

CRITERIA FOR ASSESSING SENSITIVITY AND MAGNITUDE OF CHANGE

Prediction of Landscape Effects

1. Landscape receptors that may be affected by the proposed development include overall character and key characteristics, individual elements or features and specific aesthetic or perceptual aspects (GLVIA3, paragraph 5.34).
2. These receptors are further explained in paragraph 5.4 of GLVIA 3, as follows:
 - *Landscape elements include physical influences (geology, soils, landform, drainage and waterbodies), land cover (types of vegetation and patterns and types of tree cover) and influence of human activity (land use and management, character of settlements and buildings, pattern and types of fields and enclosure);*
 - *Aesthetic and perceptual aspects include scale, complexity, openness, tranquillity or wildness; and*
 - *Overall character relates to combinations of elements and aesthetic and perceptual aspects to make distinctive areas and types.*
3. GLVIA 3 describes opposite ends of the spectrum (paragraph 5.56) as:
 - *Major loss or irreversible negative effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes are likely to be of the greatest significance; and*
 - *Reversible negative effects of short duration, over a restricted area, on elements and/or aesthetic and perceptual aspects that contribute to but are not key characteristics of the character of landscapes of community value are likely to be of the least significance and may, depending on the circumstances, be judged as not significant.*

Sensitivity of Landscape Receptors

4. The sensitivity of landscape receptors to change, of the nature associated with mineral development, is defined as high, medium, low or negligible based on professional interpretation of the parameters set out in Table 1 and the examples below.

Table 1
Parameters influencing Landscape Sensitivity
(GLVIA 3, paragraphs 5.39 to 5.47)

Landscape Receptor	Susceptibility to Change	Value
Overall character and key characteristics	<ul style="list-style-type: none"> • Ability to accommodate the proposed development without undue consequences to the baseline situation and/or the 	<ul style="list-style-type: none"> • Internationally valued landscapes ; • Nationally valued landscapes; • Locally valued landscapes;

Landscape Receptor	Susceptibility to Change	Value
	achievement of landscape planning policies and strategies with reference to a range of criteria relevant to mineral developments.	and <ul style="list-style-type: none"> Landscapes not designated but judged to be of some value especially to local communities (also refer to Box 5.1 in GLVIA 3)

5. Thus an examination of the following characteristics is made for in order to determine susceptibility to change resulting from minerals development:

- Scale, where large scale indicates lower sensitivity and small scale and/or with human scale indicators indicate a higher sensitivity;
- Landform, where absence of strong topographical variety, featureless, convex or flat indicates a lower sensitivity and presence of strong topographical variety or distinctive landform features indicate a higher sensitivity;
- Pattern and complexity, where simple, regular or uniform indicates a lower sensitivity and complex, rugged and irregular indicates a higher sensitivity;
- Settlement and man-made influence, where concentrated settlement pattern, presence of contemporary structures (e.g. utility, infrastructure or industrial elements) indicate lower sensitivity and dispersed settlement pattern, absence of modern development, presence of small scale, historic or vernacular settlement indicates higher sensitivity;
- Skylines, where non-prominent/screened skylines, presence or existing modern man-made features indicate lower sensitivity and distinctive, undeveloped skylines, skylines that are highly visible over large areas or exert a large influence on landscape character, or skylines with historic landmark indicate higher sensitivity;
- Inter-visibility with adjacent landscapes, where little inter-visibility with adjacent sensitive landscapes or viewpoints indicates lower sensitivity and strong inter-visibility with sensitive landscapes, or forms an important part of a view from sensitive viewpoints indicates higher sensitivity; and
- Perceptual aspects (sense of remoteness or tranquillity), where close to visible or audible signs of human activity and development indicates lower sensitivity and physically remote or perceptually remote, peaceful or tranquil areas indicates higher sensitivity.

Magnitude of Landscape Change

6. The magnitude of landscape effect is defined as high, medium, low or negligible based on professional interpretation of the parameters set out in Table 2.

Table 2
Parameters influencing Magnitude of Landscape Change
(GLVIA 3, paragraphs 5.48 to 5.52)

Landscape Receptor	Size and Scale	Geographical Extent	Duration or Reversibility
Overall character and key characteristics	<ul style="list-style-type: none"> Extent of existing landscape elements that will be lost, the proportion of the total extent that this represents and the contribution that element to the character of the landscape; Degree of alteration to aesthetic or perceptual aspects (removal or addition); Whether the effect changes the key characteristics of the landscape, which are critical to its distinctive character 	<ul style="list-style-type: none"> Site level (within the development site itself); Immediate setting of the site; Landscape type or character area, within which the proposal lies; Larger scale, influencing several landscape types or character areas 	<ul style="list-style-type: none"> Short term (0-5 years); Medium term (5-10 years); Long term (10 to 25 years); Prospect and practicality of effect being reversed, within a generation

7. Thus, the following examples of size and scale may apply to the types of change to the landscape resulting from minerals development:

- Total loss or considerable alteration to key elements/ features/ aesthetic or perceptual aspects or characteristics, resulting in a high degree of change to the overall character of the baseline conditions;*
- Partial loss or alteration to one or more key elements/ features/ aesthetic or perceptual aspects or characteristics, results in a medium degree of change to the overall character of the baseline conditions (Change perceived as a partial or localised change within a broader, unaltered context);*
- Limited loss or small alteration to one or key elements/ features/ aesthetic or perceptual aspects or characteristics, results in a low degree of change to overall character of the baseline conditions (Change is discernible but underlying landscape character or view composition would be similar to baseline); and*
- Very limited or imperceptible loss or alteration to one or more key elements/ features/ aesthetic or perceptual aspects or characteristics, resulting in a negligible degree of change to the overall character of the baseline conditions (Change may be barely distinguishable).*

Prediction of Visual Effects

8. Visual receptors are people living in the area, people who work there, people passing through on road, rail or other forms of transport, people visiting promoted landscapes or attractions, and people engaged in recreation of different types (GLVIA3, paragraph 6.13).
9. At opposite ends of the spectrum, GLVIA3 (paragraph 6.44) describes how the following may apply to visual effects:

- *Effects on people who are particularly sensitive to changes in views and visual amenity are more likely to be significant;*
- *Effects on people at recognised and important viewpoints or from recognised scenic routes are more likely to be significant; and*
- *Large-scale changes which introduce new, non-characteristic or discordant or intrusive elements into the view are more likely to be significant than small changes or changes involving features already present in the view.*

Visual Sensitivity

10. The sensitivity of visual receptors to change, of the nature associated with minerals development, is defined as high, medium, low or negligible based on professional interpretation of the parameters set out in Table 3 and the examples below.

Table 3
Parameters influencing Visual Sensitivity
(GLVIA 3, paragraphs 6.31 to 6.37)

Visual Receptor	Susceptibility to Change	Value
Residential	<ul style="list-style-type: none"> • The occupation or activity of people experiencing the view at particular locations; • The extent to which their attention or interest may be focused on the views and visual amenity they experience at particular locations 	<ul style="list-style-type: none"> • Heritage assets or designations; • Visitor attractions, appearance in guidebooks or tourist maps, provision of facilities for their enjoyment, references in literature
Work		
Transport Users (Road, Rail, etc)		
Visitors to promoted landscape or attractions		
Recreational (of different types)		

11. Thus the following examples of sensitivity apply to the types change resulting from minerals development:
- *Highly sensitivity receptors may include users of outdoor recreational facilities including strategic recreational footpaths, cycle routes or rights of way, whose attention may be focused on the landscape; important landscape features with physical, cultural or historic attributes; views from residential buildings; beauty spots or picnic areas;*
 - *Medium sensitivity receptors may include other footpaths; other views from residential properties, people travelling through the landscape on roads, trains or other transport routes (unless otherwise specifically linked to appreciation of landscape, such as scenic routes);*
 - *Low sensitivity receptors may include people engaged in outdoor sports or recreation (other than appreciation of the landscape), commercial buildings, and other locations where people's attention may be focused on their work or activity; and*

- *Negligible sensitivity receptors may include people in commercial buildings, and other locations where people's attention may be focused on their work or activity.*

Magnitude of Visual Change

12. The magnitude of visual effect is defined as high, medium, low or negligible based on professional interpretation of the parameters set out in Table 4 below.

Table 4
Parameters influencing Magnitude of Visual Change
(GLVIA 3, paragraphs 6.38 to 6.41)

Visual Receptor	Size and Scale	Geographical Extent	Duration or Reversibility
Residential	<ul style="list-style-type: none"> • The scale of change in the view, with respect to loss or addition of features and changes in composition, proportion of the view occupied by the development; • The degree of contrast or integration of any new features or changes (form, scale and mass, line, height, colour and texture) • The nature of the view of the proposed development, in terms of the relative amount of time over which it will be experienced and whether views will be full, partial or glimpses 	<ul style="list-style-type: none"> • The angle of view in relation to the main activity or the receptor; • the distance of the viewpoint from the proposed development; • The extent of the area over which the changes would be visible (or length of the route affected) 	<ul style="list-style-type: none"> • Short term (0-5 years); • Medium term (5-10 years); • Long term (10 to 25 years); • Prospect and practicality of effect being reversed, within a generation
Work			
Transport Users (Road, Rail, etc)			
Visitors to promoted landscape or attractions			
Recreational (of different types)			

13. Thus the following examples of size and scale may apply to the types of change to views resulting from minerals development:

- *Total loss or considerable alteration to key elements/ features/ characteristics of the view, resulting in a high degree of change to the baseline condition;*
- *Partial loss or alteration to one or more key elements/ features/ characteristics of the view, results in a medium degree of change to the baseline conditions (Change perceived as a partial or localised change within a broader, unaltered context);*
- *Limited loss or small alteration to one or more key elements/ features/ characteristics of the view resulting in a small degree of change to the*

baseline condition (Change is discernible but underlying landscape character or view composition would be similar to baseline); and

- *Very limited or imperceptible loss or alteration to one or more key elements/ features/characteristics of the view, resulting in a negligible degree of change to the baseline condition (Change may be barely distinguishable).*

Prediction of Cumulative Effects

14. The purpose of the cumulative assessment is to describe, visually represent and assess the ways in which the proposed development would have additional impacts when considered together with other operational, under construction, consented and, where required, proposed (i.e. those for which applications have been submitted to the relevant authority) developments of a similar nature (in this case mineral projects).
15. As described in paragraph 7.3 of GLVIA 3, the definitions widely used for assessing cumulative effects are as follows:
 - *Cumulative effects as ‘the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together’ (SNH, 2012);*
 - *Cumulative landscape effects as effects that ‘can impact on either the physical fabric or character of the landscape, or any special values attached to it’ (SNH, 2012); and*
 - *Cumulative visual effects as effects that can be caused by combined visibility, which ‘occurs where the observer is able to see two or more developments from one viewpoint’ and/or sequential effects which ‘occur when the observer has to move to another viewpoint to see different developments’ (SNH, 2012).*

Cumulative Landscape Effects

16. As described in paragraph 7.19 of GLVIA 3, “*cumulative landscape effects may result from adding new types of change or from increasing or extending the effects of the main project when it is considered in isolation. For example, the landscape effects of the main project may be judged of relatively low significance when taken on its own, but when taken together with the effects of other schemes, usually of the same type, the cumulative landscape effects may become more significant.*”
17. At paragraph 7.27 of GLVIA 3, it is further stated that: “*The approach to assessing the significance of cumulative landscape effects should be guided by the same principles as the approach to the initial project assessment.*” In summary this includes consideration of susceptibility and value of the receptor under consideration (e.g. individual elements, aesthetic and perceptual aspects and overall character and key characteristics) and the size or scale, geographical extent and duration of the cumulative effect (and in particular, as noted in paragraph 7.27 “*possible creation of new landscape character if the changes are substantial enough*”).
18. In respect of significant cumulative effects paragraph 7.2 of GLVIA 3 states: “*The most significant landscape effects are likely to be those that would give rise to changes in the landscape character of the study area of such an*

extent as to have major effects on its key characteristics and even, in some cases, to transform it into a different landscape type. This may be the case where the project being considered itself tips the balance through its additional effects. The emphasis must always remain on the main project being assessed and how or whether it adds to or combines with the others being considered to create a significant cumulative effect.”

Cumulative Visual Effects

19. In respect of cumulative visual effects, paragraph 7.29 of GLVIA 3 states, *“Cumulative visual effects, are the effects on views and visual amenity enjoyed by people, which may result either from adding the effects of the project being assessed to the effects of the other projects on the baseline conditions or from their combined effect. This may result from changes in the content and character of the views experienced in particular places due to the introduction of new elements or removal of or damage to existing ones.”*
20. Types of cumulative visual effect are described in Table 7.1 of GLVIA 3 (summary based on SNH, 2012). This includes combined and/or sequential visibility:
 - *Combined visibility occurs where it is possible to see two or more wind energy projects from a single location/viewpoint. Combined visibility may either be in combination (where several wind energy projects are within a single arc of vision i.e. approximately 90°) or in succession (where wind energy projects occur in several arcs of vision at the same location).*
 - *Sequential effects occur where there is visibility of one and more wind energy projects from any route through the landscape: for example, roads or footpaths. Sequential effects may be frequent (where the features appear regularly and with short time lapses between instances depending on speed and distance) and occasionally (where longer time lapses between appearances would occur because the observer is moving very slowly and/or there are larger distances between the viewpoints).*
21. Paragraph 7.37 of GLVIA describes how *“The approach to assessing the significance of cumulative visual effects should be guided by the same principles as the approach to the initial project assessment.”*
22. In summary this includes consideration of susceptibility and value of the receptor or views under consideration (e.g. residential, recreational, etc) and the size or scale, geographical extent and duration of the cumulative effect.
23. As described in paragraph 7.38 of GLVIA 3, *“Higher levels of significance may arise from cumulative visual effects related to:*
 - *Developments that are in close proximity to the main project and are clearly visible together in views from selected viewpoints;*
 - *Developments that are highly inter-visible, with overlapping ZTVs – even though individual developments may be at some distance from the main project and from individual viewpoints, and when viewed individually not particularly significant, the overall combined cumulative effect on a viewer at a particular viewpoint may be more significant.”*