Ryedale Gas Project

Methodology
for
Landscape and Visual Impact Assessment

RYEDALE GAS PROJECT: METHODOLOGY FOR LANDSCAPE AND VISUAL IMPACT ASSESSMENT

1. The methodology for undertaking the Landscape and Visual Impact Assessment (LVIA) of the proposed development on Ryedale Gas Project has been prepared to guide the production of a Landscape and Visual Effects assessment for the Environmental Statement to accompany the planning application.

2. The proposed methodology for carrying out the landscape and visual assessment of the development proposals on Ryedale Gas Project is in accordance with the Landscape Institute and the Institute of Environmental Management & Assessment's *"Guidelines for Landscape and Visual Impact Assessment"* Second Edition, Spon Press, May 2002. The aim of these guidelines is to set high standards for the scope and contents of landscape and visual assessments and to establish certain principles that will help to achieve consistency, credibility and effectiveness in landscape and visual impact assessment. Guidance is contained in this publication on some approaches and techniques which have been found to be effective and useful in practice by landscape professionals. However, the guidelines are neither intended as a prescriptive set of rules nor as an exhaustive manual of techniques and have been adapted to the specific project.

3. The assessment of landscape and visual impact has certain defining features that distinguish it from the methodologies used in the assessment of environmental impact in other topics. Landscape and visual impact assessments may also be different from other specialist studies because they are generally undertaken by professionals who are also involved in the design of the landscape and the preparation of subsequent management proposals. This can allow the assessment to proceed as an integral part of the overall scheme design rather than as a discrete study carried out once the proposals have been finalised. Landscape impact assessment, in common with any assessment of environmental effects, includes a combination of objective and subjective judgements and it is, therefore, important that a structured and consistent approach is used. It is necessary to differentiate between judgements that involve a degree of subjective opinion (as in the assessment of landscape values) from those that are normally more objective and quantifiable (as in the determination of magnitude of change). Judgement should always be based on training and experience, and be supported by clear evidence and reasoned argument. Accordingly, it is recommended that suitably qualified and experienced landscape professionals carry out landscape and visual impact assessments.

Landscape and Visual Effects

4. Landscape and visual effects are assessed separately.

5. Landscape and visual assessments are separate, although linked, procedures. The landscape baseline, its analysis and the assessment of landscape effects all contribute to the baseline for visual assessment studies. The assessment of the potential effect on the landscape is carried out as an effect on an environmental resource, i.e. the landscape. Visual effects are assessed as one of the interrelated effects on people.

6. Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character and how this is experienced. This may in turn affect the perceived value ascribed to the landscape. The description and analysis of effects on a landscape resource relies on the adoption of certain basic principles about the positive (or beneficial) and negative (or adverse) effects of change in the landscape.

7. Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity.

8. The assessment of effects aims to:-

- Identify systematically the likely effects of the development;
- Indicate the measures proposed to avoid, reduce, remedy or compensate for those effects (mitigation measures);
- Estimate the magnitude of the effects; and
- Provide an assessment of the nature and significance of these effects in a logical and well-reasoned fashion.

9. Effects may be positive (beneficial), neutral (no change), or negative (adverse), direct or indirect, and can be secondary or cumulative, permanent or temporary (short, medium or long term). They can also arise at different scales (local, regional or national) and have different levels of significance (high, moderate or neutral). These aspects are examined in more detail in later sections of the methodology.

Baseline Studies

10. The initial step in any landscape or visual impact assessment is to review the existing landscape and visual resource in the vicinity of the proposed development – that is the baseline landscape and visual conditions. The data collected will form the basis from which the estimation of magnitude and significance of the landscape and visual effects of the development may be identified and assessed. The purpose of baseline studies is to record and analyse the existing landscape features, characteristics, the way the landscape is experienced, and the value or importance of the landscape and visual resources in the vicinity of the proposed development.

11. Classification entails sorting landscape into units or groups of distinct and recognisable type and character.

12. Analysis involves the detailed examination of the constituent parts of the landscape and visual resources in order to understand how they are made up and experienced. It can also include the process of ascertaining the relative importance of various aspects of the landscape and visual resource.

13. The desktop study explores patterns and scale of landform, land use, land cover and built development, which give guidance on the general landscape character of the surrounding area. Any special values that may apply, such as designated landscapes, and specific potential receptors of landscape and visual impact including important components of the landscape, as well as residents, visitors, travellers through the area and other groups of viewers should also be noted.

14. The desk study provides a sound basis for subsequent field survey work including the identification of landscape character areas around the development site, the likely visual envelope and principal viewpoints. The field survey identifies and records specific receptors. The term “receptor” is used in landscape and visual impact assessments to mean an element or assemblage of elements that would be directly or indirectly affected by the proposed development, including ‘landscape receptors’ such as trees or a sense of tranquillity and ‘visual receptors’ meaning particular groups of people who are likely to be affected.

15. Landscape character assessment, and particularly the stage of characterisation, is the basic tool for understanding the landscape and is the starting point for baseline surveys. There is a well-established methodology developed in the UK by the

Countryside Agency and Scottish Natural Heritage (*Landscape Character Assessment: Guidance for England and Scotland (2002)*). The baseline studies provide a concise description of the existing character of the site and its surrounding landscape, and the classification of the landscape into distinct character areas or types, which share common features and characteristics. The condition of the landscape, i.e. the state of an individual area of landscape, should be described as factually as possible, and a judgement also needs to be made on the value or importance to society of the affected landscape. The assessment of landscape importance includes reference to policy or designations as an indicator of recognised value, including specific features or characteristics that justify the designation of the area. This information is needed as part of the baseline to establish why the landscape is considered to be of value at a national, regional or local level.

16. The area of study for the visual assessment should extend to the whole of the area from which the proposed development would be potentially visible (the visual envelope).

17. The approximate visibility of the site as existing should be determined through topographical analysis, and the actual extent of visibility checked in the field because of the localised screening effect of buildings, walls, fences, trees, hedgerows and banks. Principal viewpoints within the area surrounding the site should also be identified, and the viewpoints used for photographs selected to demonstrate the relative visibility of the site (and existing development on it) and its relationship with the surrounding landscape and built forms. The selection of the principal viewpoints is based on the following criteria:-

- the requirement to provide representative viewpoints within the visual envelope;
- from locations which represent a range of near, middle and long distance views;
- whilst private views are relevant, public viewpoints, i.e. from roads and public rights of way and other areas of open public access, are selected since they are often the most significant in terms of the number of people affected; and
- views from receptors within designated landscapes.

18. A study will be carried out encompassing groups of properties, roads and public rights of way that lie within the Visual Envelope of the Application Site. The term "properties" includes dwellings, community facilities and places of employment. The extent of site visibility is graded from a visual inspection of the site and surrounding area. There is, in any visual assessment, a continuity of degree of visibility ranging from no view of the

site to full open views. To indicate the degree of visibility of the site from any location, including from roads, public rights of way and properties, three categories have been used:-

a) **No View**: no view of the site or features on the site or the site is difficult to perceive;

b) **Partial View**: a view of part of the site, or a filtered view of the site, or a distant view where the site is perceived as a small part of the view; and

c) **Open View**: a clear view of a significant proportion of the site within the wider landscape.

19. The final stage in the field survey is to identify and address specific receptors including landscape elements and features that may be directly affected by the development, as well as visual receptors. In the case of landscape receptors, the field survey includes the recording of topographic, geomorphological and drainage features, woodland, tree and hedgerow cover, land use, field boundaries, buildings and artefacts, access and rights of way. In the case of visual receptors, the types of views affected, an estimate of their numbers and whether there were few or many, duration of viewing, and potential seasonal screening effects should be noted.

20. The next stage in the process is the analysis stage which results in the classification of the landscape into distinctive character areas or types, based on variations in landform and land cover. The classification would take into account the National and County landscape character assessments, which would be described in the assessment. At the same time as carrying out the landscape character analysis, the overall sensitivity of the landscape and visual environment to the type of development envisaged will be assessed. The sensitivity of the landscape to change is reflected in the degree to which the landscape is able to accommodate change (due to a particular development or land use change) without adverse effects on its character. This may be influenced by the extent of existing or new landform and/or existing vegetation or new planting. These and other factors determine the visibility of the proposed development and therefore influence the extent of its effect on the perceived character and visual amenity of the surrounding landscape.

21. Following the field survey, the extent to which the site is visible from the surrounding area will be confirmed and presented on a plan or plans which illustrate specific

elements such as landform, buildings or vegetation which interrupt, filter or otherwise influence views. The locations of principal viewpoints would be mapped and these existing views will be illustrated by annotated photographs (Site Context Photographs). By the end of this stage of the study, it is possible to advise, in landscape and visual terms, on the development's acceptability in principle, and its preferred siting, layout and design.

Identification and Assessment of Landscape and Visual Effects

22. The assessment of effects aims to:-

- identify systematically the likely landscape and visual effects of the development;
- indicate the measures proposed to avoid, reduce, remedy or compensate for these effects (mitigation measures);
- estimate the magnitude of the effects as accurately as possible; and
- provide an assessment of the nature and significance of these effects in a logical and well-reasoned fashion.

23. Wherever possible, tables or matrixes will be used, linked with the illustrative plans, so that the landscape and visual effects are recorded and quantified in a systematic and logical manner. Consideration is given to the impacts on during construction, completion of development at Year 1, Winter, and then at Year 15, Summer, so that the residual effects of the development after mitigation are identified.

Landscape Effects

24. These include the direct and indirect impacts of the development on individual landscape elements and features as well as the effect upon the general landscape character and quality of the surrounding area. Landscape effects are described clearly and objectively, and the extent and duration of any adverse/beneficial effects quantified, using four categories of effects, indicating a gradation from high to low (i.e. high, medium, low, no change). Some effects are quantified, i.e. how many mature trees and how many metres of hedgerow are to be lost as a result of a proposed development, etc. and this type of factual data has the advantage of helping to put in context the degree of change that will occur.

25. Wider impacts on landscape character and quality are less easy to predict objectively and interpretation and professional judgement needs to be applied. A clear picture of

likely impacts is presented by referring back to the baseline landscape character assessment, and describing how the development may alter existing patterns of landscape elements and features.

26. The assessment of landscape impacts also includes consideration of the development on any listed buildings or cultural artefacts on or associated with the Site, including a consideration of the impact of development on the setting of these.

Visual Effects

27. The assessment of visual effects describes:-

- the changes in the character of the available views resulting from the development; and
- the changes in the visual amenity of the visual receptors.

28. The visual impact of a development on a view will depend upon a number of factors. These can be summarised as:-

(a) the nature of the proposal;
(b) its siting in the landscape;
(c) its size;
(d) its detailed design; and
(e) the position from which it is viewed; and
(f) the sensitivity of the receptor (discussed further below).

29. The disposition of the proposed development, and the retention of existing landscape features will reflect the outcome of a design process intended to minimise visual impacts on both the site and the surrounding area.

30. Visual impacts are recorded in the Environmental Statement with reference to illustrative photographs. The location of the viewpoints is based upon selection of representative viewpoints and the photos are taken at eye level, using a 50mm lens on a Canon digital camera in order to provide a realistic representation of visibility with the naked eye. Photographs are taken with an overlap allowing panoramic photographs to be produced by splicing together individual photographs digitally, with minor retouching to eliminate variations in colour tone. The photographs are taken in accordance with Circular 01/09, published by the Landscape Institute (February 2009).

31. The assessment of the visual impact would take into account areas of planting and structural landscaping which would be introduced as part of the proposed development. The heights of any such proposed visual barriers would be stated in the Landscape and Visual Impact Assessment.

32. To demonstrate the effectiveness of the landscape mitigation measures proposed, which would be illustrated on a separate Landscape Strategy Plan, the residual impacts of the proposed development would be assessed. This would entail quantifying the magnitude and significance of the visual impacts at Year 1, i.e. with development completed, and at Year 15 or maturity, so that we can record the magnitude and significance of the residual impacts for the purposes of the Environmental Statement.

33. A study would be carried out which systematically identifies the principal visual receptors (i.e. all properties or groups of properties, and users of roads and public rights of way) that are likely to be affected by the development, i.e. within the visual envelope of the development. The term "properties" includes dwellings, public buildings, places of employment and recreational facilities. The method seeks to assess the impact of the development in terms of the degree of change in the view experienced by the observer. This is not a wholly objective methodology since every individual will perceive the change differently and the assessment needs to be based on the combination of objective and subjective judgements. However, the results are presented in a systematic way allowing an informed judgement to be made of the impact of the development proposals. In the assessment of views there is likely to be a continuum in the degree of visibility of the development from Open View to No View, and in order to assist in the description and comparison of the effect on views, simplified categories will be used which consider:-

- the extent of the view that would be occupied by the development: Full, Partial, Glimpse etc;
- the proportion of the development or particular features that would be visible: Full, Most, Small Amount, None;
- the distance of the viewpoint from the development and whether the viewpoint would focus on the development due to proximity, or the development would form one element in a panoramic view; and
- whether the view is fixed or transient or one of a sequence of views, as from a moving vehicle or footpath.

34. Changes in visual amenity may arise from both built or engineered forms, and soft landscape elements of the development. Consideration will also be given to the seasonal differences in effects arising from the degree of vegetative screening and/or filtering of views that would apply in summer and winter. Thus assessment may be provided for "best" and "worst-case" situations (the latter being the season with least leaf cover i.e. Year 1 Winter and, therefore, minimal vegetative screening).

Impacts during Construction

35. It is recognised that project characteristics and hence sources of effects, will vary through time. The construction, operation, decommissioning and restoration phases of a development are characterised by quite different physical elements and activities. In the construction phase, sources of landscape and visual effects include:-

- Site access and haulage routes;
- Materials stockpiles and construction compounds;
- Construction equipment and plant;
- Utilities, including lighting; and
- Protection of existing features.

Sensitivity of Receptors

36. The sensitivity of visual receptors in views will be dependent on:-

- the location and context of the viewpoint;
- the expectations and occupation or activity of the receptor; and
- the importance of the view (which may be determined with respect to its popularity or numbers of people affected, its appearance in guide books, on tourist maps, and in the facilities provided for its enjoyment and reference to it in literature or art).

37. The most sensitive receptors may include:-

- users of all outdoor recreation facilities, including public rights of way, whose attention or interest may be focused on the landscape;
- communities where the development results in changes in the landscape setting or value of views enjoyed by the community; and
- occupiers of residential properties with views affected by the development.

Other receptors include people engaged in outdoor sport and recreation, people travelling through or past the affected landscape in cars, on trains or other transport routes, and people at their place of work. The least sensitive receptors are likely to be people at their place of work, or engaged in similar activities whose attention may be focused on their work or activity, and who therefore may be potentially less susceptible to changes in the view. The grading of sensitivity is considered further below.

Magnitude of Change

38. In the evaluation of the effects on views and the visual amenity of the identified receptors, the magnitude of scale or visual change is described by reference to the:-

- scale of change in the view with respect to the loss or addition of features in the view and changes in its composition;
- degree of contrast or integration of any new features or changes in the landscape with the existing or remaining landscape elements;
- duration and nature of the effect, whether temporary or permanent, intermittent or continuous;
- angle of view in relation to the main activity of the receptor;
- distance of the viewpoint from the proposed development; and
- extent of the area over which the changes would be visible.

39. The magnitude of change in the view is assessed in degrees of impact as defined below:-

High:	Where the scheme would cause a significant change in the existing view.
Medium:	Where the scheme would cause a noticeable change in the existing view.
Low:	Where the scheme would cause a barely perceptible change in the existing view.
Negligible:	Where the scheme would cause no change in the existing view. These impacts are not considered significant in the context of the ES.

Significance of Effects

40. The two principal criteria determining the significance of effects are the scale or magnitude of effect, and the environmental sensitivity of the location or receptor. A higher level of significance is generally attached to large scale effects and effects on sensitive or high value receptors; thus the small effects on highly sensitive sites can be as important as large effects on less sensitive sites. It is, therefore, important that a balanced and well-reasoned judgment of these two criteria is achieved.

41. In order to develop thresholds of significance, both the sensitivity of receptors and the magnitude of change must be classified for both landscape receptors and visual receptors as follows:

a) Landscape Receptors

Sensitivity		***Magnitude (summary of considerations: see also discussion above)***
Important landscape components susceptible to small changes	**High**	Notable change in character over large area or intensive change over limited area
Moderately valued landscape tolerant of change	**Medium**	Moderate change in localised area
A relatively unimportant landscape tolerant of change	**Low**	Imperceptible change in landscape components

b) Visual Receptors

Sensitivity		***Magnitude (summary of considerations: see also discussion above)***
Residential Properties Public rights of way	**High**	Major change in view for many viewers
Sports and Recreational Facilities	**Medium**	Many viewers but moderate change
Transport corridors		Major change but fewer viewers
Industry/Work places	**Low**	Few viewers affected. Minor change in view

Significance Thresholds

42. These thresholds will be determined by combining sensitivity and magnitude as set out below, trying to tie in with any general terminology accepted for the whole Environmental Statement. Numerical scoring is not recommended in the "*Guidelines for Landscape and Visual Impact Assessment*".

	High	Moderate	Moderate-Major	Major
Magnitude	**Medium**	Minor-Moderate	Moderate	Moderate – Major
	Low	Minor	Minor- Moderate	Moderate
	Negligible	None	None	None
		Low	**Medium**	**High**
			Sensitivity	

Mitigation

43. The purpose of mitigation is to avoid, reduce and where possible remedy or offset, any significant, negative (adverse) effects on the environment arising from the proposed development. Mitigation is thus not solely concerned with "damage limitation", but may also consider measures that could compensate for unavoidable residual effects. Mitigation measures may be considered under two categories:-

- primary measures which are an intrinsic part of the development design through an iterative process; and
- secondary measures designed to specifically address the remaining (residual) negative (adverse) effects of the final development proposals.

44. Strategies to address likely negative (adverse) effects include:

- avoid impact by changing form of development;
- reduce impact by changing form of development;
- remediation of impact, (e.g.) by screen planting;
- compensation of impact, (e.g.) by replacing felled trees with new trees; and
- enhancement, e.g. creation of new landscape or habitat.

45. Guidelines for Mitigation:

- All significant negative (adverse) landscape and visual effects that are likely to occur throughout the project life cycle should be considered for mitigation, although the statutory requirement is limited to significant effects;
- Consultation with local community and special interest groups on the proposed mitigation measures can be important;
- Landscape mitigation measures should be designed to suit the existing landscape/townscape character and needs of the locality, respecting and building on local landscape distinctiveness and helping to address any relevant existing issues in the landscape;
- It must be recognised that many mitigation measures, especially planting, are not immediately effective. Where planting is intended to provide a visual screen for the development, it may also be appropriate to assess residual effects for different periods of time, such as day of opening, and Year 15;
- The developer should demonstrate a commitment to the implementation of mitigation measures to agreed programme and budget (generally secured through conditions to planning consent);
- The proposed mitigation measures should address specific issues and performance standards should be identified for the establishment, management, maintenance and monitoring of new landscape features; and
- A programme of appropriate monitoring may be agreed with the regulatory authority, so that compliance and effectiveness can be readily monitored and evaluated.

46. Common Mitigation Measures include:

- Sensitive location and siting;
- Site layout;
- Choice of Site level;
- Appropriate form, materials and design of buildings. It is not always practical or desirable to screen buildings. In these cases the scale, design, colour and texture of building should be carefully considered;
- Lighting (for example low level, directional, full cut-off lighting etc.);
- Ground Modelling: for immediate screening effect but may in itself be an adverse impact unless carefully matched to existing landform;

- Enhancement of existing landscape features such as walls and buildings or habitat enhancement and creation;
- Planting: Structural planting can help to integrate and soften development as well as being of potential value as a wildlife habitat; and
- Use of camouflage or disguise.