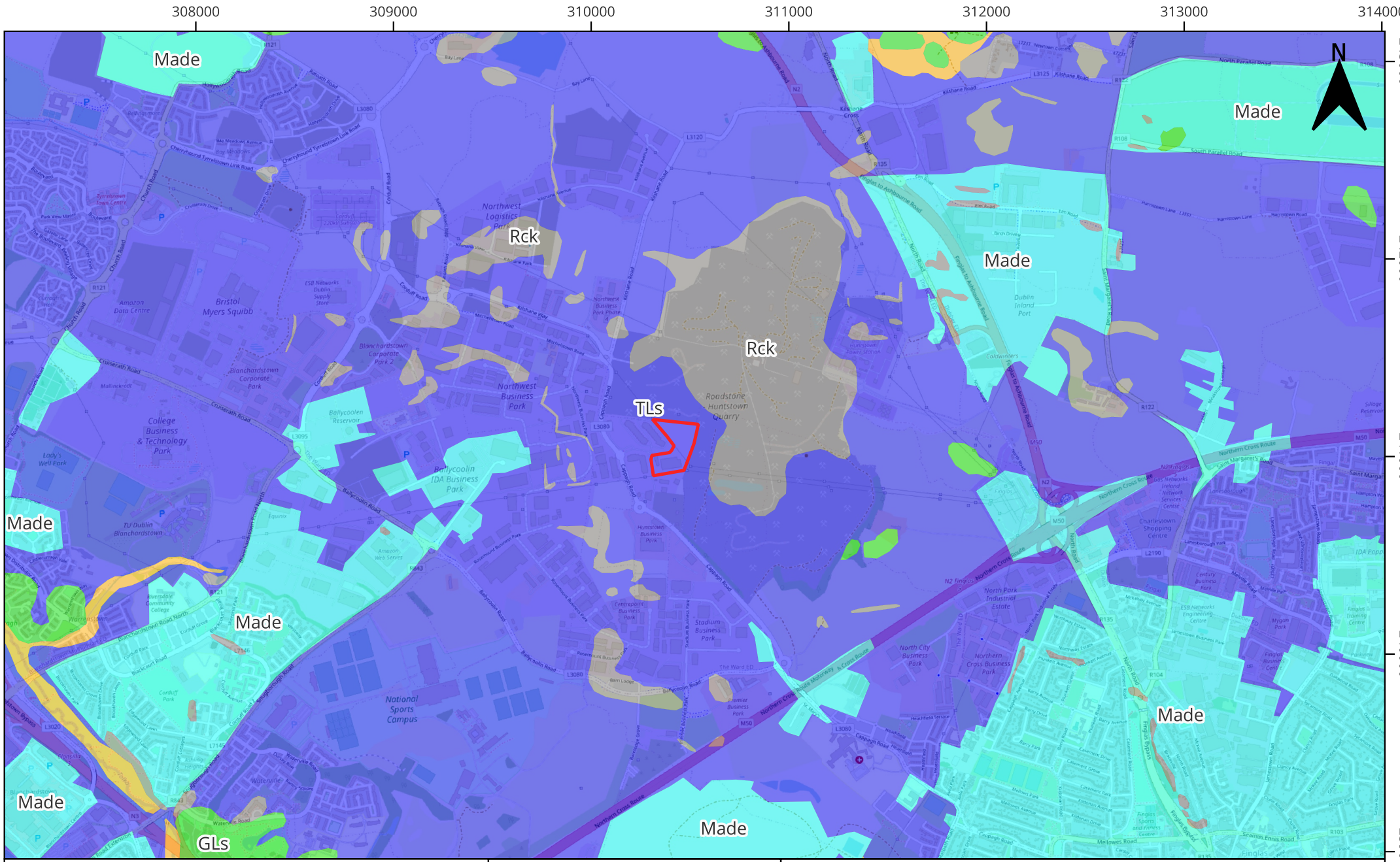
TITLE

Soils Distribution

DETAILS

- Site Boundary
- AlluvMIN - Mineral alluvium
- BminDW - Deep well drained mineral (mainly basic)
- BminPD - Mineral poorly drained (mainly basic)
- BminSW - Shallow well drained mineral (mainly basic)
- Made - Made ground

FIGURE 6.1



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O'Callaghan Moran & Associates

Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
email: info@ocallaghanmoran.com

CLIENT

Starrus Eco Holdings Ltd

TITLE

Subsoils

DETAILS

0 500 m

Site Boundary

Subsoils

A - Alluvium undifferentiated

GLs - Limestone sands and gravels (Carboniferous)

Made - Made ground

Rck - Bedrock at surface

TLs - Limestone till (Carboniferous)

FIGURE 6.2

6.7 Baseline Scenario

If the proposed development does not proceed the facility will continue to operate and there will be no change to the potential for impact on land and soil.

6.8 Prevention & Mitigation Measures

6.8.1 *Design Stage*

The prevention and mitigation measures required to protect soil quality are already incorporated into the design and method of operation of the permitted activity and therefore additional design stage prevention measures are not required.

6.8.2 *Construction Stage*

As the proposed development does not involve any construction works, construction stage prevention and mitigation measures are not required.

6.8.3 *Operational Stage*

The current EPA licence requires the following mandatory control measures to prevent and mitigate adverse impacts on soil:

- The provision of impermeable surfaces in all operational and vehicle parking areas;
- Provision of impervious surfaces and secondary spill containment at all drum and tank storage areas;
- Provision of watertight underground foul and surface water drainage systems;
- The adoption of an emergency response procedure that addresses any emergency situations that may originate on the facility and shall include provision for minimising the effects of any emergency on the environment, and
- The provision of an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage at the facility, and
- The provision of appropriate firewater retention capacity.

These existing measures provide the required level of protection to soil quality and therefore additional measures are not required.

6.9 Monitoring

The EPA licence requires the following mandatory monitoring measures to assess the effectiveness of the prevention and mitigation measures that will address the cumulative impacts of the proposed development and the current permitted activities:

- Regular inspection and repair as required of the paved areas;
- Weekly inspection and cleaning and emptying as required of the drainage system, containment areas and bunds to ensure they continue to be fit for purpose and do not leak;
- The integrity and water tightness testing of all the bunds and their resistance to penetration by water or other materials stored therein is carried out every three years and the results reported to the EPA, and
- The integrity and water tightness of all underground pipes and tanks and their resistance to penetration by water or other materials carried or stored therein is carried out every three years and the results reported to the EPA.

As the existing monitoring measures have been proved to be effective, additional measures are not required.

6.10 Cumulative Impacts

As the proposed development does not involve either an extension of the existing site boundary, or any construction works it will have no cumulative impact on land and soil outside the development boundary.

6.11 Residual Impacts

6.11.1 *Normal Operations*

As the proposed development will not result in any land take, ground disturbance or any emissions to soil under normal conditions it will have a **neutral**, **imperceptible, local, unlikely and long term** impact on Land & Soil.

6.11.2 *Worst Case*

In the operational stage leaks/spills of oil to ground may occur. In the event of a fire, fire water run-off would be generated and there is the potential for infiltration to ground through damaged paving. SEHL has prepared an Environmental Liability Risk Assessment (ELRA) for the facility, as required by the EPA licence.

The ELRA addresses the 'worst case' impacts on Land & Soil associated with a fire and quantifies the costs to effectively remediate those impacts. The ELRA has been approved by the EPA and a financial provision, which is renewed annually, has been put in place to cover the remediation costs. Following the completion of the remedial works the residual impacts will be **negative, imperceptible, local, likely and long term.**

6.12 References

EPA (2018) Corinne Land Cover dataset, COPERNICUS Land Monitoring service https://data.gov.ie/dataset/corine-landcover-2018

Teagasc (Kinsealy), EPA and GSI (2006), National Subsoil Map, last updated in 2017
https://gis.epa.ie/EPAMaps/

GSI Bedrock Map scale 1:100000, data viewer access
https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=bc0dba38f3f5477c8fd400f66b5eedcd/

https://www.teagasc.ie/media/website/publications/2011/Soil_Geochemical_AtlasofIreland.pdf

7 WATER

7.1 Introduction

This Chapter describes the baseline hydrological and hydrogeological conditions at the subject site and the impacts that the proposed development will have on surface water and groundwater within and outside the site boundary, including a 'baseline' scenario. It identifies the prevention, mitigation and monitoring measures that will be implemented to reduce the significance of the impacts and assesses the residual impacts.

The Chapter was prepared by Ms Marzena Nowakowska MSc and Mr Sean Moran of OCM. Ms Nowakowska has an MSc in Geology, majoring in mineral and water resource management and has over 15 years' experience in water resource and hydrogeological assessments including water quality monitoring, hydrogeological mapping and water resource management at regional level.

Mr. Moran holds an MSc in Hydrogeology and is a member of the Institute of Geologists of Ireland (P.Geol.) and the European Federation of Geologists (Eur. Geol.) and Chartered Institute of Water and Environmental Management. He has over 30 years of experience of hydrological and hydrogeological assessment of large scale infrastructure projects, including groundwater resource evaluations.

7.2 Relevant Legislation & Guidance

The general EIA legislation and guidance documents are listed in Section 1.5. The legislation and guidelines relevant to Water considered in the preparation of this Chapter include:

- Local Government Water Pollution Acts 1977 & 1992, as amended;
- European Union Water Framework Directive (2000/60/EC);
- European Communities Environmental Objectives (Groundwater) Regulations (SI No 9 of 2010), as amended;
- European Communities Environmental Objectives (Surface Water) Regulations (S.I. No 272 of 2009), as amended;
- River Basin Management Plan 2018-2021, and
- Geologists of Ireland (IGI) 'Guidelines for the Preparation of Soils Geology and Hydrogeology Chapters of Environmental Impact Statements' (2013).

7.3 Methodology

Waters encompass surface and groundwater. The assessment was based on a walkover survey of the site, a review of the drainage system designs and a desk study, whose sources included:

- Report on a geotechnical investigation completed during the development of the Millennium Business Park
- River Basin Management Plan (RBMP);
- Hydrogeological databases maintained by the GSI;
- Ordnance Survey of Ireland (OSI) Maps
- EPA water quality databases;
- Office of Public Works (OPW) Flood Risk Databases.

7.4 Development Description

Chapters 2 and 3 describe the existing site and the proposed development. Those aspects of the development of relevance to Water are the increased amounts of hazardous materials (oils) handling and storage associated with the operation of the processing equipment and mobile plant and the cumulative effects of operations in conjunction with the existing permitted activities.

7.5 Receiving Environment

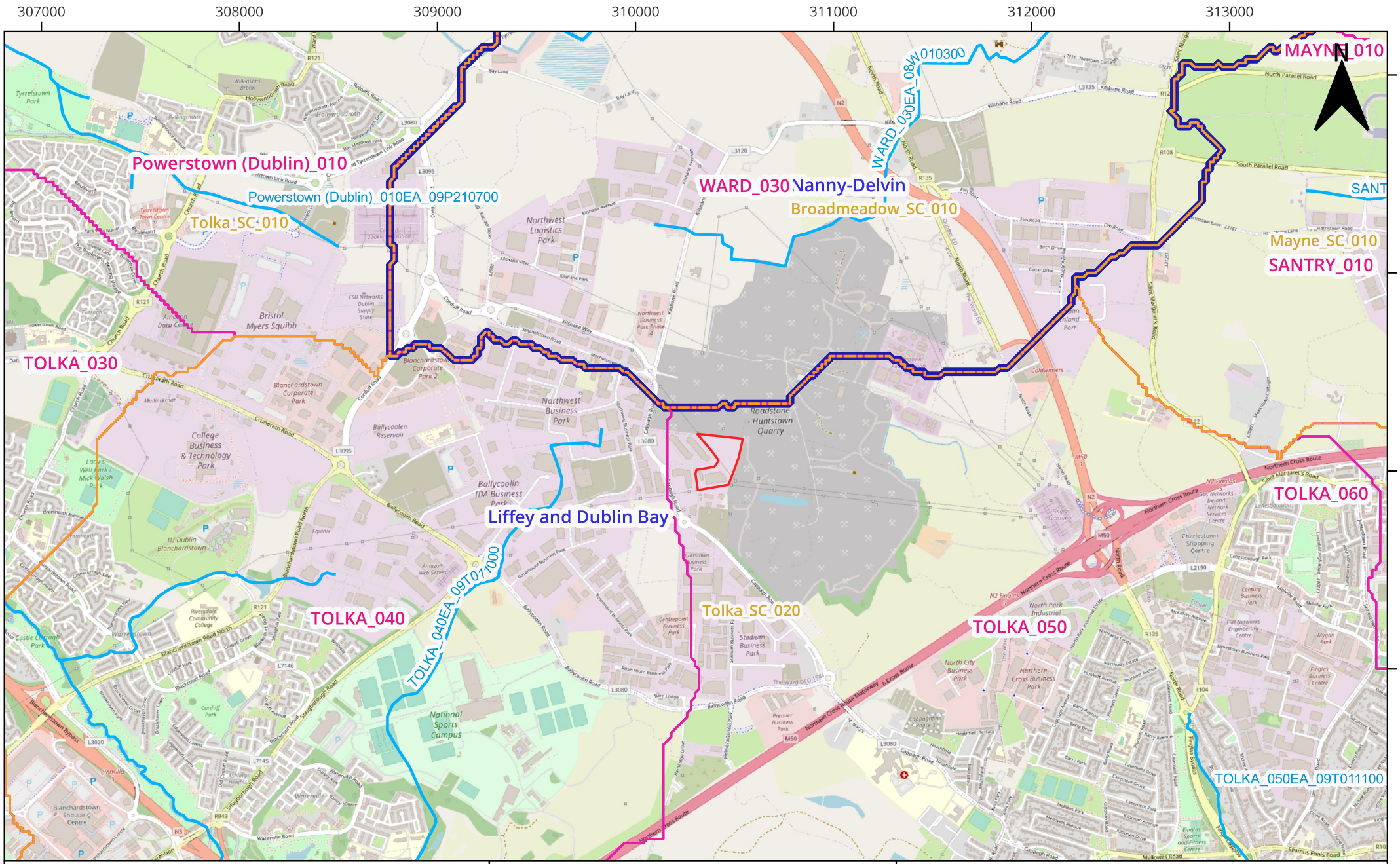
7.5.1 *Hydrology*

The local and regional hydrology is shown on Figure 7.1. The site is in the catchment of the Tolka River, which is approximately 2.5 kilometres to the south-west of the site. The Tolka is part of the IE_EA_Liffey Water Management Unit (WMU) designated in the RBMP prepared under the EU Water Framework Directive (WFD). The WMU comprises various Water Bodies and the site is in the Tolka River Water Body. The subject site is in sub-catchment (Tolka_SC_020). There are no significant streams or water courses on the site on in the surrounding lands.

RBMP Reports have been prepared on the 'Status' of each water body. Status means the condition of the water in a watercourse and is defined by its ecological and chemical status, whichever is worse. Water bodies are ranked in one of five classes, High, Good, Moderate, Poor and Bad. The WFD requires measures to ensure waters achieve at least 'Good Status' by 2015 and that their current status does not deteriorate. Where necessary, for example in heavily impacted or modified watercourses, extended deadlines (2021 and 2027) can be set for achieving the following objectives:

- Prevent Deterioration
- Restore Good Status
- Reduce Chemical Pollution
- Achieve Protected Areas Objectives

The objectives for particular watercourses are based on Pressure and Impact Assessments of human activity, including point and diffuse emissions, land use and morphological conditions on surface waters to identify those water bodies that are 'At Risk' of failing to meet the WFD objectives.



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O'Callaghan Moran & Associates

Unit 15 Melbourne Business Park
Model Farm Road, Cork
Tel. (021) 4345366
email: info@ocallaghanmoran.com

CLIENT

Starrus Eco Holdings Ltd

TITLE

Local and Regional Hydrology

DETAILS

- Rivers
- WFD_RiverSubBasins
- WFD_Subcatchments
- WFD_Catchments
- Site Boundary

FIGURE 7.1

7.5.2 *Hydrogeology*

7.5.2.1 Aquifer Classification

The bedrock beneath the majority of the site comprises calcareous, shale, limestone, conglomerate of the Tober Coleen Formation and is classified as Poor Bedrock Aquifer which is Generally Unproductive except for Local Zones (Figure 7.2). This type of aquifer is capable of supplying small abstractions (e.g. domestic supplies, small group schemes), or moderate to low yields (<100 m^3/d). Groundwater predominantly flows through a limited and poorly-connected network of fractures, fissures and joints.

The Waulsortian Formation immediately south of the site is classed as a Locally Important Bedrock Aquifer which is moderately productive only in Local Zones. Locally important (L) aquifers are capable of 'good' well yields 100-400 m^3/day.

7.5.2.2 Aquifer Vulnerability

Vulnerability is defined as the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities. Vulnerability categories range from Extreme (rock close to surface) to Extreme to High to Moderate to Low, depending on the nature and thickness of subsoils. The GSI groundwater vulnerability map indicates the bedrock aquifer vulnerability to contamination from the ground surface ranges from High to Moderate across the Business Park, as shown on Figure 7.3.

7.5.2.3 Recharge

The GSI Groundwater Recharge map shows that the Poor Bedrock Aquifer has annual recharge of 100 mm, with effective rainfall 380.4 mm/year and recharge coefficient 60%.

7.5.2.4 Groundwater Flow Direction

The regional direction of groundwater flow is to the south west towards the Tolka River. The local direction of groundwater flow is likely to be greatly influenced by the quarrying activities to the south east of the site.

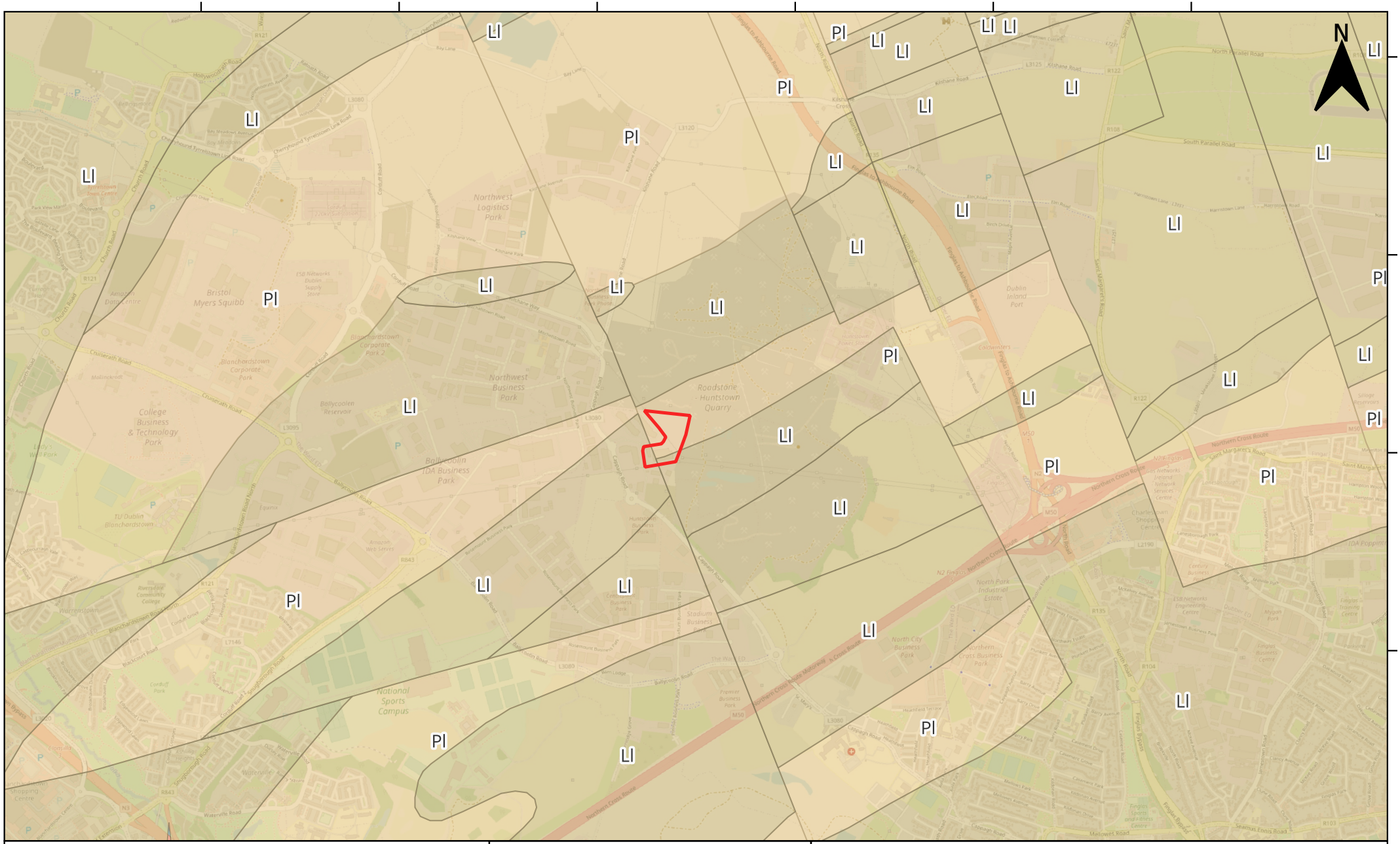
7.5.2.5 Groundwater Quality

There are no on-site groundwater monitoring wells and no data on water quality beneath the site. The aquifer is part of the Dublin Area Groundwater Body (IE_EA_G_005). The condition of a Groundwater Body is defined by its chemical and quantitative status, whichever is worse, and groundwater quality is ranked in one of two status classes: Good or Poor. The Dublin Area Groundwater Body is categorised as being of 'Good' status, and its Risk status is currently under review.

7.5.3 *Flood Risk*

The OPW Flood Maps[8] which take account of the impacts of climate change, do not show any record of flooding within the development site and do not identify the site as being at risk of pluvial, fluvial or groundwater flooding (Figure 7.4).

[8] https://www.floodinfo.ie/map/floodmaps/



O'Callaghan Moran & Associates

Unit 15 Melbourne Business Park
Model Farm Road, Cork
Tel. (021) 4345366
email: info@ocallaghanmoran.com

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CLIENT

Starrus Eco Holdings Ltd

TITLE

Aquifer Classification

DETAILS

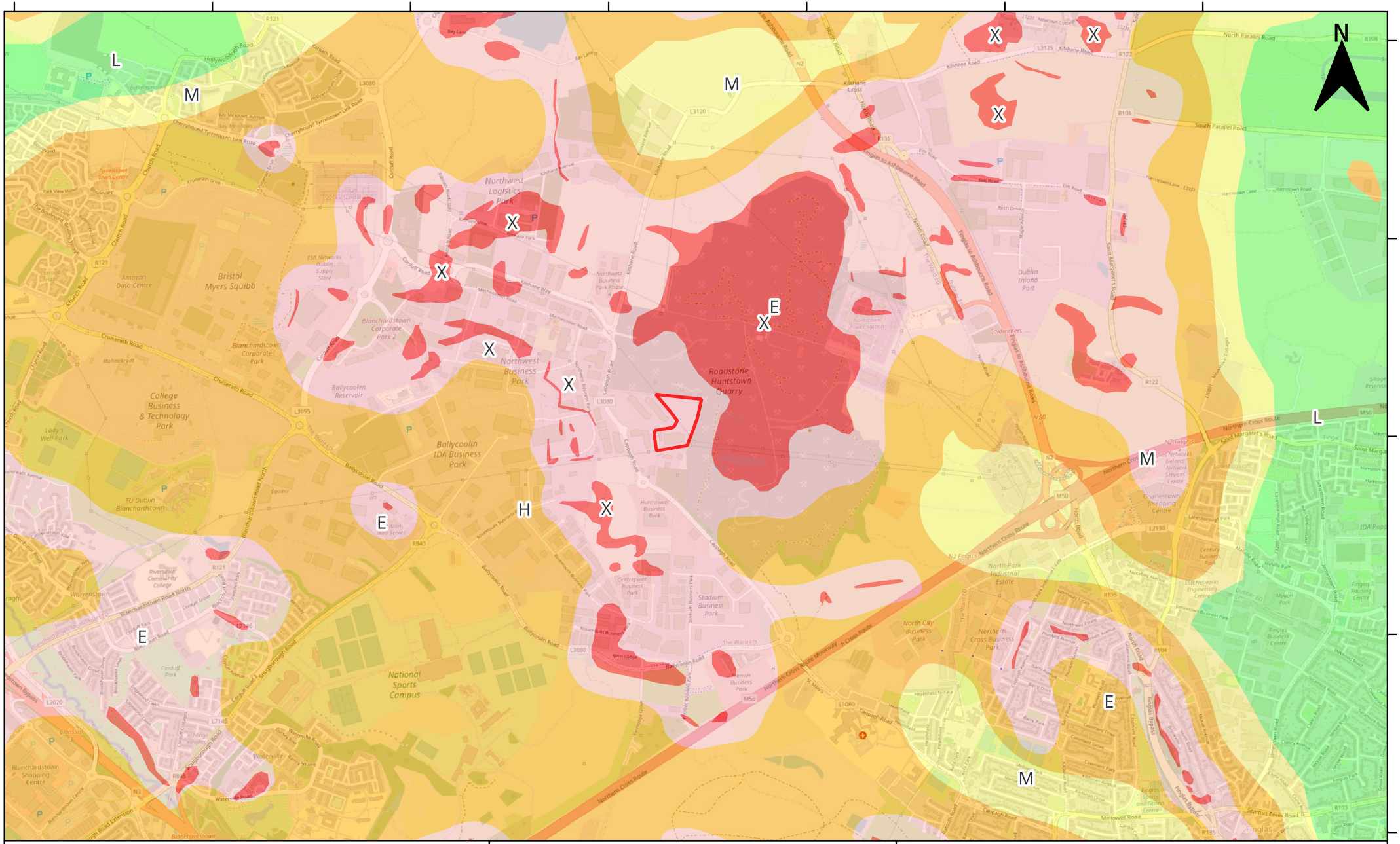
Site Boundary

Aquifer Classification

LI - Locally Important Bedrock Aquifer, Moderately Productive only in Local Zones

PI - Poor Bedrock Aquifer, Moderately Productive only in Local Zones

FIGURE 7.2



O'Callaghan Moran & Associates

Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
email: info@ocallaghanmoran.com

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CLIENT

Starrus Eco Holdings Ltd

TITLE

Vulnerability

DETAILS

Site Boundary

Vulnerability

X - Bedrock near Surface

E - Extreme

H - High

L - Low

M - Moderate

Water

0 500 m

FIGURE 7.3

Figure 7.4 Flood Risk (Source Flood Risk Floodinfo.ie

7.6 Impacts

7.6.1 *Construction Stage*

The proposed development does not involve any construction works, apart from the assembly of the odour control system, and therefore there will be no construction stage impacts.

7.6.2 *Operational Stage*

As the development does not involve any increase in the impermeable areas of the site or the recruitment of additional staff, the proposed development will not result in any change to either the volume, or quality of the rainwater run-off, sanitary wastewater and water from the wheel wash and therefore will have no impact on the foul sewer serving Business Park. The proposed development will not result in any new emissions to ground and therefore will have no impact on groundwater. It also will not require any increase in the groundwater abstraction rate for dust suppression purposes.

There is the cumulative potential, in conjunction with the permitted operations, for negative impacts on water associated with accidental spills and oil leaks to enter the drainage system and to infiltrate to groundwater via damaged paving; leaks from the foul sewers and for contaminated firewater run-off to enter the drainage systems and infiltrate to groundwater in the event of a fire. The latter would be the 'worst case' scenario.

7.7 Baseline Scenario

If the proposed development does not proceed current operations will continue, with no change to the potential impacts on water.

7.8 Prevention & Mitigation Measures

7.8.1 *Design Stage*

The prevention and mitigation measures required to protect water already incorporated into the design and method of operation of the permitted activity and therefore additional design stage prevention measures are not required.

7.8.2 *Construction Stage*

As the proposed development does not involve any construction works, construction stage prevention and mitigation measures are not required.

7.8.3 *Operational Stage*

The mandatory control measures required by the EPA licence to prevent and mitigate adverse impacts on soil (Refer Section 6.8.3) apply equally to the protection of water. In addition the licence requires:

- The provision of a wheel cleaning unit with the wash water discharged to the foul sewer;
- The installation of silt traps and oil Class 1 Full Retention interceptors on the storm water drainage system;
- Installation of isolation valves on the surface and foul water drainage systems that can be closed to prevent a discharge to the sewers serving the Business Park in the event of an incident that has the potential to contaminate the discharges.,
- The storm water discharge to the storm water sewer must comply with the following emission limit values (ELV):

  Biochemical Oxygen Demand (BOD) 25 milligrams/litre (mg/l)

  Suspended Solids 35mg/l

  Mineral Oils 5mg/l

- The wastewater discharge to the foul sewer must comply with the ELVs specified in Table C3 in Schedule C of the EPA Licence.

These existing measures provide the required level of protection to water and therefore additional measures are not required.

7.9 Monitoring

The mandatory monitoring requirements required by the EPA licence to prevent adverse impact on soils (Ref Section 6.9) apply equally to the protection of Water. In addition:

- The wastewater discharge to the foul sewer is monitored bi-monthly for the range of parameters listed in Table D4.1 of Schedule D of the EPA licence and the results reported to the EPA;

- When the storm water discharge to the storm sewer serving the Business Park resumes it will be monitored quarterly for the parameters listed in Table 3 D1 of Schedule D of the EPA licence and the results reported to the EPA, and

- The oil interceptors on the surface water drainage system are regularly inspected to ensure they are functioning correctly and cleaned as required.

As the existing monitoring measures have been proved to be effective, additional measures are not required.

7.10 Cumulative Impacts

As the proposed development does not involve either an extension of the existing site boundary, or any construction works it will have no cumulative impact on water.

7.11 Residual Impacts

7.11.1 *Normal Operations*

As the proposed development will not result in any change to either the volume or quality of the storm water run-off and sanitary wastewater, will not affect groundwater recharge rates and will not result in any new emissions to surface water and groundwater under normal conditions it will have a **neutral, imperceptible, local, unlikely** and **long term** impact.

7.11.2 *Worst Case*

In the event of a fire, fire water run-off would be generated and there is the potential for it to enter the storm water and foul water drainage systems and to infiltrate to groundwater through damaged paving and the underlying soil. As referred to in Section 6.11, SEHL has prepared an ELRA for the facility that addresses the 'worst case' impacts on Water associated with a fire. Following the completion of the remedial works the residual impact will be **negative, imperceptible, local, likely** and **long term**.

7.12 References

EPA WFD Water Flow Network Maps, WFD River Waterbodies Risk, WFD Groundwater bodies Status (viewer data access) https://gis.epa.ie/EPAMaps/

GSI Groundwater Resources Bedrock Aquifers 1:100000, Groundwater Resources Sand and Gravel Aquifers 1:40000, Groundwater Wells and Springs, Groundwater Vulnerability Map 1:40000 (viewer data access)
https://dcenr.maps.arcgis.com/apps/MapSeries/index.html?appid=bc0dba38f3f5477c8fd400f66b5eedcd/

EPA Catchment Science & Management Unit (2021), WFD 3rd Cycle

https://www.catchments.ie/data/#/subcatchment/09/09_4?_k=d5syyd

8 BIODIVERSITY

8.1 Introduction

This Chapter describes the likely significant effects of the proposed development on biodiversity, including flora (plants), fauna (animals), and habitats in both the terrestrial and aquatic environment, including a baseline scenario. It identifies the prevention, mitigation and monitoring measures that will be implemented to reduce the significance of impacts and assesses the residual impacts.

The Chapter was completed by Mr Jim O'Callaghan of OCM. Mr O'Callaghan has a BA (Moderatorship) Geography and an MSc in Environmental Science. He is a Chartered Member of the Institution of Waste Management, a Chartered Environmentalist and a Registered Principle Environmental Auditor with the Institute of Environmental Management and Assessment. He has over 30 years' experience in the field of environmental impact assessments and the preparation of EIAR.

8.2 Relevant Legislation & Guidelines

The general EIA legislation and guidance documents are listed in Section 1.5. The legislation and guidelines relevant to Biodiversity considered in the preparation of this Chapter include:

- The Wildlife Act 1976, as amended by the Wildlife Act 1976 (Protection of Wild Animals) Regulations, 1980, the Wildlife (Amendment) Act 2000, the Wildlife (Amendment) Act 2010, Wildlife (Amendment) Act 2012, European Communities (Wildlife Act, 1976) (Amendment) Regulations 2017. (The Wildlife Act);
- European Communities (Conservation of Wild Birds) Regulations 1985 SI 291/198, as amended;
- European Communities (Natural Habitats) Regulations, SI 94/1997, as amended;
- Fisheries (Consolidation) Act, 1959, as amended;
- European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477/2011;
- Flora (Protection) Order, 2015 (S.I. No. 356/2015).
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (The Habitats Directive);
- Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (The Birds Directive);
- Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (The Water Framework Directive);
- Directive 2006/44/EC of the European Parliament and of the Council of 6 September 2006 on the quality of fresh waters needing protection or improvement in order to support fish life (The Fish Directive

8.3 Methodology

The United Nations Convention on Biological Diversity (CBD) defines 'biological diversity' or biodiversity as 'the variability among living organisms from all sources, including inter alia terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems'. In this context, the assessment took into consideration ecosystems (habitats and organisms) inside and outside the facility boundary.

The site is almost completely covered by concrete paving and buildings, with hedgerows along the eastern and northern boundary and landscaping (grassed areas and shrubs) around the buildings at the entrance and the staff car park. The site operates 24/7 with vehicle movements occurring throughout that period and area lighting in the hours of darkness meaning that all fauna in the vicinity of the site are habituated to this type of disturbance.

The current site condition and the nature of the proposed development, which involves no disturbance of on-site habitats and no disturbance of any off-site ecosystems, meant that habitats, flora and fauna field surveys were not required. Habitats were classified using the descriptions and codes in the Heritage Council's 'A Guide to Habitats in Ireland' (Fossitt, 2000) and 'Best Practice Guidance for Habitat Survey and Mapping' (2011).

OCM carried out a screening of the significance of the effects, if any, of the proposed changes on Natura 2000 sites within 10 km of the site to inform a decision on the need for an Appropriate Assessment. The screening concluded that the development will not have any likely significant effects on any Natura 2000 Site and therefore a Natura Impact Statement was not required. The report on the Screening is in Appendix 8.1.

8.4 Proposed Development

Chapters 2 and 3 describe the existing site and the proposed development, which does not involve and construction works or interference with habitats inside and outside the development site boundary and does not require any new processing equipment or changes to the operational hours.

8.5 Receiving Environment

8.5.1 *Habitats*

The habitats inside the site boundary are shown on Figure 8.1. The buildings and yards are classified as BL3 Buildings and artificial surfaces. BL3 includes all buildings (domestic, agricultural, industrial and community) other than derelict stone buildings and ruins. It also includes areas of land that are covered with artificial surfaces (e.g. roads, car parks, pavements, runways, yards, and some tracks, paths, driveways and sports grounds. These habitats are typically not species diverse.

The hedgerows along the eastern and northern boundaries are classified as WL1. These were part of the original field boundaries retained when the facility was developed and are dominated by hawthorn (*Crataegus monogyna*) with occasional ash trees (*Fraxinus excelsior*) and an understorey of ivy (*Hedera hibernica)* and bramble (*Rubus fruticosus*) These have been enhanced with additional planting of birch (*Betula pendula*), wild cherry (Prunus avium) and hornbeam (*Carpinus betulus*). Ivy is also present on

the block wall along the western boundary. There is Laurel (*Prunus laurocerasus*) at the site entrance and individual trees along the access road to the weighbridge.

Before the site was developed the land was used primarily for arable agriculture. Since then, the site and lands to the north and south have been extensively developed and the area is dominated by BL3 Buildings and artificial surfaces, with landscape planting along the Business Park roads and in the roundabouts. Huntstown Quarry (ED4), which is a large hard rock quarry, is to the east and north-east with the undeveloped areas comprise untended former agricultural grasslands (GA1).

8.5.2 *European (Natura 2000) Sites*

Special Areas of Conservation (SACs) and candidate SACs are protected under the Habitats Directive 92/43/EEC and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Special Protection Areas (SPAs) are protected under the Birds Directive 2009/147/EC and European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Collectively, these sites are referred to as Natura 2000 or European sites. The proposed development is not in either an SAC, or an SPA and the closest Site is least 8 km from the away (Table 8.1).

Potential impacts on designated Natura 2000 sites are addressed in the Appropriate Assessment (AA) screening in Appendix 9.1. The AA screening assessment concluded that the proposed development, either alone or in-combination with other plans and/or projects, does not have the potential to significantly affect the conservation objectives of any Natura 2000 site

Table 8.1. Natura 2000 Sites within 15 km of the proposed Development

Site	Code	Distance (km)
South Dublin Bay & Tolka River Estuary SPA	004024	9.2 SE
Rye Water Valley/Carton SAC	001398	11.3 SW
South Dublin Bay SAC	000210	11.7 SE
Malahide Estuary SPA	004025	10.8 NE
Malahide Estuary SAC	000205	10.8 NE
North Dublin Bay SAC	00206	11.9 SE
North Bull Island SPA	004006	12.0 SE
Baldoyle Bay SAC	000199	13.0 E
Baldoyle Bay SPA	004016	13.2 E
Rogerstown Estuary SAC	000208	14.0 NE
Rogerstown Estuary SPA	004015	14.4 NE

8.5.3 *National Sites*

Natural Heritage Areas (NHAs/pNHAs) are national designations under the Wildlife Act 1976, as amended. An NHA is designated for its wildlife value and is subject to statutory protection. A list of proposed NHAs (pNHAs) was published on a non-statutory basis in 1995, but these have not been statutorily proposed or designated.

The NHAs (pNHAs) located in the vicinity of the subject site are listed in Table 8.2 and shown in Figure 8.2.

Table 8.2. Natural Heritage Areas within 10 km of the proposed Development

Site	Code	Distance (km)
Royal Canal pNHA	002103	3 km to S
Liffey Valley pNHA	000128	5km to SW
Santry Demesne pNHA	000178	5.5 km to E
Grand Canal pNHA	002104	8 km to S
Feltrim Hill pNHA	001208	10 km to NE

Given the distance from the subject site and the lack of hydrological or hydrogeological connections there are no viable ecological pathways between the site and the Natura 2000 sites and the NHAs.

8.5.4 *Flora & Fauna*

Given the layout of the existing facility, current operations and the surrounding land use the likelihood of the presence of protected flora and fauna species either within the site boundary, or in the vicinity of the site is very low. There are no invasive species within the site boundary.

8.6 Impacts

8.6.1 *Construction Stage*

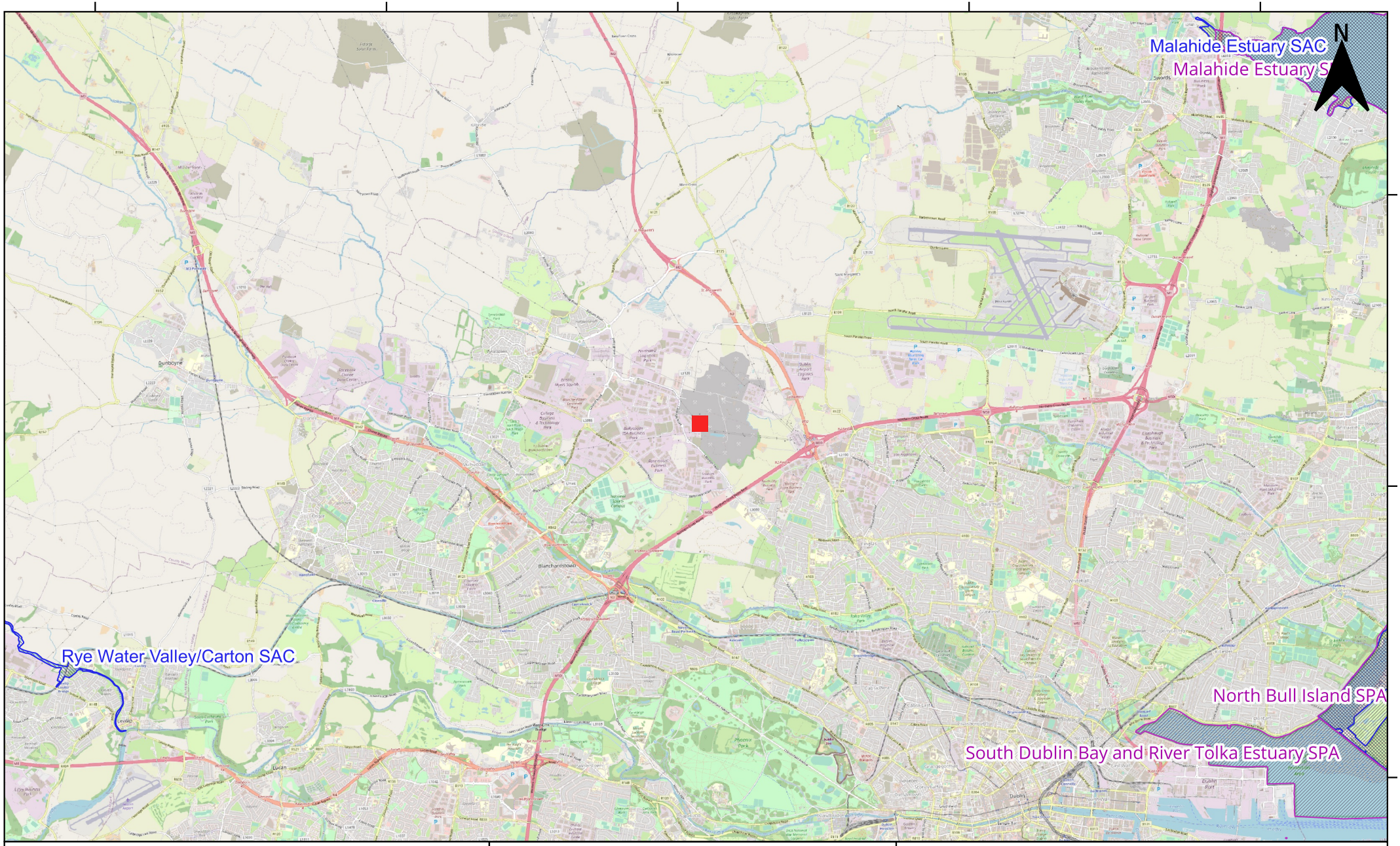
As the proposed development does not involve any construction works, apart from the assembly of the odour control system, there will be no construction stage impacts.

8.6.2 *Operational Stage*

The proposed development will not result in the loss of any habitats either inside, or outside the site boundary. There will be no changes to the emissions associated with the waste operations, with the exception of the new OCU, or the operational hours and therefore no potential for disturbance of birds and mammals in the surrounding habitats. There will be an increase in HGV movements to and from the site, with an associated increase in vehicle exhaust emissions which have the potential to adversely impact on air quality, however given the separation distances this will have no impact on ecological sensitive sites.

8.7 Baseline Scenario

If the proposed development does not proceed the current activities will continue, with no change to the potential impact on biodiversity.



Environmental Management for Business

O'Callaghan Moran & Associates

Unit 15 Melbourne Business Park,
Model Farm Road, Cork.
Tel. (021) 4345366
email: info@ocallaghanmoran.com

CLIENT

Starrus Eco Holdings Ltd

TITLE

NATURA 2000 Sites

DETAILS

- Site Location
- SPA
- SAC

0 2,000 m

FIGURE 8.2

8.8 Prevention & Mitigation Measures

8.8.1 *Design Stage*

As the development will not have any impact on biodiversity either inside outside the site boundaries and will have no impact on any designated sites, design stage prevention and mitigation measures are not required.

8.8.2 *Construction Stage*

As the proposed development does not involve any construction works, construction stage prevention and mitigation measures are not required.

8.8.3 *Operational Stage*

The prevention and mitigation measures already in place at the permitted activity to protect soil and water and avoid nuisance and impairment of amenity outside the site boundary equally apply to mitigating impacts on off-site ecological receptors and therefore additional design stage prevention measures are not required.

8.9 Monitoring

As required by Condition 4.9.3 of the EPA licence, SEHL conducts an annual review of the landscaping/planting programme and carries out additional planting as required. As the proposed development does not involve and changes to the existing infrastructure and landscaping measures, additional monitoring is not required.

8.10 Cumulative Effects

As the proposed development will have no impact on habitats, flora and fauna and designated ecological sites it will have no cumulative effects on biodiversity.

8.11 Residual Impacts

8.11.1 *Normal Operations*

The proposed development will have no residual impact on biodiversity.

8.11.2 *Worst Case*

In the event of a fire there may be damage to the landscape areas and trees inside the site boundary; however these are low ecological value habitats and readily replaced. As referred to in Section 6.11, SEHL has prepared an ELRA for the facility that addresses the 'worst case' impacts associated with a fire. Following the completion of the remedial works the residual impact on biodiversity will be **neutral, imperceptible, local, likely and short term**.

9 AIR

9.1 Introduction

This Chapter describes the ambient air quality and the impacts the proposed development will have on the receiving environment within and outside the site boundary, including a 'baseline' scenario. It identifies the prevention and mitigation measures and monitoring that will be implemented to reduce the significance of the impacts and assess the residual impacts. This Chapter was prepared by Dr Martina Gleeson of OCM, with assistance from Dr Micheal Fogarty of Katestone.

Dr Gleeson has a BSc in Environmental Geochemistry and a PhD in Geochemistry. She has over 15 years' experience of environmental impact assessment, managing environmental monitoring contracts at EPA licensed sites including the preparation of interpretive reports on air quality and noise impact assessments and the preparation of operational management plans and decommissioning management plans for large scale waste management and industrial developments.

Dr Fogarty is a Senior Air Quality Consultant with 12 years of experience in Ireland and Australia. He holds a B.Eng, M.Eng and PhD from the UCD College of Engineering and Architecture. He specialises in the areas of air quality and odour impact assessment.

9.2 Relevant Legislation & Guidelines

The general EIA guidelines and legislation are listed in Section 1.5 and the specific legislation and guidelines relevant to air quality that set out the general principles and suitable methods to complete the air quality assessment taken into account in the preparation of this Chapter are:

- Air Pollution Act 1987, as amended.
- Environmental Protection Agency Acts 1992, as amended
- Air Quality Standards Regulations 2011 (S.I. No. 180 / 2011), as amended.
- The Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC).
- Directive (EU) 2016/2284 "On the reduction of National Emissions of Certain Atmospheric Pollutants and Amending Directive 2003/35/EC and Repealing Directive 2001/EC/EC"
- EPA (2020) Air Dispersion Modelling from Industrial Installations Guidance Note (AG4).
- UK Highways Agency (2019) Design Manual for Roads and Bridges - Sustainability & Environment Appraisal- Air quality - LA 105.
- Institute of Air Quality Management (IAQM) (2014) Guidance on the assessment of dust from demolition and construction.
- DEHLG (2004) Quarries and Ancillary Activities Guidelines for Planning Authorities.

- Guidelines for the Treatment of Air Quality during the Planning and Construction of National Road Schemes Transport Infrastructure Ireland (TII) 2011.

9.3 Methodology

The assessment was based on data derived from ambient air quality databases maintained by the EPA collected at the nearest ambient monitoring station; the results on the on-site dust deposition monitoring completed in accordance with the EPA licence requirements and an odour impact and air quality assessment completed by Katestone. The Katestone report in Appendix 9.1.

9.3.1 *Criteria for Rating Impacts*

Ambient Air Quality Standards

To reduce the risk to health from poor air quality limit values have been specified for a range of pollutants in ambient air. These limit values are health or environmental based levels for which additional factors may be considered, for example natural background levels, environmental conditions and socio-economic factors, all of which play a part in the establishment of a limit value).

Air quality significance criteria are based on compliance with the appropriate standards, guideline and/or limit values. The applicable standards in Ireland are specified in the Air Quality Standards Regulations 2011, which transpose the CAFE Directive that sets limit values for the pollutants such as nitrous oxides (NOx), particulate matter (PM_{10} $PM_{2.5}$), carbon monoxide (CO) and sulphur dioxide (SO_2). These are listed in Table 9.1

Table 9.1 CAFE Directive Limit Values

Air contaminant	Averaging period	Limit value (µg/m^3)	Basis of Application of Limit Value
CO	8-hour	10000	Maximum
NO_2	1-hour	200	Not to be exceeded more than 18 times in a calendar year
	Annual	40	Average
PM_{10}	24-hour	50	35th Highest
	Annual	40	Average
$PM_{2.5}$	Annual	25	Average
SO_2	1-hour	350	Not to be exceeded more than 24 times in a calendar year
	24-hour	125	Not to be exceeded more than 3 times in a calendar year
	Annual	20	Average
Benzene	Annual	5	Average

Dust Deposition Guidelines

In terms of health impacts, the focus is on dust particles that are less than 10µm. With regard to larger particles that can give rise to nuisance dust, there are no national statutory guidelines on the maximum deposition levels. However, the German TA-Luft standard for dust deposition (non-hazardous dust) (German VDI, 2002) sets a maximum permissible emission levels for dust deposition of 350 mg/m^2/day) averaged over a one month monitoring period at any receptor outside the site boundary.

The Department of the Environment, Health and Local Government (DOEHLG, 2004) Guidance recommends a limit of 350 mg/m^2/day to the site boundary for quarries and has also been incorporated into Environmental Management in the Extractive Industry (Non-Scheduled Minerals) (EPA, 2006) and the Irish Concrete Federation Environment Code (ICF, 2005). The 350 mg/m^2/day limit has been applied to the assessment of nuisance dust impacts in the construction and operation phase of the proposed development.

Odours

In 2020, the EPA issued its updated guidance document air quality impact assessment (known as AG4). Appendix H of the document provides guidance that is specific to the assessment of odour impacts using dispersion modelling techniques. In relation to the odour assessment criteria, AG4 states:

Currently there is no general statutory odour standard in Ireland relating to industrial installations. Guidance from the UK (EA, 2011, and adapted for Irish EPA use) recommends that odour standards should vary from 1.5 – 6.0 OUE/m3 as a 98th%ile of one hour averaging periods at the worst-case sensitive receptor based on the offensiveness of the odour and with adjustments for local factors such as population density...

Table A4 of AG4 contains indicative odour standards based on offensiveness of odour that have been adapted for use in Ireland. Relevant aspects are reproduced as follows:

- The most offensive odours should be assessed against an Indicative Criterion of 1.5 OUE/m^3 as a 98t^h%ile of hourly averages at the worst-case sensitive receptor

- Moderately offensive odours should be assessed against an Indicative Criterion of 3.0 OUE/m^3 as a 98th%ile of hourly averages at the worst-case sensitive receptor

- Less offensive odours should be assessed against an Indicative Criterion of 6.0 OUE/m^3 as a 98th%ile of hourly averages at the worst-case sensitive receptor.

The industrial sectors that fit into each category are:

Most offensive:

- Processes involving decaying animal or fish remains.

- Processes involving septic effluent or sludge waste sites including landfills, waste transfer stations and non-green waste composting facilities.

Moderately offensive

- Intensive Livestock Rearing

- Fat Frying / Meat Cooking (Food Processing)
- Animal Feed
- Sugar Beet Processing
- Well aerated green waste composting.

Less offensive

- Brewery / Grain / Oats Production
- Coffee Roasting
- Bakery
- Confectionery.

The sources of odour at the MRF fall into the most offensive category based on EPA guidance. The odour exposure criterion relevant to operations at the site is 1.5 OU_E/m^3 as a 98th%ile of hourly averages at the worst-case sensitive receptor

9.3.2 *Assessment of Impacts on Air Quality*

Traffic movements associated with the proposed development be the source of emissions of several air pollutants, which are also produced by a wide range of industrial, commercial and domestic processes. The pollutants of most concern near roads are nitrogen dioxide (NO_2) and particles (PM_{10}) in relation to human health and oxides of nitrogen (NO_x) in relation to vegetation and ecosystems.

The assessment of potential transport related air quality impacts was conducted using the screening method set out in the Design Manual for Roads and Bridges (DMRB) (Highways England, 2021).

The DMRB provides a framework for assessing, mitigating and reporting the effects of motorway and all-purpose trunk road projects on air quality by determining whether the impacts of a project on human health or designated habitats can trigger a significant air quality effect.

The DMRB describes a methodology for the assessment of air quality impacts from road schemes. It includes assessment methodologies to consider the impact of traffic emissions on a range of sensitive interests including human health and ecological health including the health of protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity.

The methodology includes a scoping approach to determine whether the air quality impacts of a project can be scoped out or require an assessment based on the changes between the do something traffic (with the project) compared to the do minimum traffic (without the project) in the opening year.

If a project triggers the traffic scoping criteria, either a simple, or detailed assessment is required and the level of assessment is determined by the level of risk and the stage of assessment for a project.

The scoping assessment methodology uses the following traffic criteria to determine whether the air quality impacts can be scoped out or require an assessment based on the changes between the do something traffic (with the project) compared to the do minimum traffic (without the project) in the opening year:

1) Annual average daily traffic (AADT) >=1,000; or
2) Heavy duty vehicle (HDV) AADT >=200; or
3) A change in speed band; or
4) A change in carriageway alignment by >=5m.

All roads that trigger the traffic screening criteria and adjoining roads within 200m is defined as the affected road network (ARN) (Highways England 2019).

In relation to the identification of sensitive receptors to consider the impacts on human health the DMRB stipulates that *"Sensitive receptors shall be chosen within 200m of the ARN and include residential properties, schools and hospitals for the assessment of annual mean air quality thresholds. Where there is a risk of the short-term air quality thresholds being exceeded."*

Regarding the selection of sensitive ecological receptors the DMRB states *"Internationally, nationally and locally designated sites of ecological conservation importance on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity (known as designated habitats) within 200m of the ARN shall be included in the air quality assessment."*

If the scoping assessment indicates that an assessment is required the DMRB provides a risk-based mechanism to determine whether a simple or detailed air quality assessment is required. The level of assessment is determined by the level of risk and the stage of assessment for a project.

A simple assessment provides sufficient information to confirm that the project does not result in any exceedances of the air quality thresholds. A detailed assessment is more likely where there is a risk of exceeding air quality threshold. To determine whether a simple or detailed air quality assessment is required the project risk potential (Table 9.2) and the receiving environment sensitivity (Table 9.3) must be determined.

Table 9.2 Air Quality Assessment :Project Risk Potential

Risk	Project examples
High	1) Large smart motorway projects, bypass and major motorway junction improvements.
Low	1) Junction congestion relief project i.e. small junction improvements, signalling changes; 2) Short smart motorway projects.

Table 9.3 Air Quality Assessment :Receiving Environment Sensitivity

Sensitivity	Features of receiving environment
High	1) Large number of receptors (human and / or ecological) within 50m of roads triggering traffic screening criteria; 2) Base line monitoring data indicates concentrations above the AQS Objective / EU limit value; 3) Monitoring indicates exceedances of short term AQS Objectives / EU limit value; 4) Projecting forward monitored concentrations to the opening year, indicates exceedances of AQS Objectives / EU limit value; 5) AQMAs or reported EU limit value exceedances within project's study area.
Medium	1) Receptors (human or ecological) within 50m of roads triggering traffic change criteria; 2) Base line monitoring data illustrates annual mean NO_2 concentrations >36µg/m³; 3)Projections indicate annual mean NO_2 concentrations>36µg/m³ in opening year; 4) AQMAs or EU limit value exceedances within project's study area.
Low	1) Few receptors located close to roads triggering traffic change criteria; 2) Base line monitoring data illustrates concentrations in base year below an annual mean of 36µg/m³; 3) No AQMAs or EU limit value exceedances within project's study area.

The project risk potential and the receiving environment sensitivity are combined to determine whether a simple or detailed air quality assessment is required based on the framework presented in Table 9.4. The DMRB states that *"Low risk projects are likely to result in traffic changes that are localised to the project and high risk projects are likely to impact traffic flows over a much wider area."*

Table 9.4 Framework to Determine the Scope of the Air Quality Assessment.

Risk potential of project	Receiving environment sensitivity		
	High	Medium	Low
High	Detailed	Detailed	Simple
Low	Detailed	Simple	Simple

The scopes of simple and detailed air quality assessments are in Table 9.5.

Table 9.5 Scopes of Simple and Detailed Assessment

	Simple assessment	Detail assessment
Traffic input	1) AADT / AAWT	1) period flows: 2) morning (AM); 3) inter peak period (IP); 4) evening peak period (PM); and 5) overnight period (OP).
Air quality modelling	1) Qualitative statement; or 2) Where required the Overseeing Organisation's air quality spreadsheet model.	1) detail air quality dispersion model
Receptors	1) A proportionate number of representative receptors which are located in areas with the highest concentrations and largest improvements and worsening as a result of the project.	1) representative; 2) all receptors with the likelihood to exceed air quality threshold.

The Highways Agency considers that the main potential impacts on air quality from increased traffic associated with a development is from PM_{10}, NO_2 and NO_x. The levels of sulphur dioxide, carbon monoxide and benzene are highly unlikely to be exceeded due to increased traffic from the proposed development in the operational stage and have therefore not been considered further.

The impact of $PM_{2.5}$ has not been considered in the traffic assessment as Highways Agency (2019) states *"There should be no need to model $PM_{2.5}$ as the UK currently meets its legal requirements for the achievement of the $PM_{2.5}$ air quality thresholds and the modelling of PM_{10} can be used to demonstrate that the project does not impact on the $PM_{2.5}$ air quality threshold."* Ireland also meets its legal requirements for the achievement of the $PM_{2.5}$ air quality thresholds and therefore $PM_{2.5}$ has not been considered further.

9.3.2.1 Method for Conversion of NOx to NO_2

Combustion processes release a group of compounds collectively known as oxides of nitrogen (NOx). Oxides of nitrogen include both nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O). NO_2 and NO undergo a series of complex reactions in air, that involve NO, ozone (O3) and nitrogen dioxide NO_2 in the presence of sunlight.

- Equation 1: $NO + O_3 \rightarrow NO_2 + O_2$
- Equation 2: $NO_2 + \text{sunlight} \rightarrow NO + O$
- Equation 3: $O + O_2 \rightarrow O_3$

This assessment has converted the NO to NO_2 in accordance with the NOx to NO_2 Conversion Spreadsheet (Version 7.1, June 2019) (Ricardo Energy and Environment, 2019). This requires regional concentrations of ozone, oxides of nitrogen and nitrogen dioxide above the surface layer and the fraction of nitrogen oxides emitted as nitrogen dioxide to be specified.

The NRA specifies that the UK region that best characterises regional concentrations of ozone, oxides of nitrogen and nitrogen dioxide in Ireland is Craigavon in Northern Ireland. The NOx to NO2 Conversion Spreadsheet (Version 7.1) (Ricardo Energy and Environment 2019) specifies concentrations of ozone, oxides of nitrogen and nitrogen dioxide for Armagh City, Banbridge and Craigavon, and the latter was selected to represent the site of the proposed development. The fraction

of nitrogen oxides emitted as nitrogen dioxide was determined based on the "All other urban UK traffic" option in the spreadsheet.

9.3.3 *Odour Impact Assessment*

With regards to process based emissions in the operational stage, detailed odour dispersion modelling in accordance with EPA Guidance AG4 was completed to assess the potential air quality impacts.

9.4 Proposed Development

Chapters 2 and 3 describe the existing site and proposed development. Those aspects that are relevant to the assessment of air quality are fugitive and point odour emissions to atmosphere (proposed OCU), the exhaust emissions from the additional traffic and the cumulative effects of operations in conjunction with the existing permitted activities.

9.5 Receiving Environment

9.5.1 *Meteorological Data*

A key factor in assessing temporal and spatial variations in air quality is the prevailing meteorological conditions. Depending on wind speed and direction, individual receptors may experience very significant variations in pollutant levels under the same source strength (i.e. traffic levels) (WHO, 2006).

Wind is of key importance in dispersing air pollutants and for ground level sources, such as traffic emissions and stationary sources, as pollutant concentrations are generally inversely related to wind speed. Therefore the concentrations of pollutants derived from traffic and stationary based sources is generally greatest under very calm conditions and low wind speeds.

In relation to PM_{10}, the situation is more complex due to the variety of sources. Smaller particles (less than $PM_{2.5}$) from traffic sources are dispersed more rapidly at higher wind speeds. However, fugitive emissions of coarse particles ($PM_{2.5}$ to PM_{10}) will actually increase at higher wind speeds. Thus, measured levels of PM_{10} is a non-linear function of wind speed.

The nearest representative synoptic weather station for detailed weather records is Dublin Airport Meteorological Station, which is approximately 5.5 km east of the site and approximately 64m above sea level. Figure 9.1 is a wind rose showing the annual distribution of winds at Dublin Airport between 2015 and 2019.

The annual distribution for each modelled year is presented in Figure 9. 2. The prevailing wind direction in Ireland is from the southwest. It is clear from Figure 9.2 that these winds have a strong influence on wind patterns at Dublin Airport. During the afternoon, winds are stronger than all other times of day as indicated in the diurnal wind roses (Figure 9.3).

The seasonal distribution of wind speed and wind direction are presented in Figure 9.4. The strongest winds occur most frequently from south to west during the winter. Winds during summer are lighter than during the other seasons. Some south-easterly winds are observed throughout the year and a small proportion of winds occur from the east and northeast during spring

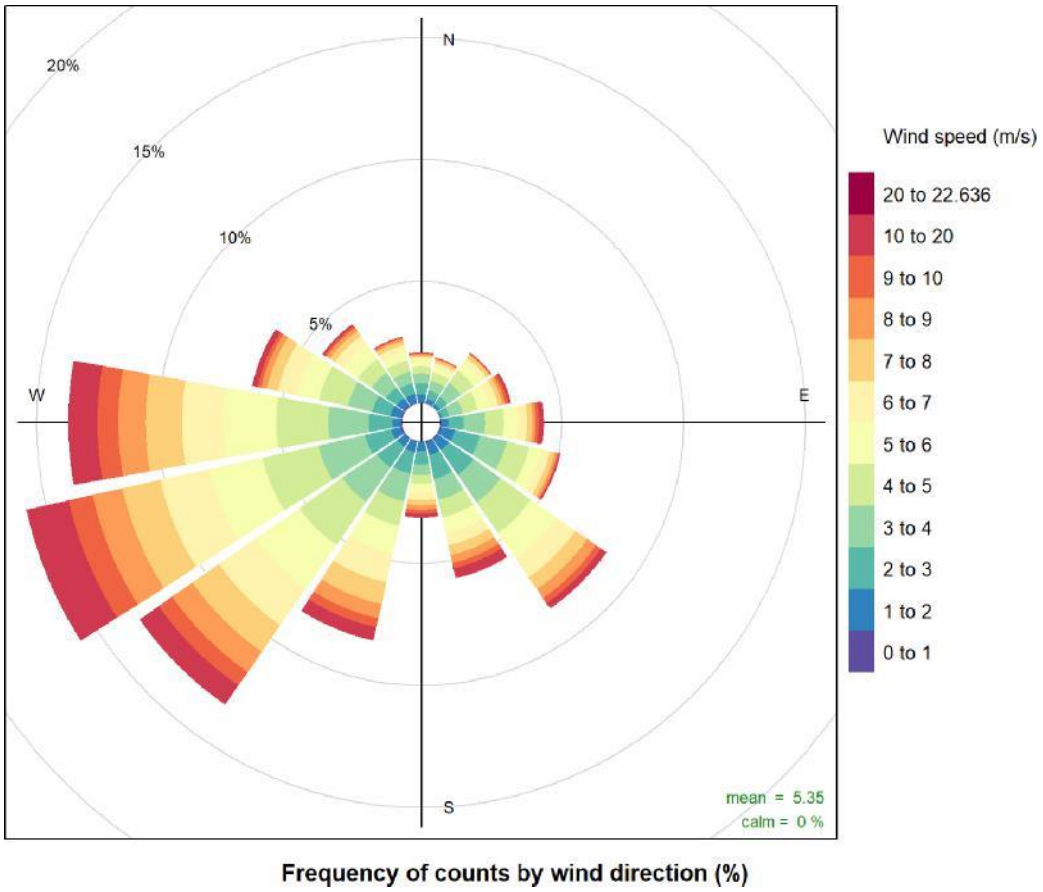


Figure 9.1 Wind Direction Dublin Airport 2015 to 2019

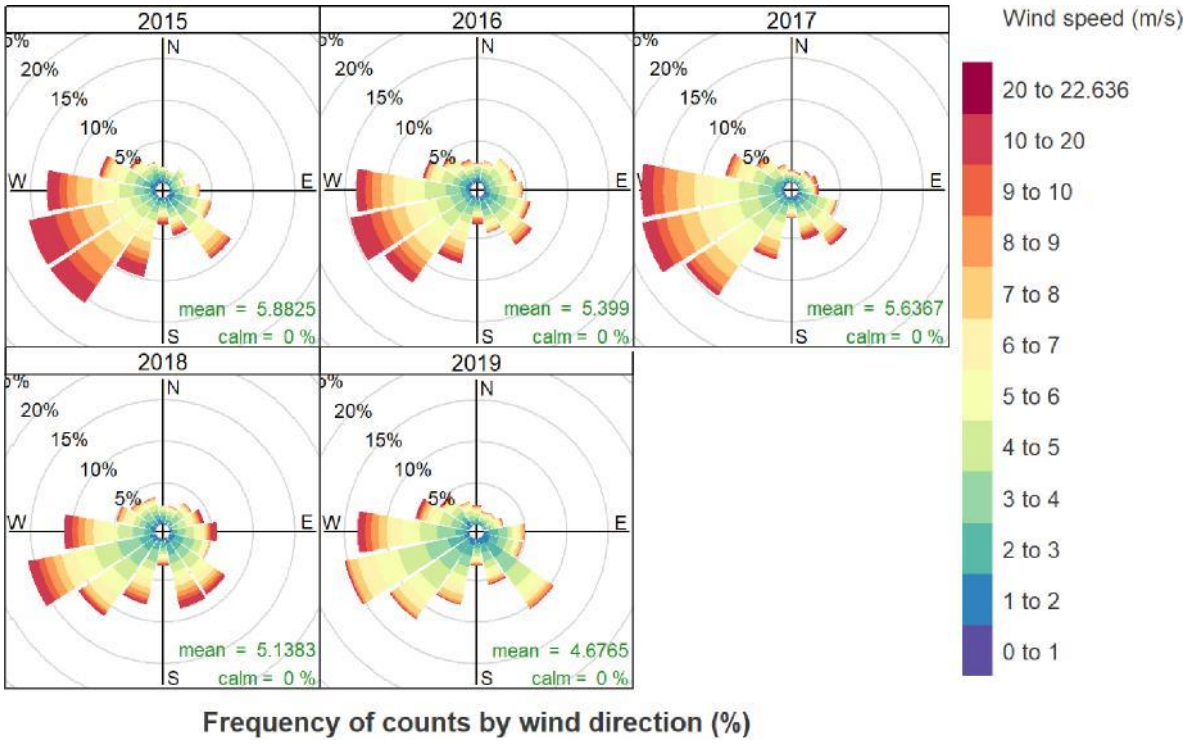


Figure 9.2 Wind Direction 2015 to 2019

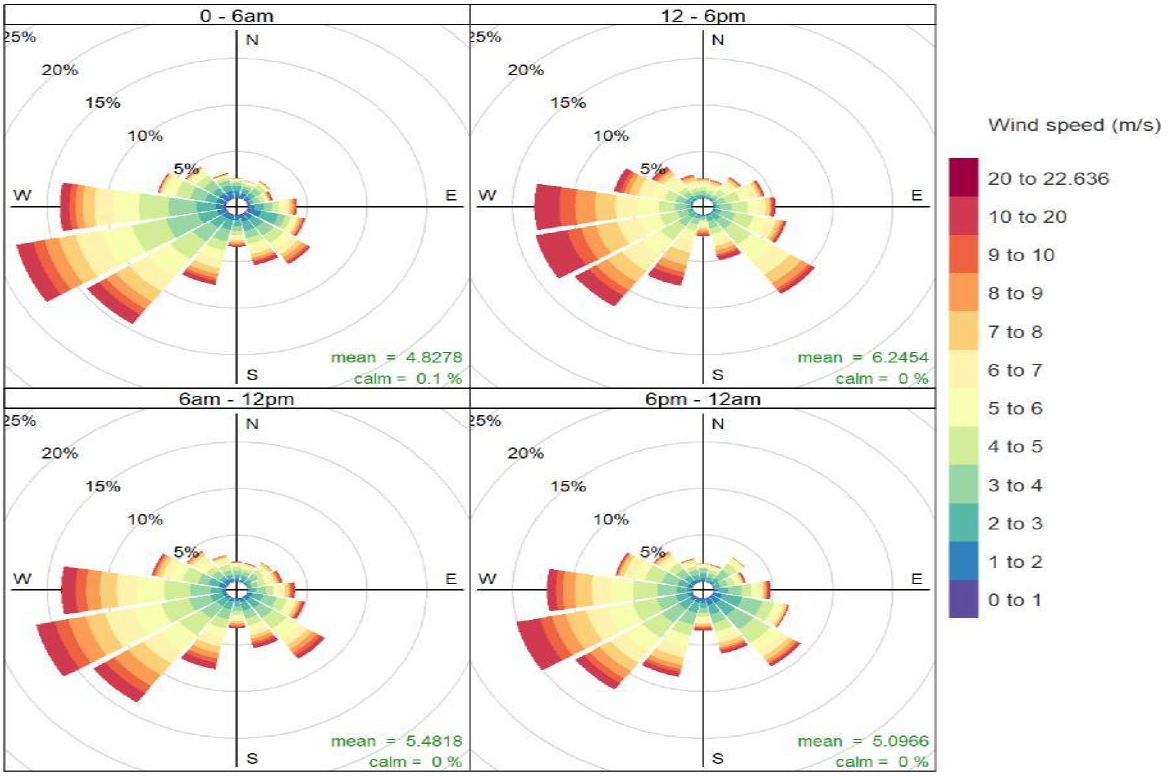


Figure 9.3 Diurnal Wind Direction

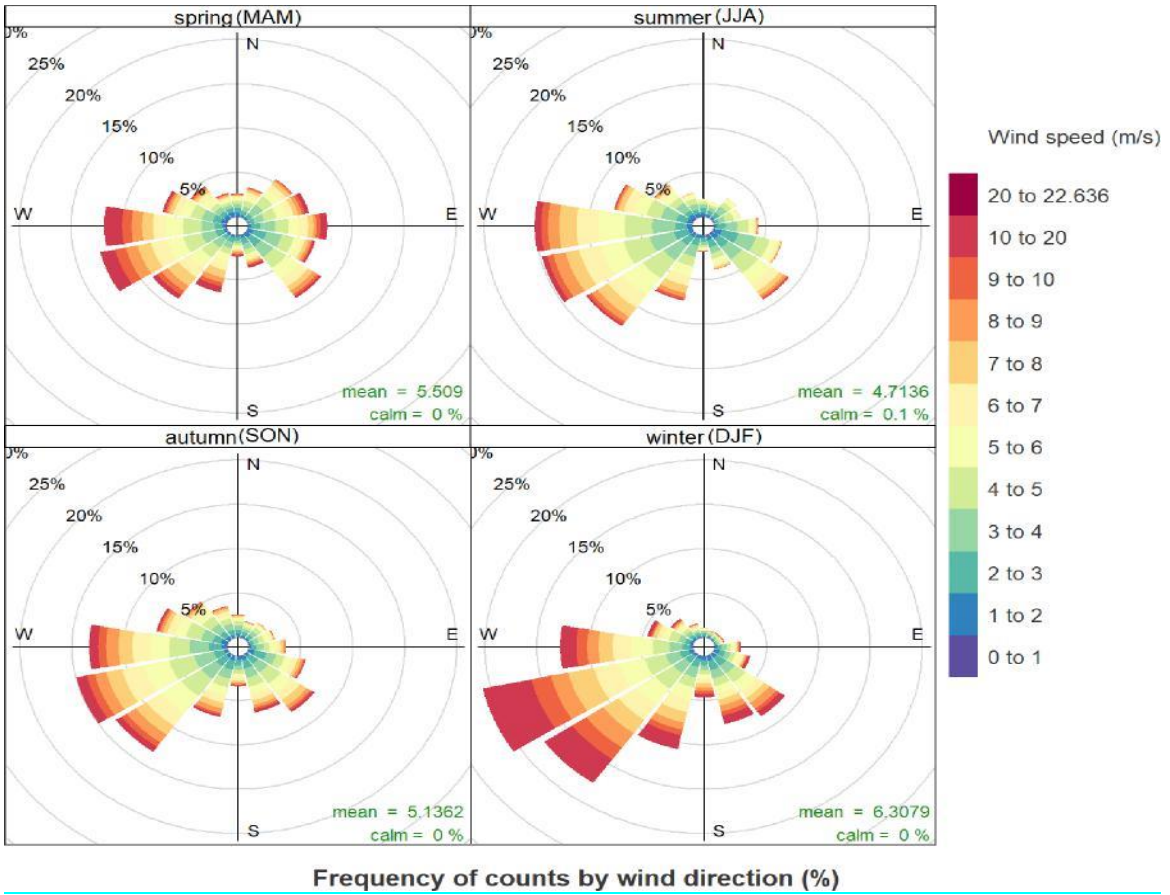


Figure 9.4 Seasonal Wind Direction

9.5.2 *Baseline Air Quality*

The EU Air Quality Framework Directive (96/62/EC) requires Member States to identify 'Zones' and 'Agglomerations' for air quality assessment purposes. In Ireland, four zones, A, B, C and D are defined in the Air Quality Standards (AQS) Regulations (SI No 180 of 2011).

- Zone A – Dublin Conurbation
- Zone B – Cork Conurbation
- Zone C – Large Towns with a Population > 15,000
- Zone D – Remaining Area of Ireland

Millennium Business Park is in Zone A.

The Air Quality Standards (AQS) Regulations (2002 SI No. 271 of 2002) sets limit values for sulphur dioxide, nitrogen oxide, particulate matter and lead in ambient air. These regulations apply to ambient air quality in the local vicinity of land-use/development types including quarries and concrete/asphalt manufacturing facilities.

The AQS Regulations set ambient limits for 2.5 micron(µm) and 10 µm particulates (annual mean of 40µg/m3 and 20µg/m3 respectively) to protect human health, but do not set limits for dusts >10µm, which typically relate to nuisance effects rather than potential health effects.

The EPA implements an air quality monitoring programme at a number of stations in Dublin and reports the results. Background air quality data for Zone A was obtained from four reports:

· Air Quality in Ireland 2019 – Indicators of Air Quality (EPA, 2020)

· Air Quality in Ireland 2020 – Indicators of Air Quality (EPA, 2021)

· Air Quality in Ireland 2021 – Indicators of Air Quality (EPA, 2022)

Background air quality data for Zone A measured at:

· Blanchardstown was used to represent ambient levels of NO_2 at the development site

· Blanchardstown and Finglas was used to represent ambient levels of PM_{10} and $PM_{2.5}$ at the development site

· Winetavern St, Rathmines, Tallaght or Ringsend was used to represent ambient levels of SO_2 at the development site

· Winetavern St, Rathmines, Tallaght or Ringsend was used to represent ambient levels of CO at the development site

The monitoring location at Blanchardstown is 3.2 km from the development site. It is surrounded by residential areas to the southwest and it is within 10 m of a major road that forms part of the M50-M3 Motorway Interchange. Given the proximity to residential areas and a motorway interchange, the data collected at Blanchardstown is considered to be a conservative representation of air quality at the development site.

The monitoring location at Finglas is also 3.2 km from the site and is surrounded by residential areas and roads typical of a suburban town centre. The air quality at this location is influenced by emissions from road traffic and residential heating and is considered to be a conservative representation of background air quality at the development site.

A summary of the background data relevant to the development is in Table 9.6. In the three years of reported monitoring there was no exceedance of air quality guideline levels.

Table 9.6 Background Ambient Air Quality

Pollutant	Averaging period	Value (µg/m^3)	Source
Nitrogen dioxide	1-hour	164.6	Second highest1-hour average concentration from Blanchardstown between 2019 and 2021
	Annual	31.0	Maximum from Blanchardstown between 2019 and
PM10	24-hour	19.0[1]	Maximum from Blanchardstown or Finglas between 2019 and 2021
	Annual	19.0	Maximum from Blanchardstown or Finglas between 2019 and 2021
PM2.5	Annual	9.0	Maximum from Blanchardstown or Finglas between 2019 and 2021
Sulphur Dioxide	1-hour	62.5	Maximum from Winetavern St, Rathmines, Tallaght or Ringsend between 2019 and 2021
	24-hour	44.2	Maximum from Winetavern St, Rathmines, Tallaght or Ringsend between 2019 and 2021
	Annual	5.2	Maximum from Winetavern St, Rathmines, Tallaght or Ringsend between 2019 and 2021
Carbon Monoxide	8-hour Rolling	3,600	Maximum from Winetavern St between

Note:
[1] UK DEFRA and EPA advise that the 36th high 24-hour mean process contribution can be added to the annual mean background PM10

9.5.3 *Nuisance Dust*

The EPA licence requires dust deposition monitoring to be carried out at four on-site boundary locations on three occasions annually. In 2021 the monitoring was completed in February, April and September, while in 2021 the monitoring was completed in February, May and August.

The monitoring reports, which described the monitoring methodology, are in Appendix 9.1 and the results are presented in Table 9.7. On all occasions the levels were below the deposition limit specified in the EPA licence, confirming that site operations are not a source of dust nuisance.

Table 9.7 Dust Monitoring Results 2021 and 2022

Location	Feb 2021 mg/m²/day	Apr 2021 mg/m²/day	Sept 2021 mg/m²/day	Feb 2022 mg/m²/day	May 2022 mg/m²/day	Aug 2022 mg/m²/day	Deposition Limit mg/m²/day
DS 01	31	111	328	101	100	33	350
DS 02	28	138	147	222	45	35	350
DS 03	28	104	192	53	34	34	350
DS 04	27	133	201	98	87	34	350

9.5.4 *Sensitivity of the Receiving Environment*

For the purposes of this assessment, high sensitivity receptors are regarded as residential properties where people are likely to spend the majority of their time.

9.5.4.1 Odour

The sensitive receptors that are of interest in relation to odour emissions from the site are around the southern portion of the site, as MP2 is where odorous materials are handled and processed. The odorous emissions will be treated in the OCU adjacent to the MP2 unit. The closest sensitive odour receptors are presented in Figure 9.5 and are commercial and industrial premises immediately south and west of the site boundary.

Figure 9. 5 Nearest Sensitive Odour Receptors

The closest sensitive residential receptors are more than 800 m from the site boundary. These sensitive residential receptors have not been explicitly included in the dispersion model; however, the odour levels at these locations can be inferred from the dispersion modelling results, which show that concentrations of odour fall significantly with distance from the site. If the odour levels comply with the relevant odour criterion at the modelled sensitive locations in close proximity to the site then the odour levels also comply with the relevant odour criterion at sensitive locations further from the site boundary.

9.5.4.2 Air Quality

The sensitive receptors of interest in relation to increased traffic are in close proximity to the road network used by the operational traffic. The closest residences to each road link on the ARN were included in the modelling assessment. However many of the road links on the ARN are not in residential areas and where there are no residential receptors adjacent to a road link, the closest commercial or industrial building to the road link was included. The sensitive receptors included in the modelling assessment are shown on Figure 9.6 and listed in Table 9.8.

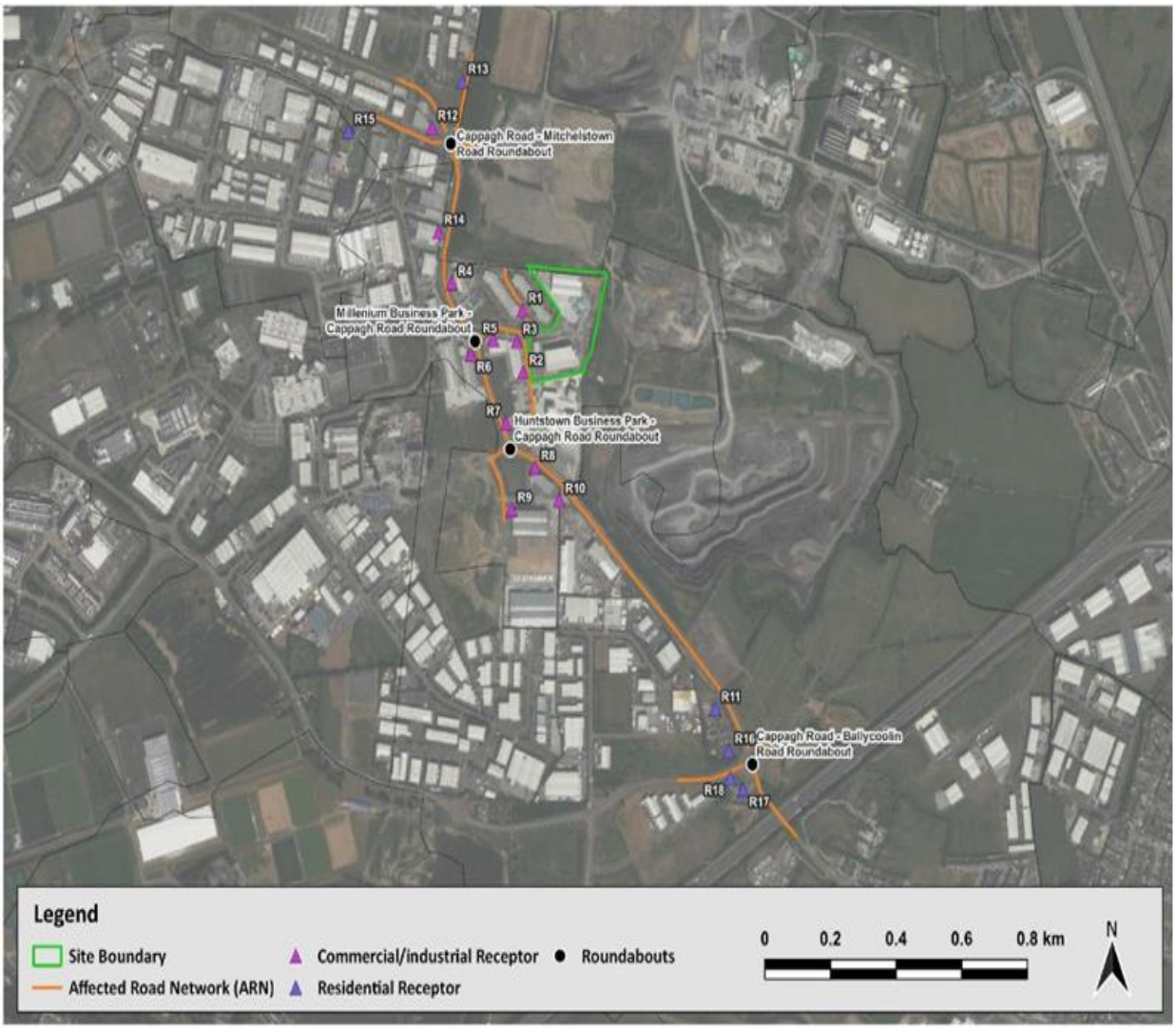


Figure 9.6 Sensitive Receptors

Table 9.8 Sensitive Receptors Included in Modelling Assessment

Receptor	Location		Receptor Description	Road Link on ARN
	Easting	Northing		
	m	m		
R1	676652	5921012	Closest commercial/industrial Building	200 m north of Greenstar Facility Road Junction
R2	676654	5920859	Closest commercial/industrial Building	200 m south of Greenstar Facility Road Junction
R3	676635	5920935	Closest commercial/industrial Building	West of Greenstar Facility Road Junction
R4	676436.8	5921079	Closest commercial/industrial Building	North of Millennium Business Park - Cappagh Road Roundabout
R5	676563.3	5920939	Closest commercial/industrial Building	East of Millennium Business Park - Cappagh Road Roundabout
R6	676495	5920902	Closest commercial/industrial Building	South of Millennium Business Park - Cappagh Road Roundabout
R7	676603.3	5920733	Closest commercial/industrial Building	North of Huntstown Business Park - Cappagh Road Roundabout
R8	676690.1	5920623	Closest commercial/industrial Building	South of Huntstown Business Park - Cappagh Road Roundabout
R9	676618.9	5920520	Closest commercial/industrial Building	West of Huntstown Business Park - Cappagh Road Roundabout
R10	676764	5920542	Closest commercial/industrial Building	Northwest of Panda Facility Access Junction
R11	677239.8	5920026	Closest Residential Receptor	Southeast of Panda Facility Access Junction
R12	676376.2	5921464	Closest commercial/industrial Building	200 m along Cappagh Road, north of Cappagh Road - Mitchelstown Road
R13	676468.7	5921579	Closest Residential Receptor	200 m along Kilshane Road, north of Cappagh Road - Mitchelstown Road
R14	676396	5921206	Closest commercial/industrial Building	Cappagh Road South of Cappagh Road - Mitchelstown Road Roundabout
R15	676122.2	5921455	Closest Residential Receptor	Mitchelstown Road, west of Cappagh Road - Mitchelstown Road Roundabout
R16	677281.3	5919922	Closest Residential Receptor	North of Cappagh Road - Ballycoolin Road Roundabout
R17	677325	5919826	Closest Residential Receptor	200 m south of Cappagh Road - Ballycoolin Road Roundabout
R18	677286	5919855	Closest Residential Receptor	200 m west of Cappagh Road - Ballycoolin Road Roundabout

9.6 Impacts

9.6.1 *Construction Stage*

The development does not involve any construction works, apart from the assembly of the odour control system, and therefore there will be no construction stage impacts.

9.6.2 *Operational Stage*

In the absence of mitigation, dust emissions from waste processing have the potential to impact (soiling) on sensitive receptors outside the site boundary and affect air quality. The primary source of dust emissions is and will continue to be the processing of the wastes. Secondary sources are vehicle movements on the paved yards during dry periods. Vehicle exhausts contain a range of compounds that affect air quality, for example nitrous oxides and PM_{10}.

In the absence of mitigation the processing of odorous wastes (mixed municipal waste and 'brown bin' wastes) have the potential to be a source of off-site odour nuisance.

9.7 Baseline Scenario

If the proposed development does not proceed there will be no new point emission sources i.e. the OCU, and no additional traffic with their associated exhaust emissions. The facility will continue to operate as is, and there will be no change to the impacts on air quality.

9.8 Prevention & Mitigation Measures

9.8.1 *Design Stage*

The odour management system described in Section 3. 2 will be installed in the section of MP1 used to accept and process the mixed municipal waste and to bulk up and transfer the 'brown bin; waste. The design of the proposed odour management system will meet the requirements of the EU BREF Waste Treatment for odour control systems installed in licensed waste management facilities.

It will be a design objective that the OCU achieves an odour exposure level of >1.5 odour units at off-site sensitive receptors. As required by the EPA licence the proposed design will be submitted to the EPA for it prior approval before the odour management system is installed.

The Katestone odour dispersion modelling (Sections 5 and 7.1 of Appendix 9.1) has confirmed that the proposed odour control unit will achieve compliance with the odour criterion recommended by EPA for waste facilities of 1.5 OU_E/m3 at all sensitive receptors.

9.8.2 *Construction Stage*

The installation of the odour management system will be subject to a construction quality assurance programme to ensure it is installed and commissioned in accordance with the approved design criteria and supplier specifications.

9.8.3 *Operational Stage*

SEHL has prepared an Odour Management Plan (OMP) that specifies the control measures that are implemented to ensure operations do not cause off-site odour nuisance. The control measures include:

- Fast turn-around times for the wastes prevents the accumulation of large volumes of odour generating waste. Condition 6.5.1 of the EPA licence requires that "all waste for disposal to be removed from the facility within forty eight hours of its arrival at the facility";
- All 'brown bin' waste is bulked up and transferred as soon as possible to designated facilities for processing. The segregated fractions from the MSW processing line are sent off-site to their destinations as soon as possible after processing;
- At any one time there is a maximum of 200 tonnes of MSW and 100 tonnes of' brown bin' waste inside the building;
- Weekly cleaning of all bays where MSW and' brown bin' waste is stored;
- Fast acting doors on the entrances to MP2 that minimise the door opening times when vehicles enter and leave the building, and
- A mobile odour neutralising atomiser is maintained at the site and deployed in the event of extended periods of warm weather or if a particularly odorous load is delivered.
- The odour management system will be the subject of regular inspection and be included in the critical plant preventative maintenance programme. SEHL will maintain a supply of replacement carbon and critical spare parts on site to minimise down time during planned replacement of the carbon and unexpected breakdowns.

These existing measures in conjunction with the provision of the odour management system in MP1 provide the required level of protection to air quality.

9.8.3.1 Vehicle Exhaust Emissions

The vehicles that transport the wastes are typically fitted with Selective Catalytic Reduction (SCR) systems. A diesel exhaust fuel additive (AdBlue) is used in the SCR to reduce the nitrous oxide levels in the exhaust gases and it is SEHL policy not to allow engine idling.

9.9 **Monitoring**

The dust deposition monitoring will continue at the locations and frequencies specified in the EPA licence. The EPA will specify ELVs for the odour emissions from the OCU and the emissions will be

monitored at the frequencies determined by the EPA. In addition the operating performance of the OCU will be regularly monitored to ensure that the filters are cleaned/changed to allow it to function properly.

9.10 Cumulative Effects

The Katestone air quality impact assessment (Sections 6 and 7.2 of Appendix 9.1) has established that the exhaust emissions from the traffic associated with the proposed development, in combination with the traffic emissions associated with the Panda Cappagh Road facility and the relevant background concentrations, will be below the relevant air quality criteria at all modelled sensitive locations.

9.11 Residual Impacts

9.11.1 *Normal Operations*

The odour dispersion modelling has established that odours will not be a cause of nuisance at the nearest noise sensitive receptors. The impact of additional traffic resulting from the proposed development on air quality at all modelled sensitive locations is imperceptible (less than 0.4 µg/m^3 as an annual average concentration for NO_2 and PM_{10}). The proposed development will have a **negative, imperceptible, likely, local** and **long term** impact on air quality.

9.11.2 *5.9.2 Worst Case*

In the event of a breakdown of the OCU there is the potential for odour nuisance to occur at off-site receptors. In the event of a fire smoke emissions would be generated by the combustion of materials and wastes. Based on the brief duration of the exposure to the odours and the fire the residual impact will be **negative, imperceptible, likely, local** and **brief**.

9.12 References

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10 POPULATION & HUMAN HEALTH

10.1 Introduction

This Chapter describes the population distribution in the vicinity of the proposed development and assesses the impacts of the proposed development on the population and human health. The assessment considered a 'baseline' scenario and identifies the prevention, mitigation and monitoring measures that will be implemented to reduce the significance of the impacts and assesses the residual impacts. This Chapter should be read in conjunction with Chapter 9 Air and Chapter 14 Traffic and Transport.

The term "human health" is not defined in the 2014 EIA Directive. There is a close interrelationship between the SEA Directive and the 2014 EIA Directive. The term "human health" is contained in both the SEA and EIA Directives and a common interpretation can be assumed. Therefore the consideration of human health effects associated with a project should focus on health issues arising in the context of the other relevant environmental factors listed in Article 3 of the Directive[9], namely:

- Population
- Biodiversity, with particular attention to protected species and habitats
- Land, soil, water, air and climate
- Material assets, cultural heritage and the landscape
- Interactions between the above factors

The EIA Directive and transposing regulations do not generally require assessment of land-use planning, detailed demographic issues or socio-economic analysis and this should be avoided in an EIAR, unless issues such as economic or settlement patterns give rise directly to specific new developments and associated effects[10]. Given the nature of the proposed development these aspects have not been considered.

This Chapter was prepared by Dr Martina Gleason and Mr Jim O'Callaghan of OCM, with assistance from Mr Damian Brosnan of Damian Brosnan Acoustics (dBA). Mr Brosnan holds a BSc, Diploma in Acoustics and Noise Control, MSc in Applied Acoustics and is a Member of the Instituted of Acoustics (MIOA) and is a founding member of the Association of Acoustic Consultants of Ireland (AACI) who has over 20 years' experience in scoping and carrying out noise and vibration impact assessments.

[9] • Government of Ireland Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018).

[10] Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA 2022).

10.2 Relevant Legislation & Guidelines

In addition to the guidance documents referenced in 1.5 of the EIAR the following legislation and guidance were taken into consideration.

- Directive 2002/49/EC Of The European Parliament And Of The Council Relating To The Assessment And Management Of Environmental Noise (2002), Transposed Into Irish Law By The European Communities (Environmental Noise) Regulations 2018 (SI No. 549/2018).

- NG4 Guidance Note for Noise: Licence Applications, Surveys And Assessments In Relation To Scheduled Activities (Environmental Protection Agency, 2016).

10.3 Methodology

The assessment was based on the land use and settlement patterns in the vicinity of the facility. The information was derived from databases maintained by the Central Statistics Office (CSO), the Fingal County Development Plan and the results of the air quality and noise monitoring programmes conducted by SEHL in compliance with the IE Licence. The assessment also took account of the assessment of the impacts on air quality (Chapter 9) and the traffic and transport assessment (Chapter 14).

10.4 Proposed Development

Chapter 3 provides a detailed description of the proposed development. Those aspects of the development that are relevant to Population & Human Health include settlement patterns, local amenities, emissions during the operational stages with the potential to directly and indirectly impact on human health, for example air emissions and noise, and potential sources of nuisance (e.g. odours and traffic congestion).

10.5 Receiving Environment

10.5.1 *Population*

Fingal's population, derived from the in the 2020 Census is 329,218, which equates to 22.7% of the total population of Dublin. Fingal's share of the Dublin population has risen steadily since 1986, when it was just 14%.

The surrounding land use is shown on Figure 10.2. The site is in the east of an area that has been extensively developed for commercial and industrial use. The lots to the west are occupied by commercial units and warehousing. To east and north is Huntstown Quarry. The lot to the south is occupied by a cement manufacturing plant and further south and south-west are the Stadium and Rosemont Business Parks. The SEHL Cappagh Road MRF is approximately 0.9 m to the south. The nearest occupied dwelling is approximately 1km to the south.

10.5.2 *Amenities*

There are no recreational areas, schools, nursing homes or medical centres within 1km of the site.

10.5.3 *Major Accidents and Natural Disasters*

10.5.3.1 Major Accidents

The Seveso II Directive 96/82/EC is concerned with the prevention of major accidents that involve dangerous substances and the limitation of their consequences for humans and the environment. It applies to establishments where dangerous substances are produced, used, handled or stored.

The Directive was transposed into Irish law by the "European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations" SI No 476 of 2000 implements this Directive in Irish law. The National Authority for Occupational Safety Health (the Health and Safety Authority (HSA) is designated as the central competent authority for enforcement of these Regulations.

Facilities that are subject to the Regulations are ranked as Upper and Lower Tier Establishments based on scale. The proposed development will not be subject to the Regulations. The nearest Seveso facility to the subject site is a Lower Tier Establishment on Corballis Road, approximately 7km away.

10.5.3.2 Natural Disasters

The subject site is not in an area at risk of land instability or identified as being at risk of, pluvial, fluvial or groundwater flooding. .

10.5.4 *Air Quality*

The site is in an area that that has been extensively developed for industrial and commercial use and mineral extraction. The ambient air quality, based on the results of continuous monitoring conducted by the EPA in Finglas, is good (Section 9.5.3).

10.5.5 *Noise & Vibration*

The EPA licence specifies daytime (45dBA) and night-time (55dBA) noise emission limits that must be complied with at off-site noise sensitive locations. Daytime and night-time noise monitoring is carried out annually, as required by the EPA licence at three on-site (N1, N2 and N3) and one-off site location (NSL1), as shown on Figure 10.1. NSL1 is the off-site sensitive location.

The monitoring is conducted by dBA and a copy of their report on most recent monitoring event (July 2022) is in Appendix 10.1. The report describes the methodology applied and includes the full set of results, which are summarised in Table 10.1

As is expected, given their proximity, noise emissions from SEHL operations are predominant at the on-site monitoring locations. Noise from operations at the off-site noise sensitive location is inaudible and compliant with the emission limits set in the EPA licence. The dominant source of noise in the locality is road traffic. SEHL has not received any complaints regarding noise emissions from its activities.

Table 10.1 Noise Monitoring Results July 2022

Period	Station	N1	N2	N3	NSL1
Daytime	Applicable parameter	$L_{Aeq\ 30\ min}$	$L_{Aeq\ 30\ min}$	$L_{Aeq\ 30\ min}$	$L_{Aeq\ 30\ min}$
	Limit (dB)	-	-	-	55
	Facility specific level (dB)	59	61	<66	<50
	Compliance	N/A	N/A	N/A	✓
Night-time	Applicable parameter	$L_{Aeq\ 30\ min}$	$L_{Aeq\ 30\ min}$	$L_{Aeq\ 30\ min}$	$L_{Aeq\ 30\ min}$
	Limit (dB)	-	-	-	45
	Facility specific level (dB)	<40	59	57	<45
	Compliance	N/A	N/A	N/A	✓

Figure 10.1 Noise Monitoring Locations

10.6 **Impacts**

10.6.1 *Construction Stage*

The development does not involve any construction works, apart from the assembly of the odour control system, and therefore there will be no construction stage impacts.

10.6.2 *Operational Stage*

In the absence of mitigation waste processing activities have the potential to impact on air quality and be as source of off-site nuisance and impairment of amenity linked to noise and odour emissions, traffic and vermin Contaminated rainwater and process wastewater has the potential to impact on surface water and groundwater quality, with consequences for water supply abstractions.

10.6.2.1 Air Quality

The assessment of the impacts on Air (Chapter 9) has established that the emissions to atmosphere from the proposed development will not affect human health and will not be a source of odour nuisance.

10.6.2.2 Noise

The noise sources include transport vehicles and fixed and mobile plant. The proposed development does not require the provision of any new sources of noise emissions, with the exception of the odour management system, which will include extraction fans. There will be no change to the current operational hours, which will continue to be 24/7.

10.6.2.3 Traffic

The traffic assessment (Chapter 14) established that the local road network has the capacity to accommodate the additional traffic associated with the proposed development

10.6.2.4 Water Quality

The assessment of the impacts on Water (Chapter 7) concluded that the development will have no adverse impact.

10.6.2.5 Nuisance

The types of materials accepted and processed are potentially attractive to vermin, insects and birds and are also a potential source of litter. While these do not present a direct human health risk, they can be a significant nuisance and cause of discomfort to people living in the locality.

10.6.2.6 Fire

A major incident such as a fire presents a risk to site staff and there is the potential, depending on the weather conditions, for smoke to affect the occupants of the residential, industrial and commercial properties in the vicinity of the site.

10.6.2.7 Amenities

The proposed development will have no impact on recreational and amenity areas in the vicinity of the site.

10.7 **Baseline Scenario**

If the proposed development does not proceed there will be no new point emission sources to air (OCU), no additional traffic with their associated emissions and no additional noise sources (OCU). The facility will continue to operate as is and there will be no change to the potential impacts on Population & Human Health.

10.8 **Prevention & Mitigation Measures**

10.8.1 *Design Stage*

Based on the operation of a similar odour management system at the Panda Cappagh Road MRF, noise emissions from the proposed odour control system is unlikely in an exceedance to the EPA licence emission limits at off-site sensitive locations. However as a precautionary measure the design stage will include an assessment of the noise rating of the fans in the proposed odour management system to determine the likelihood of the exceedances of the EPA licence noise emission limits and characteristics.

Should this assessment identify the potential for such exceedances appropriate acoustic screening will be incorporated into the design. As referred to above the design must be approved in advance by the EPA.

10.8.2 *Construction Stage*

As the development does not involve any construction works, construction stage prevention and mitigation measures are not required.

10.8.3 *Operational Stage*

10.8.3.1 Fire

The fire prevention, detection and suppression measures are described in Section 2.21. SEHL has completed a Fire Risk Assessment that identifies all of the potential sources of fire and assesses the current prevention, detection and suppression controls.

SEHL has prepared an Emergency Response Procedure that describes the actions taken in the event of a fire outbreak to ensure it is contained and extinguished as soon as is practical.

SEHL has prepared an Environmental Liability Risk Assessment that identifies the likely impacts of a fire and sets out the remedial measures that will be implemented to effectively mitigate those impacts.

10.8.3.2 Noise

SEHL implements the control measures specified in the EPA licence that are designed to ensure operations do not give rise to noise and odour emissions that will be a cause of nuisance or impairment outside the facility boundary and these will continue to be applied. These measures include:

- Provision of noise control measures, as required, at shredders and screens
- All waste acceptance and processing is carried out inside the buildings
- The doors on the MSW and Brown Bin waste processing areas are kept closed where possible,

Vehicle movements in and out of the site are also sources of noise; however these movements are part of the normal activities in the Business Park and prevention and mitigation measures are not required. SEHL has a policy not to allow engine idling within the site boundary.

The odour management system will be the subject to a regular preventative maintenance programme to ensure it operates effectively. Stocks of the carbon filter media will be kept on site to minimise downtime of the OCU when it has to be replaced.

10.8.3.3 Nuisance

SEHL implements the control measures specified in the EPA licence that are designed to ensure operations do not cause nuisance outside the site boundary. Such measures include:

- Daily litter patrols
- Retaining a pest controller that visits the facility regularly and implements appropriate pest and vermin control measures as required.

10.9 **Monitoring**

The EPA licence requires the monitoring of surface water, foul water, emissions to air and noise and the submission of the results to the EPA. Any exceedance of an emission limit value specified in the licence is deemed to be an incident that must be investigated to identify the cause and the appropriate corrective actions implemented.

10.10 **Cumulative Effects**

The proposed development will result in an increase in emissions to air however the assessment of the impact on air quality (Chapter 9) has established that this will not have a cumulative negative impact.

10.11 **Residual Impacts**

The proposed development will have a **negative, imperceptible, local likely** and **long term** impact on Population and Human Health.

In the operational stage in the event of smoke emissions would be generated by the combustion of materials and wastes. Depending on the duration of the fire the Emergency Services may require the evacuation of premises in the vicinity. Based on the brief duration of the fire the residual impact will be negative, imperceptible, likely, national and long term.

11 LANDSCAPE & VISUAL IMPACT

11.1 Introduction

This Chapter provides an assessment of the visual impacts of the proposed development on the landscape and visual amenity, which includes a 'baseline' scenario. It identifies the prevention and mitigation measures that will be implemented to reduce the significance of the impacts and assesses the residual impacts. The Chapter was prepared by Jim O'Callaghan of OCM.

11.2 Relevant Legislation & Guidelines

The general EIA guidelines and legislation are listed in Sections 1.5 and the specific guidelines relevant to the Landscape and Visual Impact Assessment taken into account in the preparation of this Chapter are:

- Guidelines for Landscape and Visual Impact Assessment (Landscape Institute & IEMA., UK 2013)
- Landscape and Landscape Assessment, Consultation Draft of Guidelines for Planning Authorities' published by the Department of the Environment and Local Government (June 2002).
- Landscape Character Assessment (Fingal Development Plan 2017-2023).

11.3 Methodology

The objective of the assessment was to determine the magnitude and significance of the proposed development to the landscape character and visual setting. Significance depends on the sensitivity of the affected landscape and visual receptor and the magnitude of change judged to have resulted from the proposed development. In considering the magnitude and significance, the following were taken into account:

- The sensitivity of views taking into account both the public accessibility of the land where views are possible and the likely sensitivity of that view given the distance, travelling speed (if relevant), intervening vegetation and land usage;
- The quality and value of the existing landscape;
- The degree to which the development will be visible within the surrounding area, and
- Any other changes in the existing landscape e.g. new road junctions.

While the significance or scale of impact may range from 'Imperceptible' to 'Profound' in relation to distance and proximity, the nature of the change and the sensitivities of the viewers must be considered. An individual's sensitivity can cause emotive responses that often have little or no regard to the appropriateness and/or design of the proposal and in such it must be borne in mind that the impact of a proposed development must be assessed based on its context.

The assessment of quality must consider the nature of the proposed change, its context, appropriateness, quality of design and the sensitivities of the viewers. The quality of impact can be determined as 'positive' or 'negative' depending on whether the change is considered to improve or reduce the quality of the landscape character or visual environment. It may also be assessed as 'neutral' if the landscape is unaffected.

11.4 Proposed Development

Chapters 2 and 3 describe the existing site and the proposed development, which does not involve any change to the appearance of the buildings, the site layout and external materials storage areas, with the exception of the installation of the OCU at the north eastern elevation of MP1 (Drawing No. 211_066-ORS-Z1-ZZ-DR-AR-217)

11.5 Receiving Environment

11.5.1 *Landscape Character*

The landscapes of North Dublin County comprise a dynamic mix of living elements that respond to history, culture, natural cycles, weather events, water, climatic and economic factors including those that relate to agriculture, industry, energy, transport, settlement and tourism. The Fingal Development Plan defines six Landscape Character Types in Fingal:

- High Lying Agriculture
- Low Lying Agriculture
- Estuary
- Coastal
- River Valleys and Canal

The site is in the Low Lying area, which is characterised by a mix of pasture and arable farming on low lying land with few protected views or prospects. At a site specific level, the facility is an area where the land cover use is industrial/commercial in an established and extensively developed industrial area. It is not in an area designated as highly sensitive and is not overlooked by any designated views or prospect areas.

11.5.2 *Building Form*

The shape and mass of the existing buildings are similar to those of other commercial and industrial operators in the Millennium Business Park and the adjoining and nearby industrial estates.

11.5.3 *View Points*

Due to the combination of the layout of the Business Park and its internal landscaping full views of the development site are limited to the approach roads to the main entrance in the south of the site, where there are views of the western and eastern elevations of the Office and MP1 & MP2, with limited views of the upper sections of theses building and MP 3 from the other Business Park access roads. Apart

from the site entrance and the staff carpark there are no public views of the internal operational area from within the Business Park.

Views from inside the Business Park and internal views of the forms of the existing buildings are shown on Photographs 12.1 to 12.8. The photographs were taken in the Autumn/Winter when screening by deciduous planting that predominates within the Business Park is minimal.

Photograph 12.1 View of Office and MP1 & MP2 from North West

Photograph 12.2 View of Office and MP1 & MP2 from South

Photograph 12.3 View of Eastern Elevation of MP1 & MP2 From Business Park

Photograph 12.4 View From Car Park Looking East (Concrete Plant on Right)

Photograph 12.5 View of Site Entrance (Google Street View)

Photograph 12.6 Internal View of Northern Elevation of MP1 & MP2

Photograph 12.7 Internal View of Weighbridge Office

Photograph 12.8 Internal View of Southern Elevation of MP3 & External Storage Area

11.6 Impacts

The only change to the external appearance of any of the buildings will be the installation of the OCU (40m^2) at the eastern elevation of MP-1, as shown on Drawing No Drawing No. 211_066-ORS-Z1-ZZ-DR-AR-215). The elevation of the OCU is shown on Drawing No Drawing No. 211_066-ORS-Z1-ZZ-DR-AR-217) The OCU will not be visible from public viewing points. The top of the emission stack will be 18m above ground level and will be visible from the Business Park internal roads.

11.7 Baseline Scenario

If the proposed development does not proceed, the facility will continue to operate in its current layout, with no change to the external appearance of the northern elevation of MP-1.

11.8 Prevention & Mitigation Measures

11.8.1 *Design Stage*

The height of the stack on the OCU is determined by the odour dispersion modelling (Chapter 9) and is the lowest that can achieve the dispersion required to mitigate odour impacts. The location of the OCU was selected to screen the unit from public view points.

11.8.2 *Construction Stage*

As the development does not involve any construction works, apart from the assembly of the odour control system at the rear of the Materials Recovery Building which will screen the assembly of OCU from public view, construction stage prevention and mitigation measures are not required.

11.8.3 *Operational Stage*

The landscape maintenance programme required by the EPA licence will continue and additional mitigation measures are not required.

11.9 Monitoring

The landscape monitoring programme required by the EPA licence will continue and additional monitoring measures are not required.

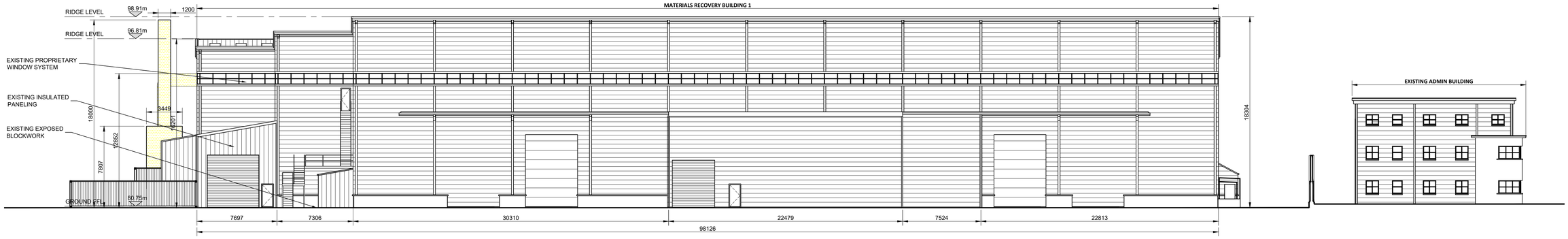
11.10 Cumulative Effects

The only change to the external appearance will be the top of the OCU stack. Given the location and the surrounding land use the proposed development will have no significant cumulative impacts on the landscape.

11.11 Residual Impacts

While the stack will be visible from public viewing points within the Business Park, it will not be obtrusive and will be similar to other external air handling and telecommunication masts across the Business Park. The proposed development will have a **neutral, imperceptible, local, likely** and **long term** impact

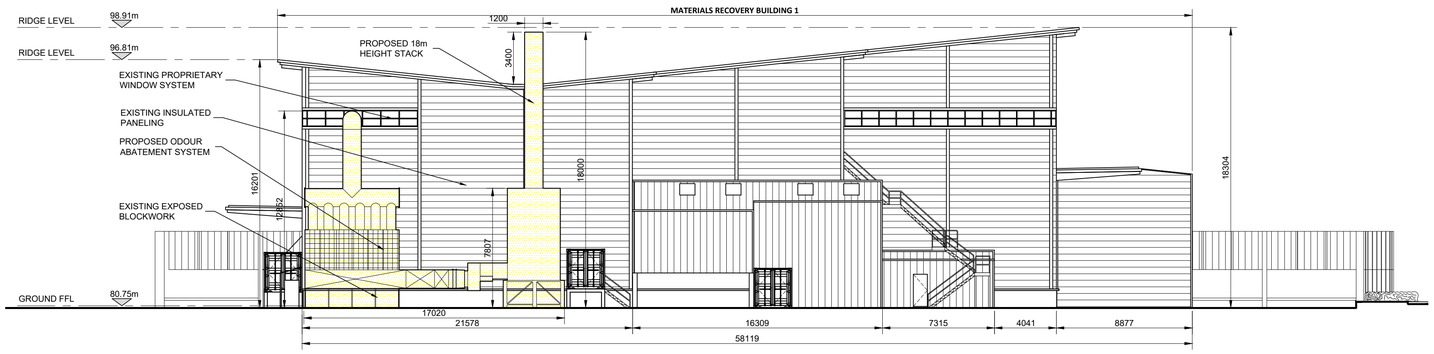
A1



PROPOSED NORTH ELEVATION MATERIALS RECOVERY BUILDING 1

SCALE 1:200

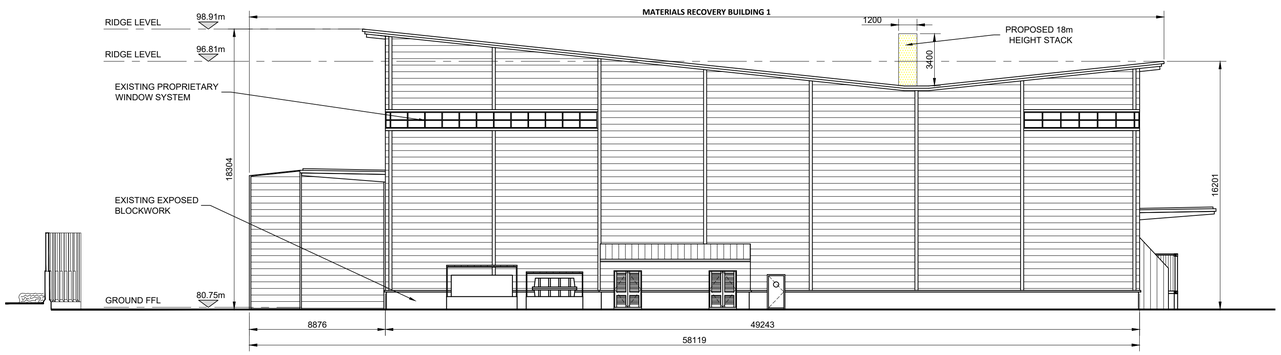
PROPOSED ODOUR ABATEMENT SYSTEM AND ASSOCIATED DUCTWORK



PROPOSED EAST ELEVATION MATERIALS RECOVERY BUILDING 1

SCALE 1:200

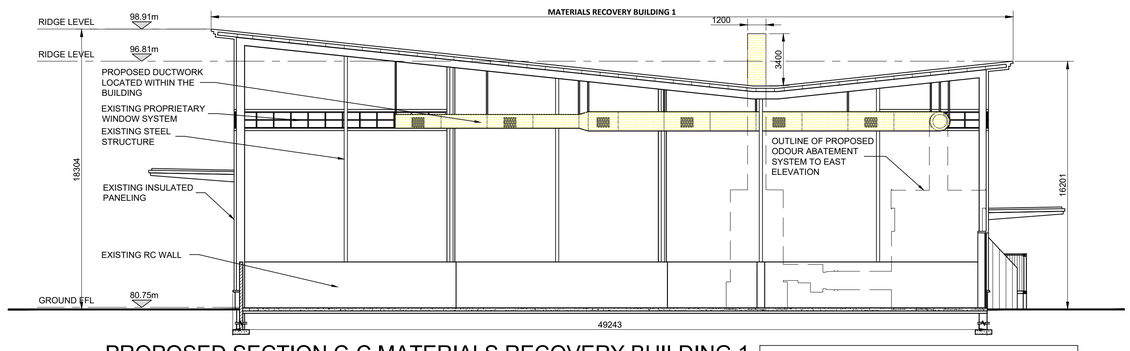
PROPOSED ODOUR ABATEMENT SYSTEM AND ASSOCIATED DUCTWORK



PROPOSED WEST ELEVATION MATERIALS RECOVERY BUILDING 1

SCALE 1:200

PROPOSED ODOUR ABATEMENT SYSTEM AND ASSOCIATED DUCTWORK



PROPOSED SECTION C-C MATERIALS RECOVERY BUILDING 1

SCALE 1:200

PROPOSED ODOUR ABATEMENT SYSTEM AND ASSOCIATED DUCTWORK

INFORMATION

REV NO:	DATE:	REVISION NOTE:	DWN BY:	CKD BY:
P01	21/02/2023	ISSUED FOR COMMENT	CB	CB
P02	03/03/2023	ISSUED FOR PLANNING	CB	CB

CLIENT:	STARRUS ECO HOLDINGS LIMITED (SEHL) TRADING AS GREENSTAR			
PROJECT:	ODOUR ABATEMENT SYSTEM MILLENNIUM BUSINESS PK, CAPPAGH ROAD, TOWNLAND OF GRANGE, BALLYCOOLIN, DUBLIN 11			
TITLE:	PROPOSED ELEVATIONS AND SECTION C-C OF MATERIALS RECOVERY BUILDING 1			
DRAWN: CB	CHECKED: CB	APPROVED: OD	JOB NO: 211_066	REV: P02
DATE: 03/03/2023	SCALE: 1:200		DRAWING NO: 211_066-ORS-Z1-ZZ-DR-AR-217	

ORS
Mullingar | Dublin | Galway | Donegal
T: +353 1 5242060 | W: www.ors.ie | E: info@ors.ie
ISO 9001:2015 QUALITY ASSURED COMPANY

12 CULTURAL HERITAGE

12.1 Introduction

This Chapter describes the archaeological, architectural and cultural heritage significance of the development and its environs and assesses the impact of the proposed development including a 'baseline' scenario and identifies the prevention, mitigation and monitoring measures that will be implemented to reduce the significance of the impacts and assesses the residual impacts.

Cultural Heritage includes all humanly created features on the landscape, including portable artefacts that might reflect the prehistoric, historic, architectural, engineering and/or social history of an area. Where appropriate, it also includes for non-physical aspects of heritage, such as history, linguistics, folklore, etc.

12.2 Relevant Legislation & Guidelines

The general EIA legislation and guidance documents are referenced in Sections 1.5 of this EIAR. In addition the Heritage Act (1995) contains a list of various aspects of heritage, including archaeological monuments and objects, architectural heritage, fauna, flora, geology, heritage gardens and parks, heritage objects, inland waterways, landscapes, monuments, seascapes, wildlife habitats, and wrecks.

12.3 Methodology

As the proposed development does not involve any ground disturbance the assessment was based on information in the original EIS, a desk study of Records of Monuments and Places published by the Department of Arts, Heritage & Gaeltacht, and information contained in the Fingal County Development Plan.

12.4 Proposed Development

Chapters 2 and 3 described the existing site and the proposed development, which does not involve any ground disturbance either inside or outside the development site boundary.

12.5 Receiving Environment

12.5.1 *Inside the Development Boundary*

A search using the Historic Environment Viewer did not identify any features within the site boundary. The Sites and Monuments Records Map and the Registered Monuments Manual do not contain any record of any archaeological feature at the site.

12.5.2 *Outside the Development Boundary.*

There are no listed monuments within 1 km of the site. The nearest recorded archaeological monument to the proposed development area is the site of a fulacht fiadh (DU014-050) which is approximately 600 m to the west.

12.6 Impacts

The proposed development does not involve any construction works or ground disturbance present any risk to known and unknown cultural heritage features.

12.7 Baseline Scenario

If the development does not proceed the site will remain in its current condition, with no impacts on cultural heritage features

12.8 Prevention & Mitigation Measures

12.8.1 *Design Stage*

As the proposed development will not impact on any cultural heritage feature design stage mitigation measures are not required.

12.8.2 *Construction Stage*

As the development does not involve any construction works, construction stage mitigation measures are not required.

12.8.3 *Operational Stage*

Operational stage mitigation measures are not required.

12.9 Monitoring

Monitoring is no required.

12.10 Cumulative Effects

The proposed development will have no cumulative effects on cultural heritage.

12.11 Residual Impacts

The development will have no residual impact on cultural heritage.

13 MATERIAL ASSETS : BUILT SERVICES

13.1 Introduction

This Chapter describes the material assets on and in the environs of the site. It identifies the potential impacts, describes the proposed prevention mitigation and monitoring measures and assesses the impacts, including residual impacts. It also addresses a 'baseline' scenario.

Material Assets as defined in the 'Advice Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022) are 'built services and infrastructure'. This includes roads and traffic, electricity, telecommunications, gas, water supply infrastructure, sewerage systems and waste management. Roads and traffic are addressed separately in Chapter 14. This Chapter was prepared by Dr Martina Gleeson and Mr Jim O'Callaghan of OCM and should be read in conjunction with Chapter 5 Climate and Chapter 14 Traffic and Transport.

13.2 Relevant Legislation & Guidance

In addition to the guidance documents referenced in Section 1.5 the following legislation and guidance were taken into consideration:

- The Waste Management Act 1996, as amended;
- Waste Management Plan for the Eastern Midlands Region (2015 to 2021)
- Fingal Local Economic and Community Plan (2016-2020)
- Waste Action Plan for a Circular Economy (Department of Environment, Climate & Communications 2021.

13.3 Methodology

The assessment was based on information derived from the current County Development Plan, Eastern Midlands Region Waste Management Plan, Uisce Eireann database and SEHL's records of natural resource consumption.

13.4 Proposed Development

Chapters 2 and 3 describe the existing site and the proposed development. Those aspects that are relevant to the Materials Assets are increased resource consumption associated with the additional waste treatment and traffic movements (Refer to Chapter 14) and the increase to the regional waste management capacity.

13.5 Receiving Environment

The site has connections to the Irish Water mains supply and foul sewer, electricity supply, national gas grid and telecoms systems.

13.5.1 *Water Supply*

Potable water is obtained from the mains supply. Water is also abstracted from an on-site well for use in dust suppression in the paved yards during dry weather.

13.5.2 *Foul Water*

Wash water from the vehicle wash is discharged to the foul sewer serving the Business Park. Sanitary wastewater is discharged directly to foul sewer serving the Business Park. Rainwater run-off from areas of open yard that are susceptible to contamination is discharged to the foul sewer via a silt trap and oil interceptor.

13.5.3 *Surface Water Drainage*

Rainwater run-off from building roofs and open areas where waste are not stored was originally discharged to the storm sewer serving the Business Park. Run-off from the area where vehicles are refuelled passes through a silt trap and Class I Oil interceptor before discharging to the storm sewer. Since 2013 when problems with the storm water drainage system serving the Business Park arose, all storm water has been discharged to the foul sewer.

Responsibility for addressing the Business Park drainage problems rests with the Millennium Business Park Management Company and, pending the resolution, the storm water run-off from the site will continue to be diverted to the foul sewer.

As required by permission FW/22A/0016, the drainage system serving the northern part of the site was redesigned in 2022 to incorporate SuDs measures. An attenuation tank designed to store a 1 :100 year storm event will be installed. It will have a 2391m^3 storage capacity, which includes a 10% allowance for climate change. The greenfield run-off value for the site is 6.36 litres/second (l/s) and the out flow from the tank will be restricted to this rate.

A silt trap and full retention interceptor will be installed up stream of the attenuation tank. The outfall from the tank will connect to the existing 900mm surface water drainage pipe at the eastern entrance of the site, once the drainage issues in the Business Park have been resolved. Pending that, the run-off will continue to be discharged to the foul sewer.

13.5.4 *Natural Gas*

The offices are heated using a natural gas fired boiler.

13.5.5 *Resource Consumption*

SEHL monitors resource consumption and in 2021, the electricity, oil, natural gas and water consumption usage was:

Electricity	10,220 GigaJoules

Light Fuel Oil	11,760 Gigajoules
Natural Gas	54.53 Gigajoules
Mains Water Supply	7377m^3 of water was obtained from the mains supply and an estimated
On-Site Well	6,250m^3.

The natural gas consumption was 67% lower than in 2020 due to Covid 19 working at home restrictions meant that the offices were empty for most of the year.

13.5.6 *Waste Management*

In 2020, the government published its 'Waste Action Plan for a Circular Economy' to take cognisance of the European Commission's (Commission) Action Plan on the Circular Economy. The purpose of Commission's Action Plan the is to transition the European Union (EU) to an economy where the value of products, materials and resources is maintained for as long as possible and the generation of waste minimised. This transition is essential to the EU's efforts to develop a sustainable, low carbon, resource efficient and competitive economy.

The Commission recognises that recycling is a pre-condition for a circular economy, where resources and materials can be recycled, returned back to the economy and used again, meaning that what was once considered a waste can become a valuable resource. To achieve this, materials at the end of their life cycle should be recovered through recycling and ideally reintroduced to the product lifecycle. These "secondary raw materials" can then be traded like primary raw materials.

The objective of the government's Waste Action Plan for a Circular Economy is to inform and direct waste planning and management in Ireland over the coming years. While the thrust of the Plan is to prevent waste arising through reuse its objectives include ensuring that measures support sustainable economic models (for example by supporting the use of recycled over virgin materials).

The Plan promotes the development – for environmental and economic reasons – of adequate and appropriate treatment capacity at indigenous facilities to ensure that the full circularity and resource potential of materials is captured in Ireland.

Efforts to decouple waste generation from economic growth have not yet been successful and the economic recovery that started in 2014, in conjunction with population growth, has resulted in a continuing increase in the quantities of waste arising, both nationally and in the Greater Dublin Area.

The Eastern Midlands Regional Waste Management Plan estimates that the increase in municipal wastes (combined household and commercial) between 2012 and 2021 will be in the region of 2-3% annually. Growth at the higher rates presents a challenge to the region to ensure adequate collection and treatment capacity is required. Furthermore, the need to treat more of these wastes in the country in support of Circular Economy initiatives means that treatment capacity needs to increase above the projected rates, making the provision of capacity even more challenging.

To ensure that national and regional recovery and recycling targets are met, to minimise the amount of waste disposed to landfill and to roll out circular economy initiatives there is a need to increase indigenous waste recycling and recovery capacity.

It is strategic policy of the Fingal Local Environmental Community Plan to ensure, from environmental, business and public health needs, that waste management remains a priority for local authorities and waste management regions in continuing to invest in promoting and facilitating reuse and recycling by residential and commercial sources and that high standard options for treatment and final disposal of waste are available within the Greater Dublin Area.

Currently the national thermal waste treatment capacity cannot accommodate the volumes of RDF and SRF produced in the country and there is an on-going reliance on export to waste to energy recovery facilities in Europe. In the event of a disruption to either the national, or overseas thermal treatment plants and/or national recycling and recovery capacity there is a need to provide temporary contingency treatment.

13.6 **Impacts**

13.6.1 *Drainage Systems*

There will be no change to the hydraulic loadings on the Uisce Eireann foul and storm water sewers.

13.6.2 *Resource Consumption*

The additional processing and the operation of the OCU will increase on-site electricity consumption. There will be no change to water and natural gas consumption.

13.6.3 *Waste Management /Circular Economy*

The proposed development will increase the treatment capacity in the Greater Dublin Area to significantly assist in the achievement and maintenance of national and regional recycling and recovery targets and circular economy initiatives and contribute to national waste management contingency preparedness.

13.7 **Baseline Scenario**

If the proposed development does not proceed the facility will continue to operate as is, with no change to the impacts on material assets. There will be no increase in the regional and national waste recycling and recovery capacity and no addition to national waste management contingency preparedness.

13.8 **Prevention & Mitigation Measures**

13.8.1 *Design Stage*

The detailed design of the OCU will involve an assessment of the energy efficiency of the extraction fans to minimise electricity usage when operating.

13.8.2 *Construction Stage*

The proposed development does not involve construction works, apart from the assembly of the odour control system, and therefore construction stage prevention and mitigation measures are not required.

13.8.3 *Operational Stage*

SEHL conducts regular reviews of energy efficiencies at the facility and has a policy of engaging with plant and equipment suppliers to ensure that only the most energy efficient are procured, and is committed to complying with the requirements of the European Commission's Reference Document BAT for Energy Efficiency.

SEHL implements a preventative maintenance programme for all fixed and mobile plant to ensure their energy efficiency is optimised. To minimise demand on the mains water supply rainwater run-off from the building roof is used as 'grey water' in the staff toilets and the water used in dust suppression is obtained from an on-site well. The installation of the roof mounted solar panels will reduce demand on the national grid.

13.9 **Monitoring**

Energy and water usage will continue to be monitored annually and additional monitoring measures are not required.

13.10 **Cumulative Effects**

In the operational stage the proposed development will contribute to the cumulative natural resource consumption in the Greater Dublin Area. The installation of the permitted roof mounted solar panels on the processing buildings will reduce reliance on non-renewable energy sources.

13.11 **Residual Impacts**

The proposed development will have no impact on the water supply and storm water and foul water drainage systems. It will have a **negative, slight, likely, national** and **long term** impact on electricity supply as a result of increased usage. It will have a **positive, slight, likely, national** and **long term** impact on waste management capacity.

14 MATERIAL ASSETS: TRAFFIC & TRANSPORT

14.1 Introduction

This Chapter describes the existing road network and traffic conditions and the impacts of the proposed development, including a 'baseline' scenario. It identifies the prevention, mitigation and monitoring measures that will be implemented to reduce the significance of the impacts and assesses the residual impacts.

The Chapter is based on the Traffic and Transport Assessment (TTA) prepared by Mr Adam Price and Ms Laila Donadel of ORS Consulting Engineers, a copy of which is in Appendix 10.1. The TTA describes in detail the methodologies applied and contains the rationale for modelling completed and the detailed findings and should be referred to for technical details. The scope included the cumulative impacts of the additional traffic associated with the permitted expansion of waste activities at the Panda operated waste management facility on Cappagh Road (Ref ABP 310332).

Mr Price is a Chartered Engineer with over twelve years' post graduate experience in consulting engineering. He is the infrastructure team lead; he has extensive experience in advising clients on road infrastructure requirements for a wide range of developments including residential, industrial, commercial, and healthcare projects. His experience also includes carrying out Road Safety Audits and Traffic and Transport Assessments on various schemes on the national road network in Ireland, including the design review and assessment of a wide range of proposed developments including housing schemes, industrial business parks, hospitals, and schools.

Ms Donadel is senior civil engineer at ORS working in the infrastructure team. She has one year of undergraduate and over two years' graduate experience in full-time positions developing projects in public and private construction sectors. She has experience of traffic analysis, mobility and transportation projects, including the completion of traffic studies, design of roads and active travel schemes.

14.2 Relevant Legislation & Guidelines

In addition to the guidance documents referenced in Section 1.5 of the EIAR the following legislation and guidance were taken into consideration:

- Transport Infrastructure Ireland (TII) Traffic and Transport Assessment Guidelines PEPDV-02045 (May 2014), and
- Fingal Development Plan (2017-2023).

14.3 Methodology

The TTA was completed in accordance with TTI Traffic and Transport Assessment Guidelines PEPDV-02045 (May 2014) and included:

- Traffic counts conducted in 2020 pre-pandemic as part of the planning application for a proposed increase in the annual waste acceptance at the Panda facility on Cappagh Road. The counts were factored up using appropriate TTI Traffic Growth Factors.

- Automatic junction turning counts (JTC) undertaken on 10th November 2020 at the Cappagh Road/Mitchelstown Roundabout to model the impacts as recommended the An Bord Pleanála Inspectors Report (Ref ABP 310332).

- Traffic distribution splits were determined by the traffic counts and applied to the predicted future traffic.

- Capacity assessments of six key junctions identified by Fingal County Council using ARCADY software for roundabouts and PICADY software for priority T Junctions for the base year, 5-year and 15-year post completion, and

- The contribution of traffic associated with eleven committed developments in the vicinity of the facility.

14.4 **Proposed Development**

Chapters 2 and 3 presents a detailed description of the existing site and the proposed development and those aspects that are relevant to the Traffic and Transport Assessment are vehicle access, existing and planned public transport infrastructure, the local road network including key junctions in the vicinity of the site and the predicted increase in traffic taking into consideration cumulative effects.

14.5 **Receiving Environment**

14.5.1 *Regional and Local Road Network*

The local and regional road network is shown on Figure 14.1

Figure 14.1 Road Network (Google Earth)

All traffic associated with the facility travels along Cappagh Road, which provides access to Millennium Business Park. Cappagh Road is a single lane carriageway with two way traffic and a central shared lane that facilitates left and right turning movements. The posted speed limit is 50 kilometres per hour (kph). The facility is accessed of an internal Business Park two way road, approximately 9m wide and the road speed within the Business Park is 15kph.

The Cappagh Road / Mitchelstown Road Roundabout to the north west of the site (Figure 14.2) is an oval shaped 5-arm roundabout of which 4 are in use and all with 2-entry lanes. The fifth arm is currently being constructed and will provide access to the Huntstown Estate.

14.5.2 *Pedestrian & Cyclist Connectivity*

The wider Blanchardstown area is the largest commercial and residential centre within the metropolitan area of Fingal. All roads in the vicinity of the site are provided with pedestrian footpaths and cycling lanes on both sides of the road, with grass verges acting as buffer zones between pedestrian/cyclists and vehicles.

14.5.3 *Public Transport*

The nearest bus stops are five minute walking distance from the facility, with routes to various locations across the Greater Dublin Area (Table 14.1)

Table 14.1 Available Bus Services

Route No.	Bus Operator	Direction	Weekday Services
N4	Dublin Bus	Point Village – Blanchardstown Shopping Centre	24 hours bus – every 10mins (day) every 30min (night)
38/38A/38B		Burlington Road – Damastown Drive	Every 20/30 mins
38B			Only during AM peak hours
40D		Parnell Street – Tyrrelstown	Every 30 mins
40E		Broombridge Luas – Tyrrelstown	Every 30 mins
220	Go Ahead Ireland	DCU – Lady's Well Road	Every hour
236		Blanchardstown Shopping Centre - Damastown	Only during AM and PM peak hours
238		Tyrrelstown – Lady's Well Road	Every hour
802	Express Buss	O'Connell Street – Blanchardstown Corporate Park	Only during AM and PM peak hours

The closest rail station to the site is in Castleknock, approximately 7km to the south-west. The station provides Dublin-Maynooth, Longford and M3 Parkway services, with a frequency of 40 minutes during peak hour and 60 minutes at non-peak periods.

14.5.4 *Proposed Transport Infrastructure*

It is an objective (CM02) of the Draft Fingal Development Plan to work with the NTA to develop mode share targets for the County to achieve and monitor a transition to more sustainable modes including walking, cycling and public transport during the life time of the Plan.

The Draft Greater Dublin Area Cycle Network Plan (2021) envisages an expansion of the urban cycle network to provide new connections. It is an objective to integrate a cycle land along the Ballycoolin Road, to the south of the development site, which is one of the main roads within the Blanchardstown Corporate area. These new routes and enhancements will provide a safe and attractive cycling route linking the development site to its surroundings.

BusConnects Dublin is a major investment programme to improve public transport though the overhaul of the current bus system. It aims to build a new networks of bus corridors to make journeys faster and more reliable and redesign the Dublin Area bus network to provide a more efficient network with high-frequency spines, new orbital routes and increased services.

The Greater Dublin Area Transport Strategy 2022-2024 identifies two major rail transport developments –the MetroLink and the DART+West. The MetroLink will connect Swords to Charlemont in 25 minutes and will have the capacity to move 20,000 passengers per hour. The DART +West seeks to significantly increase the rail capacity on the Maynooth and M3 Parkway city centre rail corridors, with an increase in hourly passenger movements from 5,000 to 13,200.

14.5.5 *Existing Traffic*

An assessment of the traffic generation characteristics of the existing operation was based on a 24 hour manual classified traffic count completed on 11th March 2020 at six junctions in the vicinity of the installation agreed in advance with the planning authority, which are:

Site 1 – Development site access road junction

Site 2 – Millennium Business Park – Cappagh Road roundabout junction

Site 3 – Huntstown Business Park – Cappagh Road roundabout junction

Site 4 – Panda Cappagh Road Materials Recovery Facility access road junction

Site 5 – Cappagh Road – Mitchelstown Road roundabout junction

Site 6 – Cappagh Road – Ballycoolin Road roundabout junction.

The peak morning (AM) traffic at Site 1 (Development site access road junction) occurred between 11.45 and 12.45, with the peak afternoon (PM) period being 12 45 to 13.30. At all other junctions the peak morning traffic occurred between 08.00 and 09.15 and the peak evening traffic occurred between 16.45 and 17.45. The AM and PM peak flows for each site are shown in Table 14.2.

Additional traffic counts were undertaken at the Cappagh Road/Mitchelstown Roundabout to enable remodelling of the junction. The counts were carried out during a 12 hour period from 07.00 to 19.00 and established that the peak AM period occurred between 07.30 and 08.30, with the evening peak between 16.15 and 17.15. The maximum Passenger Car Units (PCU) recorded in the AM peak was 1776.6, with 1646.4 recorded in the PM peak.

Table 14.2 Peak Traffic Flows (2020)

Junction	Peak Time	
	AM	PM
Site 1	380.6	334.4
Site 2	930.5	1113.4
Site 3	759.6	883.4
Site 4	685.7	814.2
Site 5	1535	1776.7
Site 6	1566.4	1651.8

14.5.6 *Traffic Collision Data*

Road collision data sourced from the Road Safety Authority did not contain any records of any incidents in the vicinity of the development site.

14.6 **Impacts**

The proposed development will increase the annual waste intake from 270,000 to 450,000 tonnes per annum. This will result in a 67% increase in the number of vehicles accessing the facility as shown in Table 14.3, which includes the Total PCU recorded at the junction and those associated with the existing operation and the proposed expansion.

Table 14.3 Traffic Counts at Facility Access Junction

Time Range	Existing traffic				Expansion traffic		
	Total PCU	Departure	Arrivals	Total PCU	Departures	Arrival	Total PCU
00 to 01	1.5	0	0	0	0	0	0
01 to 02	1.5	0	1.5	1.5	0	1	1
02 to 03	19	8	6	14	5.4	4	9.4
03 to 04	12.1	5.3	4.8	10.1	3.6	3.2	6.8
04 to 05	34.8	9.1	4.8	13.9	6.1	3.2	9.3
05 to 06	79	18.8	17.8	36.6	12.6	11.9	24.5
06 to 07	204.5	38.2	41.5	79.7	25.6	27.8	53.4
07 to 08	204.7	46.6	30.9	77.5	31.2	20.7	51.9
08 to 09	286	36	59.1	95.1	24.1	39.6	63.7
09 to 10	301.2	48	39.1	87.1	32.2	26.2	58.4
10 to 11	320	59.5	60.4	119.9	39.9	40.5	80.3
11 to 12	291.7	47.9	52.1	100	32.1	34.9	67
12 to 13	323	48.4	72.9	121.3	32.4	48.8	81.3
13 to 14	265.4	64.8	30.5	95.3	43.4	20.4	63.9
14 to 15	268.4	62.2	57.9	120.1	41.7	38.8	80.5
15 to 16	250	31.8	42.8	74.6	21.3	28.7	50
16 to 17	202.4	33.4	34.2	67.6	22.4	22.9	45.3
17 to 18	164.6	26.1	19.2	45.6	17.5	13.1	30.6
18 to 19	70.6	8.6	9.5	18.1	5.8	6.4	12.1
19 to 20	42.5	6.9	4.6	11.5	4.6	3.1	7.7
20 to 21	10.2	2	3	5	1.3	2	3.4
21 to 22	4.5	1	0	1	0.7	0	0.7
22 to 23	6.3	0	0	0	0	0	0
23 to 00	6.9	0	0	0	0	0	0

The traffic in the morning and afternoon is shown in Table 14.5.

Table 14.5 Expected Trip Rates

Time Range	Arrivals	Departures	Total
08:00-09:00	40	24	64
16:00-17:00	18	13	31

The TII recommends that junction modelling be carried out where new traffic exceeds 5% of existing flows in cases where there is already congestion, and exceeds 10% where there is no existing congestion. Table 14.6 shows the projected increase in traffic at the junctions in the vicinity of the site. Sites 1 and 2 exceed the TII thresholds.

Table 14.6 Traffic Impact on Nearby Junctions

Junction	2025 Traffic		Traffic from Development		Increase in Traffic		TII Threshold of 5%	
	AM	PM	AM	PM	AM	PM	AM	PM
Site 1 – Roundabout Access to Greenstar	439	351	64	31	14%	9%	Above	Above
Site 2 – Millennium Business Park/ Cappagh Road Roundabout	1248	1391	64	31	5%	2%	Above	Below
Site 3 – Huntstown Business Park / Cappagh Road Roundabout	1051	1150	19	8	2%	1%	Below	Below
Site 4 – Cappagh Road / Panda Access T-junction	965	1077	19	8	2%	1%	Below	Below
Site 5 – Cappagh Road / Mitchelstown Road Roundabout	2099	2276	45	23	2%	1%	Below	Below
Site 6 – Cappagh Road / Ballycoolin Road Roundabout	1982	1956	19	8	1%	0.5 %	Below	Below

14.6.1 *Capacity Analysis*

All six junctions (Figure 14.2) were modelled using ARCADY software for roundabouts and PICADY software for priority T Junctions for the following design years:

- 2023 Base Year
- 2025 Planned Year of Full Scale Operation
- 2030 Five Years after start of Full Scale Operation
- 2040 Fifteen Years after start of Full Scale Operation

The modelling determined the Ratio to Flow Capacity (RFC) and the queue lengths at each junction. The RFC describes the capacity of each approach to the junction and determines if the junction can

accommodate the increased traffic. An RFC less than 0.85 (85 %) indicates the approach road is operating satisfactorily within capacity: between 0.85 and 1.0 means the approach is operating within capacity, but at less than optimal efficiency, and an RFC above 1.0 means that the junction is operating at over capacity. The queue levels are presented in PCU that quantify the total number of vehicles queuing at each approach road to the junction

Sites 1, 2, 3 and 4 were factored up using growth factors for Dublin Metropolitan Area High Sensitivity Factor for HGV's to obtain a conservative overview for future design years. As Sites 5 and 6 showed indications of capacity issues under the conservative assessment they were modelled using the TII's Dublin Metropolitan Area Central Sensitivity Factors for cars.

Figure 14.2 Junctions (Google Earth)

The capacity assessments were modelled for three different scenarios:

- Base Year 2023; using data from the traffic counts obtained in 2020 for Sites 1, 2, 3, 4 and 6 and data from the 2022 counts for Site ;.
- Do-Nothing; modelled without the proposed development proceeding but including committed developments for design years 2025, 2030 and 2040
- Do-Something: modelling of the impact of the traffic associated with the proposed development for the design years 2025, 2030 and 2040.

The detailed results of the modelling are presented in Section 5 of the Traffic & Transport Assessment (Appendix 10.1). Sites 1, 2, 3 and 4 will operate well below capacity in all scenarios for all future design years.

At Site 6 for the Do-Nothing scenarios in Design Year 2025 and 2030 Arm C-Cappagh Road will be at capacity in the morning (RFC 0.88 and 0.96 respectively). In the Do-Nothing scenario of Design year 2040 the junction will function below capacity in the evening, but Arm C-Cappagh Road will exceed

capacity (RFC 1.01). The impact of the Do-Something scenario there will be a minimal increase in the RFC (1.02) associated with the additional 27 vehicles associated with the proposed development in both the morning and evening periods.

The Site 5 junction is currently operating below 0.85 RFC, with the maximum RFC (0.76) in the morning at Arm 2 - Kilshane Road. In the Do-Nothing scenario at Design Year 2025, the maximum RFC will be 0.93, also at Arm 2 – Kilshane Road. The Do-Something scenario at Design Year 2025 increases the RFC to 0.95.

In the Do-Nothing scenario for Design Year 2040 Arm 2 will be operating above capacity in the morning, with a maximum queue of 54.4 PCU and an RFC of 1.08. The Do-Something scenario will result in an additional 95 vehicles in both the morning and evening peak times. This corresponds to an increase of 2%, which will not result in any significant traffic issues.

14.7 Baseline Scenario

If the development does not go ahead, the junctions will continue to operate as currently and Arm 2-Kilshane Road at Site 5 will reach capacity by Design Year 2030 and Arm –Cappagh Road of Site 6 will reach capacity at Design Year 20240.

14.8 Prevention & Mitigation Measures

14.8.1 *Design Stage*

As the proposed development will have no significant adverse impacts on the local road network, development design stage prevention and mitigations measures are not required

14.8.2 *Construction Stage*

As the proposed development does not involve any construction works, apart from the assembly of the odour control system, construction stage prevention and mitigation measures are not required.

14.8.3 *Operational Stage*

The planned future public transport initiatives (Section 14.5.4), in addition to the increasing move towards flexible and remote working hours, will reduce private vehicle movements in the vicinity of the site in the peak periods in future years

14.9 Monitoring

The IE licence requires that all transport vehicles delivery and removing waste from the facility be recorded on the on-site weighbridge and records maintained. No additional monitoring is required.

14.10 Cumulative Effects

The cumulative effects of the traffic associated with the permitted developments in the vicinity of the subject site, including the Panda waste management facility on Cappagh Road were considered in the junction capacity assessments described in Section 14.6.1.

14.11 Residual Impacts

The proposed development will in conjunction with the development at the Panda MRF have a **negative, slight, likely, local** and **long term** impact on the local road network.

15 INTERACTION OF THE FOREGOING

15.1 Introduction

Previous Chapters describe the impacts associated with the proposed development and the prevention and mitigation measures that will be implemented. This Chapter discusses the significance of the actual and potential direct, indirect and cumulative effects of the changes due to interaction between relevant receptor. It is based on the physical and environmental conditions of the subject site and the predicted impacts of the propose development.

15.2 Population & Health/Air/Material Assets: - Traffic

The proposed development has the potential to impact on human beings by effects on air quality and traffic movements. The local road network has the capacity to accommodate the additional traffic and the air quality assessment has established that the development will not result in any breaches of ambient air quality limits.

15.3 Climate/Material Assets

The development will impact on Climate as a result of increased greenhouse gas emissions from the additional traffic and the increase in electric and diesel consumption associated with the additional waste processing..

Table 15.1 Interaction of Impacts

		Climate	Land & Soil	Water	Biodiversity	Air	Population & Human Health	Landscape & Visual Impact	Archaeology Architecture Cultural Heritage	Material Assets	Materials Assets Traffic
Climate				√							
Land & Soil											
Water											
Biodiversity											
Air							√				
Population & Human Health											
Landscape & Visual Impact											
Archaeology & Cultural Heritage											
Material Assets :											
Material Assets : Traffic											

16 SUMMARY OF MITIGATION MEASURES

16.1 Introduction

This Chapter presents a summary of the mitigation measures that were incorporated into the Design Stage and those that will be implemented in the Operational Stages.

16.2 Design Stage

Given the nature of the development Design Stage prevention and mitigation measures are not required to address impacts on Land & Soil, Water, Biodiversity, Cultural Heritage, Material Assets : Built Environment and Material Assets : Traffic

16.2.1 *Air*

An odour control system comprising air extraction from the section of the building where the odorous wastes will be handled and its treatment in an OCU consisting of a dust filter and carbon filter will be installed.

16.2.2 *Climate*

The detailed design of the OCU will include the most energy efficient fans for the extraction system to minimise electricity consumption.

16.2.3 *Population & Human Health*

16.2.3.1 Noise

The detailed design stage of the OCU will include as an assessment of the noise emissions from the fans to determine if their operation will result in an exceedance of noise emission limit values at off-site sensitive receptors. If required, noise abatement measure, for example acoustic panels will be incorporated into the design

16.2.4 *Landscape & Visual Impacts*

The OCU will be located in an area screened from public viewing points.

16.3 Construction Stage

As the proposed development does not involve any construction works, construction stage prevention and mitigation measures are not required.

16.4 **Operational Stage**

16.4.1 *Climate*

SEHL conducts regular reviews of energy efficiencies at the facility and has a policy of engaging with plant and equipment suppliers to ensure that only the most energy efficient are procured, and is committed to complying with the requirements of the European Commission's Reference Document on Best Available Techniques (BAT) for Energy Efficiency.

SEHL implements a preventative maintenance programme for all fixed and mobile plant to ensure their energy efficiency is optimised. Diesel fuelled plant engines are only turned on when wastes are being processed and SEHL has a policy of not allowing engine idling. This also applies to waste transport vehicles serving the facility. SEHL has begun changing its diesel fuelled collection and transport vehicles to compressed natural gas and electricity powered units. The installation of the roof mounted solar panels will reduce demand on the national grid.

16.4.2 *Land & Soil*

The EPA licence specifies the prevention and mitigation measures that must be applied to avoid impact on land and soil, which include; the provision of impermeable paving in all operational areas; the routine inspection and repair of paved areas; regular integrity tests of storage containment areas and drainage systems; the adoption of an emergency response procedure and staff training on appropriate spill response actions.

16.4.3 *Water*

The EPA licence specifies the prevention and mitigation measures that must be implemented to avoid impacts on waters which include; the provision of an oil interceptor on the surface water drains that collects run-off from the yard and weighbridge; the inspection and repair of the paved areas; impermeable paving across the operational areas; the routine inspection and survey of the surface water and foul water drains; the adoption of an emergency response procedure, and staff training on appropriate spill response actions. There is a gate valve on the foul sewer that can be closed in the event of an incident at the site that has the potential to contaminate surface water.

16.4.4 *Biodiversity*

As the development will not have any impact on biodiversity either inside or outside the site boundaries and will have no impact on any designated sites, specific prevention and mitigation measures are not required.

16.4.5 *Air*

As the proposed development will not have any significant impact on air quality there is no need for mitigation measures in addition to those already required by the IE licence.

16.4.6 *Population & Human Health*

SEHL implements the control measures specified in the EPA licence to ensure waste activities do not give rise to emissions that will be a cause of nuisance or impairment outside the facility boundary. These include the implementation of an odour management system, provision of noise controls, all waste

acceptance and processing is carried out inside the buildings; building doors only opened when necessary; daily litter patrols and the retention of a specialist pest controller.

The odour management system will be the subject to a regular preventative maintenance programme to ensure it operates effectively. Stocks of the carbon filter media will be kept on site to minimise downtime of the OCU when it has to be replaced.

SEHL has completed a Fire Risk Assessment that identifies all of the potential sources of fire and assesses the current prevention, detection and suppression controls. SEHL has prepared an Emergency Response Procedure that describes the actions taken in the event of a fire outbreak to ensure it is contained and extinguished as soon as is practical. SEHL has also prepared an Environmental Liability Risk Assessment that identifies the likely impacts of a fire and sets out the remedial measures that will be implemented to effectively mitigate those impacts.

16.4.7 *Landscape & Visual Impact*

The landscape maintenance programme required by the EPA licence will continue to be implemented.

16.4.8 *Cultural Heritage*

Prevention and mitigation measures are not required.

16.4.9 *Material Assets : Built Services*

SEHL conducts regular reviews of energy efficiencies at the facility and has a policy of engaging with plant and equipment suppliers to ensure that only the most energy efficient are procured. Rainwater run-off from the roof of MP1 and MP2 is used as 'grey water' to reduce demand on the mains supply. The installation of the roof mounted solar panels will reduce demand on the national grid.

16.4.10 *Material Assets: Traffic & Transport*

As the development will not have a significant impact on the local road network development specific mitigation measures are not required. The roll out of the planned public infrastructure initiatives will reduce private vehicle movements in the vicinity of the site in the medium term.