

2.0 SCOPE & METHODOLOGY

Golder Associates Ireland Ltd (“Golder”) have been commissioned to prepare this Environmental Impact Assessment Report (EIAR) on behalf of Atlas GP Ltd., (Atlas GP / Applicant). This document comprises an EIAR, prepared to accompany an application for a Strategic Housing Development (SHD) (the ‘Proposed Development’) made by the Applicant to An Bord Pleanála (The Board) for consent for the Proposed Development over ca. 1.03 ha on lands located at the former Avid Technology International site on Carmanhall Road, Sandyford Industrial Estate, Dublin 18, (the ‘Site’ / ‘Application Site’). The Site is located in the Electoral Division of Dundrum-Balally, in the administrative area of Dún Laoghaire Rathdown County Council in Co. Dublin.

Figure 2.1 provides a depiction of the Site and the lands the subject of the EIAR and Appropriate Assessment screening (which accompanies the overall application).



Figure 2.1: SHD application area and the lands the subject of the EIAR and Appropriate Assessment screening.

2.1 EIA Approach Overview

Environmental Impact Assessment (EIA) is a process undertaken for certain types of development. It provides a means of drawing together the findings from a systematic analysis of the likely significant environmental effects of a scheme to assist planning authorities, statutory consultees and other key stakeholders in their understanding of the impacts arising from the development.

The aim of EIA is to protect the environment by ensuring that when a responsible authority decides whether to grant permission for a Proposed Development, which is likely to have significant effects on the environment, it does so with full knowledge of the likely significant effects. It is then able to take these into account in the decision-making process.

The aim of EIA is also to ensure that the public are given early and effective opportunities to participate in the decision-making procedures. General objectives of the EIA process have been identified in Figure 2.2.

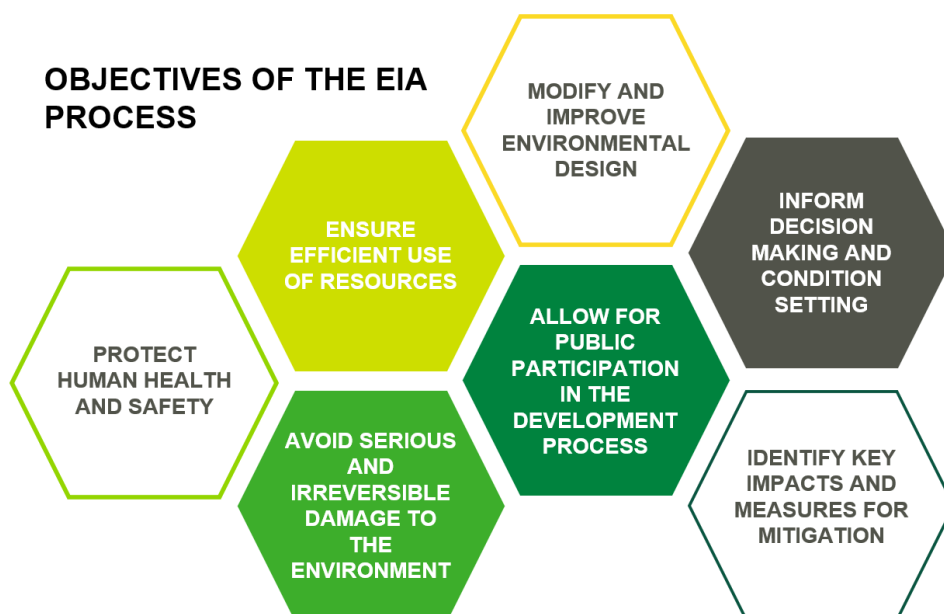


Figure 2.2: Objectives of the EIA process.

The EIA process follows three main stages to the point at which the EIAR is submitted:

1. Screening – to determine whether a Proposed Development should be subject to EIA;
2. Scoping – to determine which topic areas (environmental factors) should be included in the EIA (scoped in) and which should be excluded (scoped out); and
3. EIAR Preparation – the stage in which the main body of work is undertaken, resulting in the production of an EIAR.

EIA involves a number of processes, which take place during screening, scoping and the main EIA stages:

1. Identifying and describing relevant features of the Proposed Development;
2. Identifying and describing relevant features of the baseline environment;
3. Consultation; and
4. Predicting likely impacts and effects of the Proposed Development on the baseline environment and developing any required mitigation measures.

2.1.1 Legislation and Appropriate Guidance

European Directive and Transposition

The requirement for an Environmental Impact Assessment process arises from European Union (EU) Directives required to be adhered to by member States and transposed into national laws.

The European Union Directive 85/337/EC required that certain private and public projects which are likely to have significant resultant environmental impacts are subject to a formalised Environmental Impact Assessment prior to their consent.

This Directive was subsequently amended by the EU through three amendments: 97/11/EC, 2003/4/EC and 2009/31/EC, which were then codified in Directive 2011/92/EU. Subsequently, on 16 April 2014, Directive 2011/92/EU was amended by Directive 2014/52/EU of the European Parliament and of the Council.

The following is stated by the Department of Housing, Planning and Local Government in the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, (August 2018):

‘The objective of Directive 2011/92/EU, as amended by Directive 2014/52/EU, is to ensure a high level of protection of the environment and human health, through the establishment of minimum requirements for environmental impact assessment (EIA), prior to development consent being given, of public and private developments that are likely to have significant effects on the environment.’

The 2014/52/EU Directive was transposed into Irish law through European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI No. 296 of 2018) which amended the Planning and Development Act, 2000, and the Planning and Development Regulations, 2001. This EIAR has been produced in accordance with these relevant legislative requirements and Statutory Instruments.

The EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU) consists of 16 no. Articles and 5 no. Annexes that define EIA and the supporting information and processes available and required for EIA determination in the form of reasoned conclusion by the competent authority.

EIA is mandatory for certain types of projects and for other projects that meet or exceed thresholds as set out in Annexes I and II of the EIA Directive. The development attracts the requirement for EIA as an Annex I project and is therefore subject to an assessment in accordance with Articles 5 through 10.

Article 5 of the EIA Directive sets down the minimum information to be supplied in an EIAR including data and information to be included by the developer in the EIAR identified in Annex IV of the EIA Directive.

Guidance

The EIA for the proposed Carmanhall SHD has been undertaken with regard to:

- Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (Draft, Environmental Protection Agency (EPA), August 2017);
- Advice Notes for Preparing Environmental Impact Statements (Draft, EPA, September 2015);

(The classification of effects and their significance has also been carried out based on the above materials (with some modifications to increase clarity), unless this is otherwise stated within the relevant section or chapter.)

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Environment, Community and Local Government, 2018); and
- Environmental Impact Assessment of Projects Guidance on the Preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU). European Commission of the European Union 2017.

2.1.2 EIA Structure and Content

The EIAR has been prepared in a 'Grouped Format' structure having regard to the prescribed environmental factors of the EIA Directive and the 2017 EPA Guidance; “*Population and Human Health; Biodiversity, Land & Soils, Water, Air, Climate, Material Assets, Cultural Heritage, Wind, Landscape, Interactions.*”

In this way each aspect of the environment is presented as a separate chapter referring to the environment as it existed before development, the Proposed Development, likely impacts, and proposed mitigation measures. The EIAR has therefore been systematically organised to provide the information and environmental aspect chapters identified in Table 2.1.

Table 2.1: Overall structure of the EIAR.

| Content | Chapter |
|--|--|
| Context and Requirement for EIAR | 1.0 Introduction and Background 2.0 Scope and Methodology |
| A description of the existing environment. | 3.0 Project Description |
| A description of the project. | 3.0 Project Description |
| Identification of experienced / likely significant impacts during construction and operation of the development and a description of the measures employed / envisaged in order to avoid, reduce and, if possible, remedy significant adverse impacts. | 4.0 Population and Human Health 5.0 Ecology and Biodiversity 6.0 Land, Soils and Geology 7.0 Water 8.0 Air and Climate 9.0 Noise and Vibration 10.0 Cultural Heritage 11.0 Traffic and Transport 12.0 Wind 13.0 Landscape and Visual 14.0 Material Assets 16.0 Mitigation and Monitoring Measures |
| Sets down the cumulative and in combination significant effects of the project and considers expected / experienced effects deriving from the vulnerability of the project to risks of major accidents and/or disasters that are relevant to the project concerned | 15.0 Interactions, Cumulative and Combined Effects |

A Non-Technical Summary (NTS) accompanies the EIAR and provides a summary of the key findings of the EIA in non-technical language.

Table 2.2 identifies the data and information to be included by the developer in the EIAR as described in Annex IV of the EIA Directive, and the location of this information within the document.

Table 2.2: Requirements of 2014/52/EU Annex IV and where these have been addressed in this EIAR.

| Item | Requirement of Annex IV item | Reference in EIAR |
|------|--|---|
| 1 | Description of the project, including in particular: (a) a description of the location of the project; (b) a description of the physical characteristics of the whole project, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases; (c) a description of the main characteristics of the operational phase of the project (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used; (d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operation phases. | (a) and (b) Chapter 3.0 – ‘Project Description’ (c) and (d) Chapter 3.0 – ‘Project Description’, and identified in the relevant technical chapters |
| 2 | A description of the reasonable alternatives (for example in terms of project design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects. | Chapter 3.0, Section 3.6 – ‘Alternatives’ |
| 3 | A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge. | A ‘Baseline Conditions’ section has been provided in each technical chapter along with a ‘Do-Nothing’ scenario without development section. |

| Item | Requirement of Annex IV item | Reference in EIAR |
|------|--|--|
| 4 | A description of the factors specified in Article 3(1) likely to be significantly affected by the project: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape. | Each relevant study area which has been scoped into the EIAR is provided within a dedicated technical chapter. Chapters 4.0 – 14.0. |
| 5 | <p>A description of the likely significant effects of the project on the environment resulting from, inter alia:</p> <p>(a) the construction and existence of the project, including, where relevant, demolition works;</p> <p>(b) the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;</p> <p>(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;</p> <p>(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);</p> <p>(e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;</p> <p>(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;</p> <p>(g) the technologies and the substances used.</p> <p>The description of the likely significant effects on the factors specified in Article 3(1) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project.</p> | <p>(a), (b) and (c) Each technical chapter, as appropriate</p> <p>(d) Chapter 3.0 (Project Description), Chapter 4.0 (Pop. and Human Health), and Chapter 10.0 (Cultural Heritage)</p> <p>(e) Chapter 15.0 (Interactions, and Cumulative Impacts).</p> <p>(f) Chapter 8.0 (Air Quality and Climate)</p> <p>(g) Each technical chapter, as appropriate</p> <p>Descriptions of effects are identified in each technical chapter, as appropriate.</p> <p>Transboundary impacts have been considered Section 1.8 of Chapter 1.0.</p> |
| 6 | A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved. | <p>Assessment methodology is identified in each technical chapter, as appropriate, or a common framework and terminology has been identified in Section 2.3.</p> <p>Difficulties encountered in compiling the EIAR have been identified Section 1.9 of Chapter 1.0.</p> |
| 7 | A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases. | The identification of mitigation measures is identified in each technical chapter, as appropriate. These have also been compiled in Chapter 16.0 Mitigation and Monitoring Measures. |
| 8 | A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should | The identification of the vulnerability of the project to major accidents and disasters has been considered in Section 3.7 of Chapter 3 |

| Item | Requirement of Annex IV item | Reference in EIAR |
|------|--|--|
| | include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies. | |
| 9 | A non-technical summary of the information provided under points 1 to 8. | EIAR Volume 1; Report No.: '19136014.R04.A3' |
| 10 | A reference list detailing the sources used for the descriptions and assessments included in the report. | Final Section of each technical chapter. |

2.1.3 EIAR Contributors and Demonstration of Competency and Independence

The EIAR was completed by a project team led by Golder, who also prepared a number of the chapters.

The members of the team and their respective inputs are described in Table 1.2, (Chapter 1.0 Introduction and Background).

In accordance with the EIA Directive, we confirm that experts involved in the preparation of the EIAR are fully qualified and competent in their respective field. Each has extensive proven expertise in the relevant field concerned, thus ensuring that the information provided herein is complete and of high quality.

2.2 EIA Stages

2.2.1 Screening

Screening is a procedure used to determine whether a Proposed Development is likely to have significant effects on the environment. The outcome is a decision on whether EIA needs to be undertaken for the Proposed Development, in which case the subsequent stages of scoping and EIAR preparation will be followed.

To determine whether an EIA is required for the Proposed Development, it is necessary to determine whether it is a project listed in one of the Annexes to the Directive 2011/92/EU (as amended by Directive 2014/52/EU).

These Annexes have been transposed into Irish law. The prescribed classes of development which require EIA are outlined in Schedule 5 of the Planning and Development Regulations 2001 (S.I. 600 of 2001, as amended). The Proposed Development is not listed in Part 1 of that Schedule (or Annex 1 of the EIA Directive) and therefore an EIA is not mandatory.

The applicable threshold defined in Schedule 5; Part 2 for the Proposed Development is:

10. Infrastructure projects

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

The Proposed Development provides for 428 no. residential units and therefore falls under the mandatory threshold requiring the preparation of an EIAR.

In the circumstances, although a mandatory EIA is not triggered for the proposed Project, if it is likely to have a significant effect on the environment, having regard to the criteria set out in Schedule 7, an EIA will be required.

The criteria set out in Schedule 7 require regard to be had to:

- The characteristics of the Proposed Development;
- The location of the Proposed Development; and
- The characteristics of potential impacts.

Having regard to those criteria and the matters more particularly set out in Schedule 7, and considering the features of this site, including the proposed size and extent of occupancy, an EIAR will be prepared to accompany the strategic housing development (SHD) application to An Bord Pleanála.

2.2.2 Scoping

The scoping stage involves deciding which environmental topics should be covered by the EIA and therefore what information should be included in the EIAR. This involves considering the nature of the Proposed Development and the initial, usually desk based, information that has been obtained on the baseline environment. The topic areas where significant effects may potentially arise (and those where significant effects are unlikely to arise) are then identified. Methodologies for filling any information gaps and for undertaking the assessment are then developed for each of the topic areas that have been 'scoped in'.

A scoping study was conducted for the Proposed Development and the Scoping Report identified the potential for significant effects from the construction and operational phases of the proposed Carmanhall Road Development. The specialist assessments in this EIAR were identified along with the appropriate discipline specific best practice guidance.

As a result of the scoping process the following topics were scoped into the EIA, as it was considered that there was potential for significant environmental effects to arise as a result of the Proposed Development:

- Population and Human Health;
- Ecology and Biodiversity;
- Land, Soils and Geology;
- Water;
- Air Quality and Climate;
- Noise and Vibration;
- Cultural Heritage and Archaeology;
- Traffic and Transport;
- Landscape and Visual;
- Wind;
- Material Assets; and
- Interactions, and Cumulative and Combined Effects.

As a result of the scoping process the following topics were scoped out of the EIA, as it was not considered that there was potential for significant environmental effects to arise as a result of the Proposed Development:

- Human Health Impact Assessment; and
- Socio-Economics.

Human Health Impact Assessment

Potential impacts to human health were identified to be limited and predominantly confined to fugitive emissions during the short-term construction phase of the development. Therefore, a detailed human health impact assessment has been scoped out of this EIAR.

Any health impacts from the construction and operational phases of the Proposed Development have been considered in relation to biophysical factors such as air, noise and water. This has been addressed within the Population and Human Health chapter (which includes daylight/sunlight assessment) and cross-referenced to the relevant assessment sections elsewhere in the EIAR, (namely Chapter 7 Water, Chapter 8 Air Quality and Climate and Chapter 9 Noise and Vibration).

The EIAR conducted assessments of potential health impacts from air, noise and water using appropriate guidance and methods. Effects which are determined to be either '**Slight**' or '**Imperceptible**' (and therefore '**Not Significant**'; see Section 2.3.3.2), were identified for construction and operational phase air, noise and water impacts on the human health of the surrounding receptors identified. The potential population and human health impacts of the Proposed Development have been fully and adequately addressed in this EIAR. Any further or more detailed assessment of human health impacts is not appropriate nor required.

Socio Economics

The legislation does not generally require assessment of land-use planning, demographic issues or detailed socio-economic analysis therefore such assessments have not been scoped into the EIA. The EPA's 2017 draft 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' identify that such assessment should be avoided in an EIAR, unless issues such as economic or settlement patterns give rise directly to specific new developments and associated effects. As the Proposed Development comprises a contained housing development and it is also not considered that this development will give rise to subsequent developments, the assessment of land-use planning, demographic issues and a detailed socio-economic analysis has been scoped out of this EIAR.

2.2.3 EIAR Preparation

The main EIA stage involves activities such as undertaking surveys to fill gaps in baseline data, undertaking environmental modelling, assessing the nature and significance of effects and preparing the EIAR, including the Non Technical Summary (NTS).

The main difficulties encountered in compiling the required information for the EIAR and the main uncertainties involved have been identified in Section 1.9 of Chapter 1.0. Any additional topic-specific difficulties are described in the individual topic chapters.

2.3 EIA Processes

2.3.1 Determining the Key Features of the Proposed Development

A description of the Proposed Development is provided in Chapter 3 'Project Description' including information on the site, design, size and other relevant features of the development.

A description of the reasonable alternatives studied by the developer, which are relevant to the Proposed Development and its specific characteristics, is provided in Section 3.6 of Chapter 3.0 (Project Description). An indication is provided of the main reasons for the option chosen, taking into account the effects of the development on the environment.

2.3.2 Determining the Baseline

A description is provided within the various topic chapters of the relevant aspects of the current state of the environment (baseline scenario). An outline is also provided of the likely evolution of the baseline environment in the absence of implementation of the Proposed Development (the 'Do-Nothing' scenario). Information on the baseline environment was obtained through desk top review of existing environmental data and, where necessary, the collection of new data through site surveys.

The assessments presented in this EIAR are largely based on the comparison of expected impacts compared with current or recent baseline environmental conditions. This is with the exception of topics such as air quality, noise, traffic and transport, wind and landscape and visual assessments which factor in future baseline changes. These approaches are explained in further detail in the relevant chapters.

Establishment of the current and future baseline allowed effects to be assessed and reported by comparing a scenario with the Project against one without the Project.

The baseline description provided in the EIAR:

- Includes a description of the site location and the surrounding area as far as environmental effects are anticipated; and
- Defines existing land-uses and environmental receptors/resources relevant to the environmental topic.

2.3.3 Prediction of Impacts and Effects and Development of Mitigation Measures

2.3.3.1 Determining the Extent of the Assessment

It is necessary to define the extent of the EIA in both spatial and temporal terms, and this has been done as described below.

Geographical Extent

The EIA directly covers the physical extent of the Site as shown in the red line boundary plan (Figure 2.1). Also, many predicted impacts can extend beyond the immediate Site boundary, for example the use of the Site for foraging by a species that is primarily located off-site. Therefore, for certain topic areas a wider 'zone of influence' has been considered, as described in the individual topic chapters.

The geographical extent of the EIA also includes the cumulative impacts from related and unrelated development activities in both the construction and operational phases.

Temporal Extent

Under the current programme, it is expected that the duration of construction will last for approximately 24 months. The operational phase of the development will follow and will be a 'permanent' duration, (those lasting greater than sixty years). A decommissioning phase for the development has not been considered due to the 'permanent' nature of the development. The EIA has been based on these assumptions.

2.3.3.2 Prediction of Impacts and Effects Prior to Mitigation

Forecasting methods are required to identify and assess the significant effects of the Proposed Development on the environment. The forecasting methods used for each technical discipline are detailed in the respective chapter. For several topic areas, forecasting methods have been developed by professional bodies. Where these are available they have been used in this EIA, as follows:

- Ecology and Biodiversity – Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland. Chartered Institute of Ecology and Environmental Management (CIEEM), 2018;
- Air Quality – Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management (IAQM), 2014; and, Land–Use Planning and Development Control: Planning for Air Quality. Environmental Protection UK/Institute of Air Quality Management (EPUK/IAQM), 2017.
- Noise and Vibration – Calculation of Road Traffic Noise. UK Department of Transport, Welsh Office, 1988; ISO 9613: Attenuation of sound during propagation outdoors, Part 1 and Part 2. International Organization for Standardization, 1996; British Standard BS 8233:2014 – Guidance on sound insulation and noise reduction for buildings. British Standards Institute, 2014; British Standard BS 5228-1:2009+A1:2014 Code

of Practice for Noise and Vibration Control on Construction and Open Sites, Parts 1 and 2. British Standards Institute, 2014; British Standard BS 4142:2014+A1:2019 Methods for Rating and Assessing Industrial and Commercial Sound. British Standards Institute, 2019; and, BS7445-1:2003 Description and Measurement of Environmental Noise. Guide to Quantities and Procedures. British Standards Institute, 2003.

- Cultural Heritage - National Roads Authority (NRA), Guidelines for the Assessment of Architectural Heritage Impacts of National Roads Schemes; and, Guidelines for the Assessment of Archaeological Heritage Impacts of National Roads Schemes (no publication date); and
- Landscape and Visual Impact – Institute of Environmental Management and Assessment (IEMA) and landscape Institute (UK) ‘Guidelines for Landscape and Visual Impact Assessment’ (GLVIA-2013).

For topics where there is no topic specific guidance available, a common framework of assessment criteria and terminology has been used based on the EPA’s 2017 draft ‘Guidelines on the Information to be Contained in Environmental Impact Assessment Reports’..

In this EIA the topics that utilise the common framework include:

- Population and Human Health;
- Land, Soils and Geology;
- Water;
- Climate;
- Traffic and Transport;
- Wind; and
- Material Assets.

This common framework follows a ‘matrix approach’ to environmental assessment which is based on the characteristics of the impact (magnitude and nature) and the value (sensitivity) of the receptor. The terms used in the common framework are described below. Details of how these specifically relate to the individual topic areas are provided within the respective topic chapters.

The descriptions for value (sensitivity) of receptors are provided in Table 2.3.

Table 2.3: Environmental value (sensitivity) and descriptions.

| Value (sensitivity) of receptor / resource | Typical description |
|--|---|
| High | High importance and rarity, national scale, and limited potential for substitution. |
| Medium | Medium or high importance and rarity, regional scale, limited potential for substitution. |
| Low | Low or medium importance and rarity, local scale. |
| Negligible | Very low importance and rarity, local scale. |

The descriptions for magnitude of impact are provided in Table 2.4.

Table 2.4: Magnitude of impact and typical descriptions.

| Magnitude of impact (change) | | Typical description |
|------------------------------|------------|---|
| High | Adverse | Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements. |
| | Beneficial | Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality. |
| Medium | Adverse | Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements. |
| | Beneficial | Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality. |
| Low | Adverse | Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements. |
| | Beneficial | Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring. |
| Negligible | Adverse | Very minor loss or alteration to one or more characteristics, features or elements. |
| | Beneficial | Very minor benefit to or positive addition of one or more characteristics, features or elements. |

The approach followed to derive effects significance from receptor value and magnitude of impacts is shown in Table 2.5. Where Table 2.5 includes two significance categories, evidence is provided in the topic chapters to support the reporting of a single significance category.

Table 2.5: Significance Matrix

| | Magnitude of Impact (Degree of Change) | | | | |
|-----------------------------------|--|-------------------------|-------------------------|-------------------------|--------------------|
| | | Negligible | Low | Medium | High |
| Environmental value (Sensitivity) | High | Slight | Slight or moderate | Moderate or large | Profound |
| | Medium | Imperceptible or slight | Slight or moderate | Moderate | Large or profound |
| | Low | Imperceptible | Slight | Slight | Slight or moderate |
| | Negligible | Imperceptible | Imperceptible or slight | Imperceptible or slight | Slight |
| | | | | | |

A description of the significance categories used in Table 2.6.

Table 2.6: Significance categories and typical descriptions.

| Significance Category | Typical Description |
|-----------------------|---|
| Profound | An effect which obliterates sensitive characteristics. |
| Large | An effect which, by its character, magnitude, duration or intensity alters a significant proportion of a sensitive aspect of the environment. |
| Moderate | An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. |

| Significance Category | Typical Description |
|-----------------------|--|
| Slight | An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. |
| Imperceptible | An effect capable of measurement but without significant consequences. |

The approach to assigning significance of effect included reasoned argument, the professional judgement of competent experts and using effective consultation to ensure the advice and views of relevant stakeholders were taken into account. Unless stated otherwise in individual chapters, **effects that are either Large or Profound are considered to be Significant**, and **effects that are Moderate, Slight or Imperceptible are considered to be Not Significant**.

The assessment of the significance of environmental effects covered the following factors:

1. The receptors/resources (natural and human) which would be affected and the pathways for such effects;
2. The geographic importance, sensitivity or value of receptors/resources;
3. The duration (long or short term); permanence (permanent or temporary) and changes in significance (increase or decrease);
4. Reversibility - e.g. is the change reversible or irreversible, permanent or temporary;
5. Environmental and health standards (e.g. local air quality standards) being threatened; and
6. Feasibility and mechanisms for delivering mitigating measures, e.g. Is there evidence of the ability to legally deliver the environmental assumptions which are the basis for the assessment?

2.3.3.3 *Design and Mitigation*

The environmental assessment and design of the Proposed Development incorporated mitigation measures using a hierarchical system as follows:

1. Avoidance and prevention: design and mitigation measures to prevent the effect (e.g. alternative design options or avoidance of environmentally sensitive sites);
2. Reduction: where avoidance is not possible, then mitigation is used to lessen the magnitude or significance of effects; and
3. Remediation: where it is not possible to avoid or reduce a significant adverse effect, these are measures to offset the effect.

The following categories of mitigation have been described in the EIAR:

1. Embedded mitigation: project design principles adopted to avoid or prevent adverse environmental effects (as described in the 'Project Description, Chapter 3), and including fixed procedural commitments such as the development and adoption of a Construction Management Plan incorporating a Construction Environmental Management Plan (CEMP), and other associated management plan document; and
2. Essential mitigation: measures required to reduce and if possible offset likely significant adverse environmental effects, in support of the reported significance of effects in the environmental assessment (as described in the individual topic chapters).

Any enhancement measures have also been described (measures that are over and above what is required to mitigate the adverse effects of a project), as well as any requirements for monitoring of mitigation measures associated with any significant environmental effects.

2.3.3.4 Prediction of Residual Impacts and Effects

Once the embedded mitigation and essential mitigation measures were developed the assessment process for predicting impacts and effects described above was repeated to determine the residual effects (i.e. the effects remaining after mitigation).

2.3.3.5 Cumulative Assessment

The EIA assessed cumulative effects including those from:

1. The Project itself (e.g. numerous different effects impacting a single receptor); and
2. Different projects (together with the Project itself).

The cumulative effects were assessed when the conclusions of individual environmental topic assessments had been reached and reported.

The assessment of cumulative effects from different projects included:

1. Establishment of the zone of influence of the Project together with other projects;
2. Establishment of a list of projects which had the potential to result in cumulative impacts, including:
 - a. Development projects with valid planning permissions or consent orders, and for which EIA is a requirement; and
 - b. Proposals in adopted development plans with a clear identified programme for delivery.
3. Obtaining further information and detail on the list of identified projects to support further assessment.

2.4 Other Relevant Documents

In addition to the EIAR the following key documents are available as separate reports prepared as part of the wider planning application documentation:

- Appropriate Assessment Screening Report;
- Construction Environmental Management Plan;
- Preliminary Construction Management Plan;
- Operational Waste Management Plan; and
- Construction Demolition Waste Management Plan.

2.5 References

EPA, 2017, Draft Guidelines on the information to be contained in Environmental Impact Assessment Reports, 2017.

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