

## 4 ASSESSMENT METHODOLOGY

### 4.1 Introduction

4.1.1 This chapter describes the assessment methodology used in the EIA process. It includes a description of the EIA and its main stages, the terminology used in the ES and the generic criteria for assessing significance. This broad assessment methodology has been adapted for use in the technical chapters where necessary.

#### The EIA Process

4.1.2 The EIA process principally aims to:

- Describe the proposed application scheme;
- Assess the significant effects which have been identified as arising from the construction and operation of the scheme in relation to environmental media and sensitive environmental receptors;
- Identify the measures to be incorporated into the design and management of the proposed development to reduce any potential adverse environmental effects that have been identified; and
- Prepare an ES to present the findings of the EIA process.

4.1.3 The main stages of the EIA process are as follows:

*Table 4.1: Main stages of the EIA process*

Stage	Main Objective
Screening	Determining the need for an EIA through a screening opinion obtained from the LPA.
Scoping	Determining the scope of the EIA i.e. the aspects of the environment which are likely to be significantly affected by the proposed development and will be assessed and documented in the ES. A scoping opinion is obtained from the LPA.
Consultation	Consultation with statutory consultees and key stakeholders throughout the assessment process. Key consultation stages occur at the scoping stage and following submission of the ES with the planning application.
Baseline surveys	Surveys (e.g. desk based assessments, field surveys) undertaken to identify baseline conditions. This then forms the basis for the assessment of effects. Baselines do not simply describe conditions today but also include a description of how the baseline would evolve in a 'no scheme' world (i.e. if the proposed development does not proceed). This is particularly important for projected changes in traffic levels and other environmental aspects directly related to them such as noise and air quality.
Assessment and iteration	Assessing the likely effects of the proposed development and identifying opportunities for enhancement. Adverse effects are mitigated. If adverse effects cannot be mitigated, they can be reported back to the design team and used to inform the design.

Stage	Main Objective
Reporting	Preparation and submission of the ES with the planning application.
Environmental management and monitoring	Implementing the mitigation described in the ES and combining with best practice measures for management of environmental issues during construction and operation of the proposed development. Environmental issues may also be monitored as part of this process.

### Screening and Scoping

- 4.1.4 Following consultations with Countryside Council for Wales (CCW) and BCBC a formal request for a 'Screening Opinion and Scoping Response' was submitted to BCBC on the 13<sup>th</sup> February 2009. (P/09/97/ESO). To enable BCBC to arrive at a formal opinion, the scoping was issued to CCW, Environment Agency, Glamorgan Gwent Archaeological Trust and a number of Council departments. This is available to view on BCBC's planning portal and in Volume 3, 'Appendices for Chapter 1-4' – Screening and Scoping. The discussions were initially based on information gathered within the ES submitted as part of the 2003 application.
- 4.1.5 The Local Planning Authority (LPA) has determined that the scheme falls within Schedule 2 Paragraph 10 (b), Infrastructure Project (Urban Development Project), is likely to have significant environmental effects and therefore requires an Environmental Statement.
- 4.1.6 This ES has been prepared in line with the EIA regulations and the scope of assessment agreed with BCBC.
- 4.1.7 Further consultations have been made with key stakeholders throughout the preparation of the ES.

## 4.2 Assessment Terminology

### Impact Assessment

- 4.2.1 The term impact assessment refers to the change that is predicted to take place to the existing condition of the environment as a result of the proposed development.
- 4.2.2 In characterising impacts a receptor is identified and their sensitivity described according to baseline assessment results, including whether the receptor is important on a local, district or national level. When describing effects on the receptors, the following are considered with quantification where possible the following questions are considered:
- What is the nature of the change (Qualitative)?
  - What is the degree of change (Quantitative)?
  - Does the effect occur over the short, medium or long term?
  - Is the effect permanent or temporary?
  - Is the effect reversible/irreversible?
  - Does it increase or decrease with time?

- Is it beneficial, neutral or adverse?
- Are health and/or environmental standards/objectives threatened?

### **Magnitude**

- 4.2.3 The magnitude of an impact is a measure of the level, intensity or amount of the change to the existing baseline condition caused by the proposed development.

### **Receptor**

- 4.2.4 A receptor is the human being, ecological habitat, natural resource or other element of the environment which experiences or receives the change/impact.

### **Sensitivity**

- 4.2.5 Sensitivity refers to the sensitivity to change of the identified receptor.

### **Significance**

- 4.2.6 The significance of the effect on the receptor is then assessed by considering the magnitude of the impact against the sensitivity of the receptor.

*Magnitude of impact + sensitivity of receptor = significance of effect*

## **4.3 Potential Effects & Assessing Significance**

- 4.3.1 Potential effects have been identified prior to the incorporation of mitigation for each of the assessment years.

- 4.3.2 Generic significance criteria are shown in Table 4.2 below. This criteria provides the basis for the technical specialists to develop their own criteria as necessary, e.g. to comply with topic specific standards or methodologies. Where the significance criteria has been adapted, and has been detailed and explained e.g. to show how quantitative thresholds/qualitative criteria relate to the judgement of the significance of the effect and how thresholds have been developed. Thresholds have been developed by:

- Comparison with regulations or standards;
- Reference to criteria such as protected species, protected sites, landscapes etc;
- Consultation with consultees and decision makers;
- Compliance with policy (or plan) objectives;
- Comparison with experience on similar projects elsewhere;
- Experience and professional judgment of the specialist assessor.

Table 4.2: Generic Significance Criteria

Significance level	Criteria
Severe	Only adverse effects are assigned this level of importance as they represent key factors in the decision-making process. These effects are generally, but not exclusively associated with sites and features of international, national or regional importance. A change at a regional or district scale site or feature may also enter this category. Typically, mitigation measures are unlikely to remove severe adverse effects.
Major	These effects are likely to be important considerations at a local or district scale but, if adverse, are potential concerns to the project and may become key factors in the decision-making process. Mitigation measures and detailed design work are unlikely to remove all of the effects upon the affected communities or interests.
Moderate	These effects, if adverse, while important at a local scale, are not likely to be key decision-making issues. Nevertheless, the cumulative effect of such issues may lead to an increase in the overall effects on a particular area or on a particular resource. They represent issues where effects will be experienced but mitigation measures and detailed design work may ameliorate or enhance some of the consequences upon affected communities or interests. Some residual effects will still arise.
Minor	These effects may be raised as local issues but are unlikely to be of importance in the decision-making process. Nevertheless they are of relevance in enhancing the subsequent design of the project and consideration of mitigation or compensation measures.
Not Significant	No effect or effect which is beneath the level of perception, within normal bounds of variation or within the margin of forecasting error.

4.3.3 Effects have been categorised as being beneficial or adverse, temporary or permanent and occurring in the short, medium or long term, in line with the significance criteria and the definitions and terms described below (e.g. a permanent moderate adverse effect occurring in the short term). Where environmental effects are episodic the frequency of the events has been identified.

4.3.4 The duration of environmental effects is defined as follows:

- Temporary - Less than one year
- Short-term - One year to five years
- Medium-term - Five years to ten years
- Long-term - Ten years to 25 years
- Permanent - Greater than 25 years/Irreversible

4.3.5 The following terms have been used to describe effects as appropriate:

- **Positive Effects** - Effects that have a beneficial influence on the environment.

- **Adverse Effects** - Effects that have an adverse influence on the environment.
- **Direct Effects** - Effects that are caused by activities which are an integral part of the scheme.
- **Indirect Effects** - Effects that are due to activities that are not part of the scheme, e.g. some of the regeneration benefits attributable to the scheme.
- **Secondary Effects** - Effects that may arise following the completion of the development.

#### **4.4 Mitigation**

4.4.1 Mitigation refers to the measures incorporated in order to avoid, reduce or remedy adverse effects or to enhance beneficial effects.

#### **4.5 Residual Effects**

4.5.1 Residual effects are those assessed with mitigation in place (i.e. those remaining after mitigation).

#### **4.6 Cumulative Effects**

4.6.1 Cumulative effects refer to impacts upon the existing baseline caused by the proposals in conjunction with other developments. These effects can be positive or negative and where providing benefits may be viewed as part of the mitigation.

4.6.2 Inter-actions between potential effects of the proposals have also been considered however these effects are difficult to quantify.

#### **4.7 Assumptions and Technical Limitations**

4.7.1 Each assessment will be subject to certain assumptions and limitations, whether required for the production of Quantitative modelling or Qualitative description or prediction of effects. These parameters are discussed within each section

