

4 Assessment Methodology

4.1 Scoping

As part of the consultation process, a scoping report was prepared (A82 Pulpit Rock Improvements Scoping Report, January 2010). This report identified key issues to enable the scope of the EIA to be determined. It was recognised that adverse impacts are likely to occur during the construction and operation of the proposed scheme. Some impacts will be short term, for example during construction, and others may be permanent, for example landscape and visual, or some may occur as a result of the operation of the scheme, such as ecological effects. As a result mitigation measures have been designed in the scheme to reduce adverse environmental impacts. The potential environmental issues identified during the scoping process are shown in Table 4.1. The process of identifying and mitigating impacts has continued beyond scoping to complement the development of the engineering design.

Table 4.1 - Potential Environmental Issues Identified

Environmental Issue	Construction	Operation
Policy Context	O	➤➤
Landscape and Visual	X	O / X
Air Quality	O	O
Traffic Noise and Vibration	O	O
Land Use	O	O
Cultural Heritage	O	O
Ecology and Nature Conservation	X	O
Pedestrian, Equestrian, Cyclists and Community Effects	X	➤➤
Road Drainage and the Water Environment	X	➤➤
Disruption due to Construction	X	N/A

O No significant effect likely

➤➤ Positive effect likely

X Negative effect possible

N/A Not applicable

The Scoping Report identified these topics shown in Table 4.1 as those which require full environmental impact assessment.

4.1.1 Topics Scoped out of the Assessment

The Scoping report also identified those to be scoped out of the assessment. It was determined that Air Quality, Traffic Noise and Vibration, Vehicle Travellers and Geology and Soils should all be scoped out of the assessment and following consultation no statutory or non-statutory consultees objected to this. The reason for scoping out the above topics is detailed below:

4.1.1.1 Air Quality

Based on the absence of any relevant sensitive receptors and the findings of the Stage 2 assessment which showed a negligible change in total pollution emissions as a result of the preferred option, air quality is not considered to be a significant factor in this scheme. In accordance with the current Air Quality section of the DMRB HA207/07 (issued May 2007), a further simple or detailed level assessment is not considered to be required.

4.1.1.2 Traffic Noise and Vibration

Based on the absence of any residential properties and the findings of the Stage 2 assessment which showed a negligible or minor beneficial change in traffic noise levels at the Pulpit Rock SM as a result of the scheme options considered, traffic noise is not considered to be a significant factor in this assessment. In accordance with the current Noise and Vibration section of the DMRB HA213/08 (issued August 2008), a further simple or detailed level assessment is not considered to be required.

4.1.1.3 Geology and Soils

There are no geological designations in the study area and the soil classification is not suitable to arable cropping. However, the contractor will be given construction guidelines that will ensure that any soils are re-used where possible, and that any material removed to landfill will be monitored via licensing and legislative guidelines. In addition it should be noted that the main issues in relation to geology will relate to hydrogeology and this will be addressed within the Road Drainage and the Water Environment chapter, information gained from the Ground Investigation works will also be considered within this chapter.

4.1.1.4 Vehicle Travellers

The issue of views from the road will be fully considered within the Landscape and Visual Effects chapter of the ES. This will assess the construction of the viaduct from a landscape perspective. It is considered that the only issue causing driver stress at the current time in the vicinity of Pulpit Rock is the tortuous geometry of the current road alignment and the waiting times at the traffic signals. This will cease to be an issue, once the scheme is constructed as the existing situation will be improved.

4.2 Methodology

The ES is structured in accordance with Volume 11 of the Design Manual for Roads and Bridges. It should be noted that the DMRB is in the process of being revised and updated and is currently at an interim stage where guidance on all environmental assessment techniques for individual topics has not been updated. For the purposes of this ES the current DMRB structure shall be used. For example there is an intention to restructure the DMRB guidance so that effects from construction and also the impact of Roads Schemes on policies and plans is absorbed into each of the new topic chapters. However, the current guidance still provides for a separate Disruption due to Construction Chapter and a Policies and Plans chapter and this ES will follow the existing guidance. Where updates have

been made to Environmental Assessment Techniques for individual topics, i.e. Road Drainage and the Water Environment (November 2009) then this will be used.

This document contains chapters for each of the specialist environmental topics, namely policies and plans; landscape and visual; land use; cultural heritage; ecology and nature conservation; pedestrian, cyclists, equestrian and community effects; disruption due to construction; and road drainage and the water environment. Each specialist environmental topic chapter follows the same format and assessment hierarchy for ease of comparison, unless otherwise indicated within the topic chapter:

- Introduction – introduces the environmental topic.
- Methodology – describes the methodology that has been used in the assessment of the environmental topic. Unless specified as otherwise, the methodology used is drawn from the Design Manual for Roads and Bridges, Environmental Assessment, Volume 11.
- Consultations – details the consultations undertaken by each environmental topic including the concerns expressed as a result of the consultations.
- Baseline – describes the study area used for the topic as well as the baseline information obtained and the date of any surveys undertaken. The baseline also takes into account any changes, which have been identified as likely to occur either prior to construction or prior to the operation of the scheme.
- Environmental Effects – identifies the possible range and location of potential impacts before mitigation comprising:
 - Effects of Construction
 - Effects of Operation
- Significance of environment effect – generally set out in tabular form. The assessment of significance comprises:
 - Consideration of the ‘nature of the effect’ (positive, neutral and negative effects are identified and evaluated for both the construction and operational stages and whether or not the effects are direct or indirect; secondary; cumulative; short, medium and long-term; permanent and temporary)
 - The ‘magnitude of effect’ (this considers the scale of change, the degree to which the environment is affected, the likelihood or probability of an effect occurring and the implications of any cumulative effects). For this ES, the magnitude of impact is based on a scale comprising ‘Severe’ (an acute change to the environment), ‘Moderate’ (a moderate change to the environment), ‘Slight’ (a small change to the environment) and ‘Negligible’ (a negligible change to the environment).
 - The ‘sensitivity of the receptor’ to the effect based on a scale comprising ‘Negligible’, ‘Low’, ‘Medium’, ‘High’ and ‘Very High’.
- Mitigation – provides a hierarchy of measures to avoid adverse impacts to features where possible (e.g. by modifying the design or location), and where this is not possible then to minimise the scale, significance or degree of impact and finally to offset or compensate impacts where possible e.g. provision of new opportunities for access.

- Cumulative Impacts – describes the cumulative impacts of the scheme combined with other developments with the vicinity and considers these impacts on sensitive receptors.
- Residual Impacts – describes the impacts, which are likely to remain after the application of mitigation measures, measured at the year of opening and 15 years after construction.
- Summary – provides a brief summary of the assessment.

The Environmental Impact Assessment (Scotland) Regulations 1999 require that the ES should describe the likely main or ‘significant’ impacts on the environment of the proposed scheme. In order to determine the ‘significance of environment effect’, consideration has been given to both the magnitude of effect and the sensitivity of the receptor. This is a qualitative judgement where ‘Substantial’ (a significant implication for the environment), ‘Moderate’ (an implication for the environment), ‘Minor’ (a limited implication for the environment) and ‘Negligible’ (an insignificant implication for the environment) has been used to describe the ‘significance of environment effect’, which is set out in a matrix as shown in Table 4.2. Entries in the matrix shaded in grey represent what is considered to be the main or significant impacts.

Table 4.2 - Significance of Environmental Effect Matrix (areas shaded in grey are considered significant effects)

MAGNITUDE OF EFFECT	SENSITIVITY OF RECEPTOR				
	VERY HIGH	HIGH	MEDIUM	LOW	NEGLECTIBLE
SEVERE	Substantial	Substantial	Moderate	Minor	Negligible
MODERATE	Moderate	Moderate	Minor	Minor	Negligible
SLIGHT	Moderate	Minor	Minor	Negligible	Negligible
NEGLECTIBLE	Negligible	Negligible	Negligible	Negligible	Negligible

Where authors have used a different assessment table this is clearly explained in the chapter.

A glossary of the main terms used throughout this ES is provided at the front of the ES to ensure a clearer understanding of the technical language.

A separate Non-Technical Summary has also been prepared, which provides a brief summary of the scheme and the principal findings of the environmental assessment in non-technical language.

4.3 Information Sourced

Environmental information has been obtained from a wide variety of publicly available sources together with a general knowledge of the study area and a variety of site based surveys. The information has been drawn from these sources and updated as necessary during the study. References for information sources are provided at the end of each chapter.