



Chapter 2 – Environmental Impact Assessment Approach

2.0 Environmental Impact Assessment Approach

2.1 EIA Process and Objectives

2.1.1 The overall aim of this ES is to provide an objective and systematic account of the significant environmental effects of the development and to assess the ability of the proposed redevelopment of the Clarion Close site and the surrounding area to accept those impacts. The overall EIA process is shown in Diagram 1 below (IEMA, 2004).

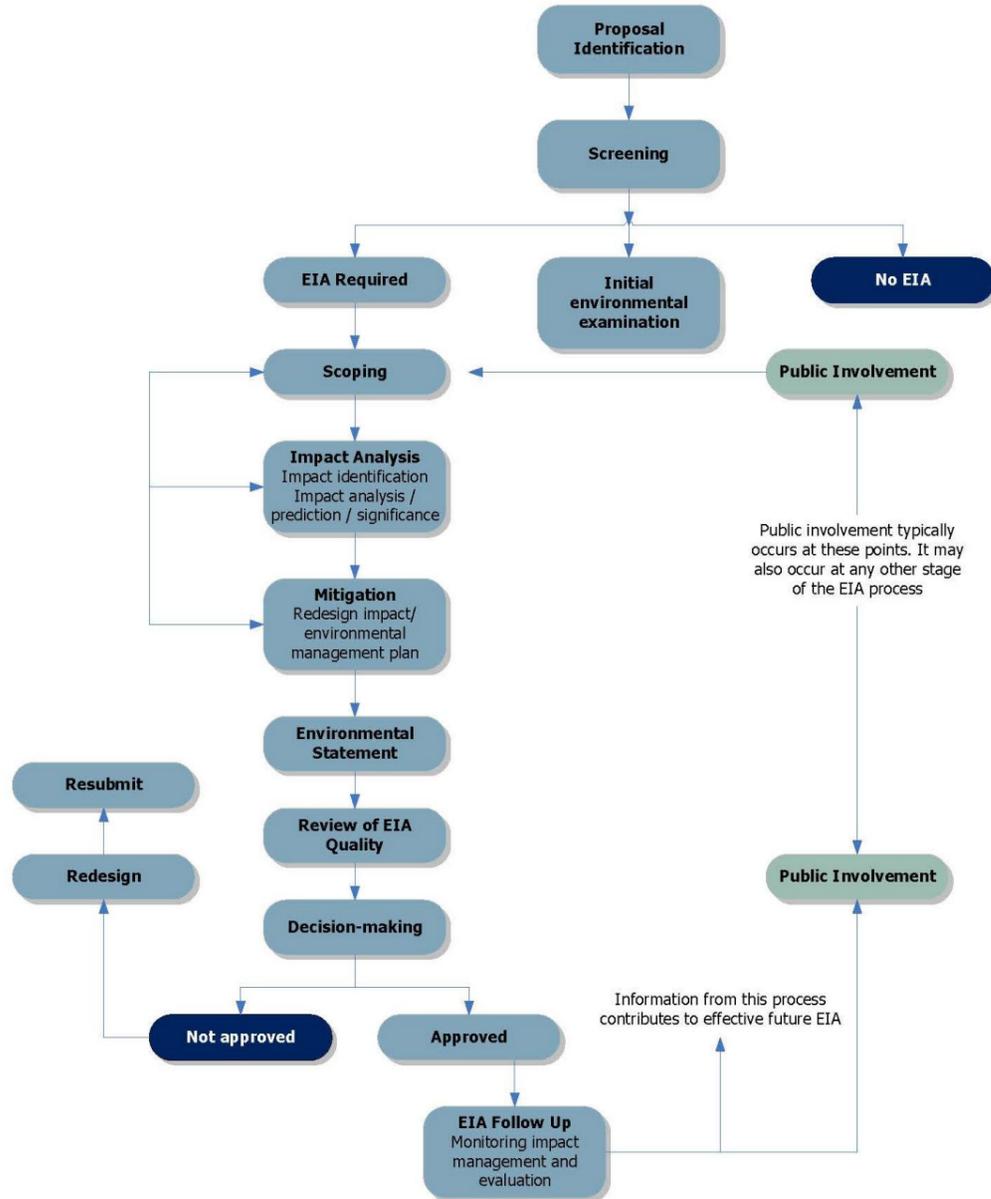


Diagram 1 The EIA process

2.1.1 The immediate objectives of EIA are shown in Diagram 2 (IEMA, 2004):



Diagram 2 The immediate objectives of EIA

2.2 Scope of Work

Geographic Scope

2.2.1 The EIA directly covers the physical extent of the Site as shown in the red line boundary plan Figure 1.1. It is defined by the area of land to be used, the nature of the current environmental conditions and the manner in which impacts are likely to be generated. It is important to note however that the influence of many predicted impacts can extend beyond the immediate Site boundary, for example, the effects on some species that are primarily located off-site may use the site for foraging. Where identified and relevant, these impacts have also been assessed as part of the EIA.

2.2.2 The geographical extent of the EIA also considers the potential implications of related and un-related development activities. The potential cumulative effects of the development in association with other developments both during construction and on completion are included where relevant as required by Schedule 4, Paragraph 5e) of the EIA Regulations (HMSO, 2017).

Temporal Scope

2.2.3 Under the current programme, it is expected that construction will take place between March 2019 and February 2020.

2.2.4 The assessments presented herein 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 and landscape and visual assessments which factor in future baseline changes into the assessments in future year impact scenarios. These approaches are explained in further detail in the relevant chapters concerned.



Chapter 2 – Environmental Impact Assessment Approach

Technical Scope

- 2.2.5 In order to ascertain the likely scope of the EIA, the scoping process involved the following steps:
- Identification of the planning application boundary;
 - Identification of the key characteristics of the development Site and the establishment of the environmental baseline through a series of desk and field studies;
 - Identification of gaps in the baseline and the further survey work required to address these shortfalls;
 - Initial consideration of the potential sources and nature of environmental impacts through assessment against the environmental baseline; and
 - Definition of impact assessment methodologies to be utilised.
- 2.2.6 In addition the following key documents are available as separate reports prepared as part of the wider planning application documentation:
- Transport Statement
 - Planning Statement; and,
 - Pre-Application Consultation Report.
- 2.2.7 As discussed in Chapter 1, no formal scoping exercise was undertaken to determine the scope of the EIA with the CCSC or statutory consultees, however, where specific consultation has been undertaken as part of the process this is discussed within the relevant topic chapters.

Topics scoped into the ES

- 2.2.8 The topics that were formally agreed through the scoping process, i.e. those which have the potential to give rise to significant environmental effects and are therefore addressed as part of this ES are listed below:
- Noise
 - Air Quality;
 - Ground Conditions;
 - Flood Risk/Hydrology;
 - Landscape and Visual Impact; and
 - Ecology.
- 2.2.9 The specific focus of the above assessments is detailed within each chapter.

Topics not considered further in the ES

- 2.2.10 Issues which have been assessed as unlikely to give rise to significant environmental effects have been omitted (also termed as 'scoped out') from the EIA and are detailed below with reasons provided as to why they are not considered to give rise to significant environmental effects:
- **Socio Economic**
 - The proposals comprise the redevelopment of an existing site to accommodate an energy recovery facility within an existing building. As such the construction phase of the proposals are unlikely to generate a significant number of construction jobs and at the operational stage there is no expected to be significant increase in staff numbers from those currently employed. As such it is considered that the potential for likely significant

effects in relation to the socio economic environment is negligible and therefore this topic has been scoped out of the remainder of the ES.

- **Transport**
 - The number of traffic movements as a result of the proposed development are not expected to increase significantly from the current movements which includes staff driving to and from site and from the fleet of 20 HGV's leaving and returning to site once a day. The development is expected to generate 1-2 additional HGV's movements a week, which is considered to represent a negligible increase to the traffic flows on the local highway network. As such traffic and transport has been scoped out of the ES but a separate Transport Statement has been included within the application and is presented at Appendix 2.1.
- **Archaeology and Cultural Heritage**
 - The development is situated within will be provided on an existing depot which is situated on hardstanding which will be retained. Additionally the majority of the facilities will be placed within an existing building on the site. As such there is limited potential for effects in relation to archaeology and cultural heritage and this has been scoped out as a topic within the ES.
- **Waste**
 - The proposed development site is intended to utilise an existing waste source for the generation of electricity and heat, at the same time significantly reducing the amount of waste which is going to landfill. As such the scheme is not deemed to be significant in terms of local and regional waste generation figures and it will not negatively affected capacity issues and waste has therefore been scoped out of the ES. It should be noted that construction waste will also be managed through a Site Waste Management Plan (SWMP).
- **Human Health**
 - To an extent human health has been considered, where appropriate, within specific topic chapters; namely air quality and noise. It is not considered necessary for this development to undertake a specific Health Impact Assessment, as there are no specific features of the development that present particular health issues or concerns as any emissions from the development are controlled through permitting requirements.
- **Accidents, Fire and Natural Disasters**
 - It is considered that, while there is always a potential risk of an accident, fire or natural disaster that could result in a significant environmental effect; this risk, can be appropriately mitigated through embedded design measures and through compliance with statutory design guidelines. It is subsequently proposed that these potential risks are scoped out of future assessments for this development.
- **Climate Change**
 - UK Climate Projections 2009 (UKCP09) is the official source of climate projections in the UK. It is funded by the Department for Environment, Food & Rural Affairs (DEFRA) and the Department of Energy & Climate Change (DECC) in partnership with the Met Office, EA and Tyndall Centre, amongst others.
 - The UKCP09 Projections show a general trend of:
 - Increased summer temperatures;



Chapter 2 – Environmental Impact Assessment Approach

- Increased winter temperatures – the UK’s winters will also be milder with the average temperatures being 2.2°C warmer;
- Reduced summer rainfall - there may be a 16% decrease in summer rainfall making the UK’s summers much drier; and
- Increased winter rainfall - winters will be wetter with an average of 14% more rainfall.
- It is considered that any development that is not carbon neutral, given the sensitivity of the receptor of the receptor (global climate), would result in a significant adverse effect. Therefore rather than considering the effects of climate change in a standalone chapter, it is proposed to address the issue of mitigation (carbon reduction) within the development description. In addition climate change adaptation is considered and discussed within the appropriate technical chapters where relevant.

Construction Environmental Management Plan (CEMP)

2.2.11 The potential environmental effects of the remaining construction phases will be controlled through a Code of Construction Practice. A CEMP will be prepared prior to commencement of construction and would be agreed with CCSC.

Cumulative Scope

2.2.12 As required by Schedule 4, Paragraph 5e) of the EIA Regulations (HMSO, 2017), the assessment should take into consideration other existing and /or approved projects.

2.2.13 As the development is based within existing building within an existing depot it is considered that the potential for likely significant cumulative effects are limited. However, should during the consultation process any relevant sites be identified which should be considered within the cumulative sites assessment, then these sites will be assessed within the final version of the ES.

2.3 Assessment Criteria

Overview

2.3.1 The assessments presented in this ES have considered the potential for significant environmental impacts to affect the baseline conditions as a direct/indirect result of the development. The baseline conditions are defined as the existing state of the environment and how it may develop in the future in the absence of the proposals. This is a requirement of the EIA Regulations which in Schedule 4, Paragraph 3 require a description of the aspects of the environment likely to be significantly affected by the development (HMSO, 2017).

2.3.2 Predictions are necessary when forecasting future impacts and, in order to ensure that predictions are as accurate as possible. The EIA Regulations which in Schedule 4, Paragraph 6 require a description of the applicant or appellant of the forecasting methods used to assess the effects on the environment (HMSO, 2017). Assessments have been undertaken in accordance with best practice guidelines published by the relevant professional bodies. Industry standard approaches, for example, the Chartered Institute of Ecology and Environmental (CIEEM) Guidelines for Ecological Impact Assessment in the United Kingdom 2nd Edition (IEEM, 2016), the Landscape Institute / Institute of Environmental Management and the Countryside Agency’s Guidelines for Landscape and Visual Impact Assessment Third Edition (LI/IEMA et al, 2013), CIRIA C552 (Rudland, D J et al. 2001) etc., have been used in undertaking the impact assessments. Each chapter’s methodology section provides details of the assessment criteria and terminology in the context of that technical discipline.

2.3.3 Where there is no topic specific guidance available, a common framework of assessment criteria and terminology has been developed drawing upon WYG’s experience of undertaking EIA, for the presentation of predicted impacts. This is based on a widely used ‘matrix approach’ to environmental

assessment which is based on the characteristics of the impact (magnitude and nature) and the sensitivity of the receptor, as described further below. This is known as a ‘Type 3 assessment framework’ by Wood (2008). It is recognised that the level of transparency in the approach is comparatively high, with the sensitivity framework incorporating useful examples and the descriptors serving to provide a fuller account of decision factors (Wood, 2008). Therefore, the approach does go some way to enhance the transparency of the assessment in the sense that the reader is potentially in a better position to ‘calibrate’ the language terms used by experts (Wood, 2008).

Receptor Sensitivity

2.3.4 The sensitivity of a receptor refers to its importance, i.e. its environmental value/attributes. This may include a feature’s level of statutory designation, for example if a site has a European designation (e.g. Special Area of Conservation) it will generally be regarded as more important/sensitive than another site with a national or local designation (e.g. Local Nature Reserve). The terminology defining sensitivity can vary according to discipline or the methodology being used. However, within this ES sensitivity is generally determined as **Very High, High, Medium** or **Low**.

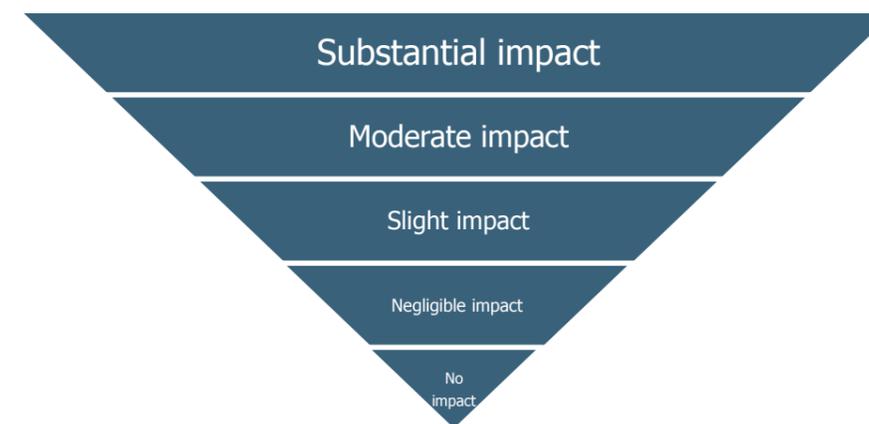
2.3.5 Each individual chapter within this ES considers the attributes of specific receptors in more detail.

Determining Impact Magnitude

2.3.6 Magnitude is determined by predicting the scale of any potential change in the baseline conditions. Where possible, magnitude has been quantified; however where this has not been possible a fully defined qualitative assessment has been undertaken. The assessment of magnitude is carried out considering any ‘design mitigation’, i.e. relevant design features, in the proposal forming part of the development description. This may result in the need for ‘additional mitigation’ i.e. that which results from the EIA process, to reduce impacts further. Therefore, the magnitude of impacts both before and after ‘additional mitigation’ has been stated.

2.3.7 Magnitude will be defined within each chapter along a sliding scale. Typical terms that can be used are shown in Diagram 3. Reducing impacts are lower down the pyramid.

Diagram 3 Pyramid depicting the relative scale of impact magnitude terminology



2.3.8 As shown in Diagram 3; an impact of substantial magnitude is far worse than an impact of negligible magnitude or no impact.



Chapter 2 – Environmental Impact Assessment Approach

Determining the Significance and Nature of Effects



Diagram 4 Significance of effects process equation

- 2.3.9 To determine the significance of effect the assessor combines the predicted magnitude of impact (change) with the assigned sensitivity (value) of the receptor. This is shown as an equation in Diagram 4
- 2.3.10 Table 2.3 shows how the interaction of magnitude and sensitivity can be combined to determine the significance of an environmental effect on a scale (note this does not define whether an impact is significant or not, see below). Deviation from the terminology may occur in cases where an established methodology requires this, which will be explained in relevant chapters.
- 2.3.11 The definition of at what level of significance a significant impact arises is provided within the topic method section of each chapter of the ES. This is important in the context of the EIA Regulations which in Schedule 4, Paragraph 5 require a description of the likely significant effects of the development (HMSO, 2017) which should cover the direct effects and any indirect, secondary, cumulative, short medium and long-term, permanent and temporary, positive and negative effects of the development. Therefore, environmental effects are described as:
 - Adverse or beneficial
 - Direct or indirect
 - Temporary or permanent
 - Short, medium or long term
 - Reversible or irreversible
 - Cumulative.
- 2.3.12 Adverse describes effects which are undesirable and beneficial describes effects which are desirable, and are used to describe effects resulting from impact magnitudes which are either negative or positive.
- 2.3.13 Each effect will have a source originating from the development, a pathway and a receptor. Effects which operate this direct way are regarded as direct effects. Effects on other receptors via subsequent pathways are regarded as indirect effects.
- 2.3.14 Each individual chapter within this ES considers the nature of effects and significance of effects and their definitions in more detail as required.

Table 2.3 Example Significance of Effects Matrix

Magnitude of Impact			
Substantial magnitude	Moderate magnitude	Slight magnitude	Negligible magnitude

		Magnitude of Impact			
		Substantial magnitude	Moderate magnitude	Slight magnitude	Negligible magnitude
Sensitivity of Receptor	Very High	Major	Major	Intermediate	Neutral
	High	Major	Intermediate	Minor	Neutral
	Medium	Major	Intermediate	Minor	Neutral
	Low	Intermediate/	Minor	Neutral	Neutral

EIA Assumptions and Limitations

- 2.3.15 The following key assumptions have been made in preparing the ES:
 - All legislative requirements will be met.
 - The pre-additional mitigation effects assessment reported within this ES assumes the project will be constructed in accordance with industry standard techniques and currently enforced mandatory minimum standards, and assumes suitably experienced contractors will be appointed to design, construct and commission the development. The base assessment is reported on the design, construction, and operation of the development as provided within the description given in Chapter 3.
 - The potential environmental effects of the construction phase will be controlled through a Construction Environmental Management Plan (CEMP) which would be prepared prior to commencement of construction and would contain all the design and additional mitigation as identified and reported within this ES and any subsequently agreed requirements, expected to be enforced by planning conditions. The details of these documents would be agreed with the LPA prior to construction commencing.
- 2.3.16 Where further assumptions have been made for individual topic assessments these will be identified within the relevant topic chapters.
- 2.3.17 Any limitations or uncertainties associated with impact prediction or the sensitivity of receptors due to the absence of data or other factors will give rise to uncertainty in the assessment. Schedule 4, Paragraph 6 of the EIA Regulations requires that an ES state whether any "difficulties (technical deficiencies or lack of know-how) were encountered by the Applicant in compiling the required information." (HMSO, 2017). In this case any limitations in the assessments are referred to in the relevant chapter of this ES.

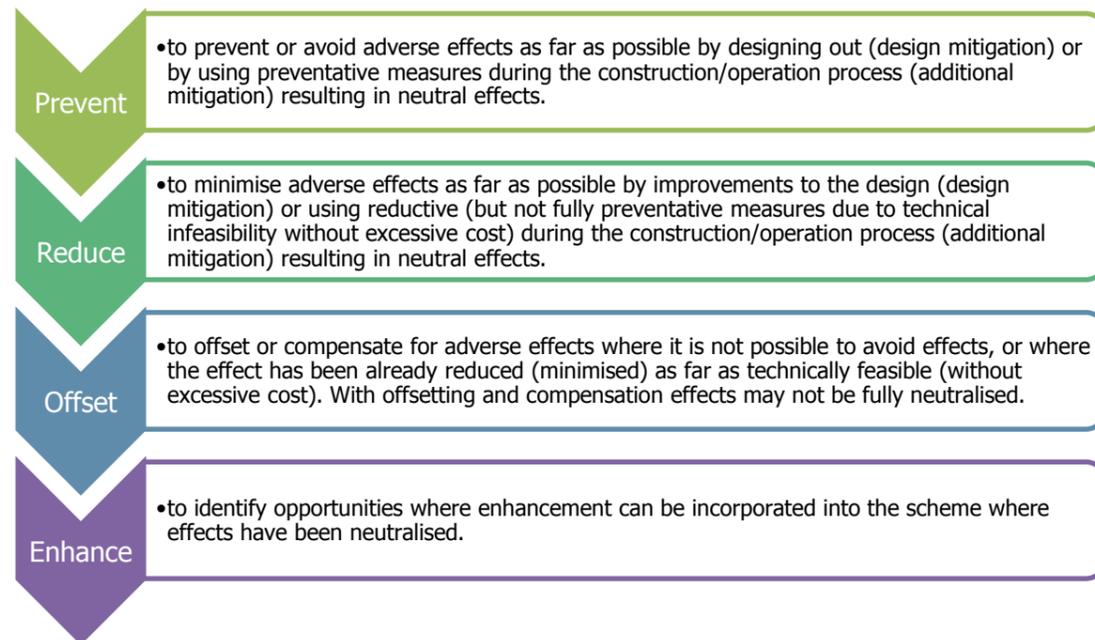


Chapter 2 – Environmental Impact Assessment Approach

Proposed Mitigation Measures

- 2.3.18 A description of the mitigation measures is one of the requirements of the EIA Regulations. Schedule 4, Paragraph 7 of the EIA Regulations sets out the information that must be included in an ES and this includes “a description of the measures envisaged to avoid, prevent, reduce and if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements” (HMSO, 2017).
- 2.3.19 In order to reduce the magnitude of the impact and therefore the significance of the environmental effect, where possible, mitigation measures have been identified. The following hierarchy, and terminology, has been used when determining mitigation measures as depicted in Diagram 5:

Diagram 5 The mitigation hierarchy applied in EIA



- 2.3.20 When describing mitigation measures, they generally fall under two headings, ‘design mitigation’ and ‘additional mitigation’.
- 2.3.21 Design mitigation is where the design of the site has been altered to take into account a particular issue or accommodate an important feature. This will generally be part of the project description but will also be identified in the relevant chapter under the ‘Mitigation within the Submitted Design’ sub heading. The strategic development of the masterplan for the development has involved the consideration of potential impacts of alternative designs and layouts of the site. This is described in Chapter 4 of this ES. In addition, specific features of the development have been included in the fixed design of the site, structures and buildings to avoid or reduce impacts. Therefore the mitigation of impacts has been integral to the design process undertaken and was facilitated by:
 - Early identification of the baseline environment;
 - Preliminary identification of potential significant impacts by technical specialists; and
 - Engagement with key stakeholders including statutory and non-statutory organisations and the public through the consultation strategy.

2.3.22 Additional mitigation is all other mitigation that has been identified as a result of the impact assessment that has been undertaken on the fixed design scheme. Clear details of when and how the mitigation measures identified in the chapter will be implemented, have been given. An assessment of ‘residual’ magnitude is conducted following the determination of suitable additional mitigation measures. The subsequent assessment of residual significance identifies the residual environmental effects, these being the final outcome of the EIA process. Statements are made of whether residual effects are significant or not.

2.4 References

Her Majesty’s Stationery Office (HMSO), 2017. The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

Institute of Ecology and Environmental [IEEM], 2016. Guidelines for Ecological Impact Assessment in the United Kingdom 2nd Edition.

Institute of Environmental Assessment [IEA], (1993). Guidelines for the Environmental Assessment of Road Traffic.

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Rudland, D J et al (2001) Contaminated Land Risk Assessment: A Guide to Good Practice, CIRIA C552.

The Landscape Institute / Institute of Environmental Management and the Countryside Agency, 2013. Guidelines for Landscape and Visual Impact Assessment. Third Edition.

Wood G., 2008. Thresholds and criteria for evaluating and communicating impact significance in environmental statements: ‘See no evil, hear no evil, speak no evil’? Environmental Impact Assessment Review. Volume 28. 22-38.