South West Wood Products Ltd

Land at Berth 31 – Port of Barry

Chapter 5: Landscape & Visual Impact Assessment

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ESP

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1 Introduction

Report authors

1.1 This Landscape and Visual Impact Assessment (LVIA) has been prepared by Keith Hampshire, BA Dip. LA CMLI and Rob Malcomson, BSc MLD CMLI. Keith has gained extensive experience in various aspects of landscape planning and environmental assessment over the past 33 years. For the past 18 years he has been Landscape Director of ESP Ltd, an independent, multi-disciplinary consultancy undertaking Landscape Planning and Design, Estate Management, Environmental Impact Assessment and Environmental Management for the public and private sectors. He has experience of undertaking landscape and visual assessment of a wide range and scale of development proposals as well as reviewing landscape and visual assessments on behalf of local planning authorities. Rob has extensive experience of landscape and visual impact assessment and landscape character studies within Wales. He has direct experience of LANDMAP as an Aspect Specialist in compiling Visual & Sensory Aspect data for LANDMAP surveys in Wales. He has worked on a wide range of projects, including environmental assessments, land restoration schemes, renewable energy, and road infrastructure projects, and has also acted as a landscape expert witness.

Aim

1.2 This report considers the potential landscape and visual effects of a proposal to: change the use of land at Berth 31 in the Port of Barry from vacant land to a wood waste processing facility with material movements by road and sea.

Development proposal site and setting

1.3 The proposed site is part of the Barry Docks estate and, although now vacant, until recently was in use in part as a metals recycling operation and in part as a wood waste recycling operation . The application site has an area of 4.25ha. It is in an industrial area which is allocated as employment land. The site is accessed off Wimborne Road, which is the main access to the docks and which links directly to Fford y Mileniwm, the town of Barry's eastern bypass and distributor road.

1.4 The site is bounded on the northwest and southwest by an existing wooded screen bund, up to 8m in height, and on the southeast by the dock. It occupies relatively flat land at an elevation of around 7m to 9m aOD.

1.5 Most of the site is composed of an extensive concrete slab. The remainder is currently hardstanding. Existing infrastructure on site includes a water storage tank, lighting columns,

offices, weighbridge, and ancillary structures including the concrete 'lego' block retaining structures that it is proposed will facilitate the storage of wood.

1.6 The site is fenced, except for the dockside and railway along the dockside to the southwest, and within the area controlled by Associated British Ports (ABP). The application area includes the tracks of the port railway which will be retained. Loading ships on the docks is an established 24-hour practice at the Port of Barry and would occur for any future use of this site.

1.7 The immediate surrounds are the docks themselves with various dockside operations and other industrial operations together with large areas of open, unused land and the open water of the docks themselves.

1.8 To the immediate northwest of the site is a small construction yard utilised as a mobile plant training area (The Construction Academy Hub). Beyond this, and to the west and south-west of the site, is an extensive area of waste ground also within the employment land allocation. To the north of the site, and north of Wimborne Road, there is a Site of Importance for Nature Conservation (SINC) known as the Cadoxton Wetlands most of which is used as fishing lakes (Barry Ponds). This is an area of restored wetland comprising tall herb, scattered scrub and grassland habitat, together with two small lakes and a reedbed. Beyond that is Dow, the largest operation for silicone manufacturing outside the USA.

1.9 Further to the west and north of the site, just over 250m at the closest point, the nearest residential properties are located at Hillary Rise, Barry. It is understood that planning for residential properties at the former sidings, to the northwest on the other side of Ffordd y Mileniwm, was granted in March 2023 (Vale of Glamorgan Council ref. 2020/00775/OUT) and a reserved matters application was granted on 10th May 2024 (Ref: 2023/01140/RES).

Development proposals

1.10 The proposal is for a change of use to a wood processing facility, re-using an existing external stockyard with a permitted but unimplemented bottom-ash processing facility (Raymond Brown 2015). Ancillary to this there will be HGV parking. The existing office and welfare facilities will be updated with temporary modular accommodation. The existing water tank, concrete block retaining structures and weighbridges will also be retained and used.

1.11 The existing access to the site off Wimborne Road will be used. An area for parking is provided for in the northwest of the site although, if necessary, HGVs may also utilise any unused space within the site.

1.12 Most of the site will be used for wood storage and the precise configuration of this will fluctuate over the course of a year in response to supply and demand. It is likely that stockpiles will be less than 8m in height.

1.13 The processing operations involve the sizing of the waste to meet set specifications dependant on the product being made. The machinery and plant involved in processing operations includes loading shovels, excavators, screeners, shredder, trommel and eddy current. The extent of the processing depends on the product specification with different specifications for different customers and products.

2 Landscape Assessment

Scope of the Landscape Assessment

Introduction

2.1 There are no statutory criteria or standards laid down for the assessment of landscape impacts. However, this report has been undertaken in general conformity with the 'Guidelines for Landscape and Visual Impact Assessment' 3rd Edition (GLVIA3), published by the Institute of Environmental Management and Assessment and the Landscape Institute in 2013 (Landscape Institute, 2013). This document defines landscape effects as follows:

An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern here is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character……

2.2 The methodology for assessing the significance of landscape effects employed in this report is detailed in Appendix 5A. The primary aim of the landscape assessment is to identify any significant effects on the fabric and character of the landscape due to the proposal.

Consultation

2.3 We anticipate that this LVIA will receive comments from the Planning Authority Landscape Architect as part of the Pre-Application Consultation process. Any comments on the proposed methodology, study area, selection of potential landscape and visual receptors and assessment contained within this LVIA will be duly reviewed and actioned as appropriate.

Cumulative Effects

2.4 The key premise set out in GLVIA3 for the assessment of cumulative landscape and visual effects is that an approach should be taken which is proportionate, reasonable and focuses on likely significant effects. GVLIA3 recommends that, taking 'the project' to mean the main proposal that is being assessed, any existing schemes and those which are under construction should be included in the baseline for both landscape and visual effects assessment. Assessment of cumulative landscape and visual effects should then include the project considered in the LVIA and potential schemes that are not yet present in the landscape but are at various stages in the development and consenting process, if they are:

- Examples of the same type of development.

- Schemes with planning consent.
- Schemes that are the subject of a valid planning application that has not yet been determined.

2.5 The approach to the assessment of cumulative landscape and visual effects in this LVIA is the same as that recommended in GLVIA. Therefore, although the approved housing development ref. 2020/00775/OUT has planning consent, it is not a similar type of development and will not be assessed for potential cumulative landscape and visual effects with the proposed development at Berth31.

Landscape baseline studies

Study area

(Refer to drawing L16_LVIA_001 and L16_LVIA_004 - 008)

2.6 The study area for the landscape appraisal is limited to approximately 1.5 to 2.0km distance from the centre of the development proposal site, based on the urban and industrial character of the landscape in all directions and the limited potential for landscape effects on the townscape or landscape beyond this distance. A general understanding of the landscape has been gathered from development proposal site work and from existing landscape character assessments for this study area.

Landscape character

Classification

2.7 'Landscape character' is defined as a distinct and recognisable pattern of elements that occur consistently in a particular type of landscape and how people perceive it. It reflects combinations of geology, landform, soils, vegetation and land-use, and human settlement. It creates the particular 'sense of place' of different areas of the landscape.

2.8 With any landscape character assessment, the boundaries of Landscape Character Types (LTs) and Landscape Character Areas (LCAs) may not be exact but may reflect zones of transition. The landscape character of the development proposal site and its immediate surroundings are therefore assessed and confirmed through development proposal site survey.

National Landscape Character Areas

2.9 National Landscape Character Areas (NLCAs) form the broadest scale of landscape character assessment in Wales. The information published by Natural Resources Wales (NRW) records 48 discrete NLCA's. Amongst the uses which NRW provides are the following:

- 'a summary description and list of key characteristics linked to regional identity
- short narratives capturing visual, geological, habitat, historic and cultural influences.'[1]

2.10 The National Landscape Character study places the proposed development site within the identified NLCA 35, 'Cardiff and Newport'. The Summary Description for this NLCA is as follows:

'Two cities and associated suburbs and satellite towns dominate this part of south-east Wales. They include Wales' capital and largest settlement, Cardiff, as well as Newport, Cwmbran, Pontypool, Penarth and Barry. The area forms a busy transport and development corridor. It occupies the coastal lowlands between the Severn estuary with its levels, and the edge of the South Wales Valleys with their uplands. The area includes major ports at Cardiff, Barry and Newport, and associated industrial infrastructure. There are also extensive residential, suburban areas and major retail, business and recreational facilities. There is an intensive network of busy roads and railways, including part of the M4 corridor.'

2.11 The following identified 'Key Characteristics' of the 'Cardiff and Newport' NLCA are clearly legible in the context of the proposed site:

> ***'Busy, heavily urbanised areas –*** *containing Cardiff, and other large settlements including Penarth and Barry to the south to the west and the city of Newport and new town of Cwmbran to the east.*
> ***Ports –*** *Cardiff, together with Barry and Newport with its industrialised river frontage.*
> ***Prominent landmark structures –*** *the chemical works at Barry, standing out prominently on the skyline.*

LANDMAP

2.12 The LANDMAP system has been developed specifically for the assessment of character in the landscape of Wales. The system was developed by the Countryside Council for Wales (now Natural Resources Wales) and has been implemented in partnership with Local Planning Authorities throughout Wales. Much of the methodology is underpinned by earlier work carried out by the Countryside Agency – the government body formerly with statutory responsibility for England's countryside (now Natural England) – in the preparation of their document, the

[1] NRW website entry; date of information is given as March 2014

'Character Map of England'. This has classified the whole of England by describing Landscape Character Areas (LCAs), defined as being'…single unique areas which are discrete geographical areas of a particular landscape type.'

2.13 LANDMAP, introduced in 1997, was revolutionised in 2003 with the introduction of a benchmark methodology and incorporation of a quality assurance process to ensure consistency, accuracy, and accessibility of landscape information in Wales.

2.14 It should also be noted that the CCW (NRW) has arrived at a working definition of landscape as follows:

'The physical reality of the environment around us, the tangible elements that give shape and diversity to our surroundings. But landscape is also the environment perceived, predominantly visually but additionally through our senses of smell, touch and hearing. Our appreciation of landscape is affected, too, by our cultural backgrounds, and by personal and professional interests. For the Countryside Council for Wales's purposes, landscape is defined as the sum of all these components." (CCW, 2001).'

2.15 We have therefore critically reviewed the Landscape Character information regarding the Site and its landscape context, using the most recent published LANDMAP Aspect Area data, in accordance with the 'Summary advice on good practice' in Chapter 5 of GLVIA3. This advice states that:

'Existing assessments must be reviewed critically as their quality may vary, some may be dated, and some may not be suited to the task in hand... and may need to be reviewed and interpreted to adapt them for use in LVIA, and fieldwork should check the applicability of the assessment throughout the study area and refine it where necessary.'[2]

2.16 Although there are five constituent Aspects within the LANDMAP data, the LANDMAP methodology for landscape characterisation notes that landscape character areas are to be defined using the Visual & Sensory (VS) Aspect Area as a starting point, then refined by examining the data from other Aspects. The following landscape character descriptions are taken direct from the current published LANDMAP Collector data for the Visual & Sensory (VS)

[2] *GLVIA3*, op.cit.; *'Summary Advice on Best Practice'*, p.93

Aspect Areas, together with the other four Aspects produced as part of the LANDMAP study for this area. This information generally includes their summary description, evaluation, and classification; LANDMAP Aspects are 'organised according to a hierarchical classification system' consisting of four levels of increasing detail from Level 1 to Level 4, and the guidance states that 'LANDMAP Aspect Areas must be identified to Level 3', based upon landform and landcover. We have therefore provided the classification for all Aspect Areas at Level 3, in line with the above guidance.

Visual & Sensory Aspect *(refer to Appendices, Figure L16_LVIA_008)*

2.17 LANDMAP places the Site just within the VS Aspect Area identified as 'Barry' VLFGLVS219. We note that the original assessment was carried out in September 2004 and that monitoring work was carried out by Bronwen Thomas in February 2015. The boundary was changed following the monitoring work to include houses on the edge of Barry.

2.18 This Aspect Area is classified at Level 3 as being Development/Built Land/Urban. It extends for approximately 6km across the entire extent of built form of Barry, Barry Island and Barry Docks. The Summary Description of the land within this Aspect Area is quoted in full below*:*

'The area of Barry is urban. Set on an undulating to hilly landform with a large flat coastal plain and Barry Island, it is the largest town in the Vale. The highest point in Barry is approximately 90m AOD near the northwest section of the town. The lowest point is approximately 5m AOD next to the Bristol Channel. Barry has a Victorian core of 4 to 5 storey brick buildings with stone detailing around walls and doors. Whilst the buildings at the core have remained mostly intact these have been modified over the years with signage etc. A new shopping village has been built near to the existing shopping centre. Designed as buildings surrounded by parking, rather than as perimeter blocks, this shopping village has altered the structure and grain of the town. The inner core is also made up of Victorian terrace houses many of which have been inappropriately renovated. The outer suburbs of Barry are made up of a mixture of building styles from 1920's to 1970's housing. Some close to the coast such as round the Knap are attractive. Many outer areas have a discordant appearance. Part of Barry's edge to the east has been developed with hypermarkets, McDonalds outlets and cinemas as well as major industrial complexes. This presents a poor-quality entry to the town and lacks any distinctive character of place. The A4231 acts as a boundary to the east and the A4226 does to an extent to the north although this has been bridged by housing and commercial development. The docks area forms a natural visual focus for the main part of the town. The docks still function to an extent while other parts are

being redeveloped but the area appears open at present. Barry Island, once a major tourist destination, is now lower key with a promenade and housing on the sensitive peninsula replacing the Butlins Camp. Overall the town is very difficult to find one's way around due to the confusing road pattern and lack of coherent urban structure. Change detection 2014: considerable on-going redevelopment of docks area.'[3] *[Our emphasis]*

ESP Commentary:

We would observe that the site is currently vacant and predominantly composed of concrete hard standing. There is an extensive area of scrubby waste ground to the southwest currently being marketed as employment land.

2.19 LANDMAP classifies this Aspect Area as being of 'Low' value – that is, of little or no importance. For this Aspect Area, the 'Overall Evaluation' notes that it is:

'*Strong topography with built form. Areas of core and pleasant suburbs intact but large areas of poor quality illegible urban form with industrial detractors. Areas of core intact and new areas in docks improving and well maintained but much of town not in good condition or of consistent character. Topography and some landmark buildings (Victorian building atop hill) together with presence of water makes for a strong character and sense of place. Character has been eroded with edge of town and edge of centre shopping. The aspect area is rare as a port in the Vale but much of the town is not rare*.'[4]

ESP Commentary:

We would observe that, of the four Evaluation Criteria, 'Integrity' and 'Scenic Quality' are assessed as 'Low', and 'Rarity' and 'Character' are assessed as 'Moderate'.

2.20 The survey record for this Aspect Area VLFGLVS219 also details the Dark Skies light pollution, classified into eight colour bands of brightness values (nw/cm2/sr). The consultant-led nighttime light pollution assessment was 'Substantial' for this urban area.

2.21 The Site lies adjacent to VS Aspect Area identified as 'Barry Docks' VLFGLVS469. We note that the original assessment was carried out in September 2004 and that monitoring work was

[3] NRW LANDMAP website, May 2024
[4] NRW LANDMAP website, May 2024

carried out by Bronwen Thomas in February 2015. The record itself was unchanged following the monitoring work.

2.22 This Aspect Area is classified at Level 3 as being Water/Inland Water/Lake. This is a compact Aspect Area that extends along the southern edges of Barry and Barry Dock. The Summary Description of the land within this Aspect Area is quoted in full below:

'*Barry Docks are a saltwater water body surrounded by hard dock edges, and moorings and connected to Bristol Channel by dock gates. The docks are still functional except for those to the northeast where new development is taking place. The western docks from a natural focus for views from Barry town centre reflecting the sky and emphasising the coastal location of the town. They are a positive asset indicating the original function of the settlement as a coal port*.'[5]

2.23 LANDMAP classifies this Aspect Area as being of 'Moderate' value – that is, of local importance. For this Aspect Area, the 'Overall Evaluation' notes that:

'*The docks have some scenic quality in reflection of sky and interest of boats. However, they have detractors of poor dock edges in parts. the dock edges are in moderate condition and vary between new edges and old. water appears to be of poor quality. The docks are rare in the vale although not in South Wales*.'[6]

***ESP Commentary*:**
We would observe that the evaluation of 'Integrity' is 'Low'.

Cultural Landscape Services Aspect *(refer to Appendices, Figure L16_LVIA_004)*

2.24 LANDMAP places the Site within the Cultural Landscape Services Aspect Area identified as 'Barry' VLFGLCLS012. This Aspect Area is classified at Level 3 as being Development/Built Land/Urban.'[7]

Historic Landscape Aspect *(refer to Appendices, Figure L16_LVIA_006*)

2.25 LANDMAP places the Site within the small Historic Landscape Aspect Area identified as 'Barry Docks' VLFGLHL005. This is a compact Aspect Area that is centred on the docks. It is classified at

[5] NRW LANDMAP website, May 2024
[6] NRW LANDMAP website, May 2024
[7] NRW LANDMAP website, May 2024

Level 3 as being Built Environment/Other Built Environment/Communications. The Summary Description includes the following observations:

'Barry Docks was developed by industrialist David Davies in the late 19th century, the docks were to designed to supplement the larger docks at Cardiff, in particular relating to the export of coal. An act of parliament was passed in 1884 establishing the Barry Dock and Railway Company, work then commenced on building of the docks and culminated with the completion of the Docks Office (now the Custom House) in 1898/9. Two docks and an inter-tidal basin were built by the engineers Henry Marc Brunel and John Barry from 1889; the first dock was over a kilometre long and 336m wide, whilst the second dock, to the east of the first, was even larger and incorporated a rolling caisson. Large hydraulic hoists, which used to load coal onto waiting ships, sat on massive limestone dock walls and were serviced by the complex Barry Railway network. The area east of the docks, in what was once part of Sully Moors, is now given over to modern industry. There is a moderately large solar farm just to the east of the dock entrance.'[8]

2.26 LANDMAP evaluates this Aspect Area as being of 'High' value - being of regional or county importance. The Justification of the Overall Evaluation is given as:

'*The two docks and intertidal basin forming the key components of this area are still extant, as is the impressive Docks Office, although other components associated with the Docks have since been demolished*.'[9]

Geological Landscape Aspect *(refer to Appendices, Figure L16_LVIA_005)*

2.27 LANDMAP places the Site within the Geological Landscape Aspect Area identified as 'Barry Docks-Cog Moors' VLFGLGL108. This Aspect Area is classified at Level 3 as Man-made/Man-made/Engineered features and reclaimed land. The entry for geographical and topographical character of the area contains the following description:

'*Former estuary reclaimed to form Barry Docks and associated industrial facilities. Higher part of estuary passes into broad alluvial plain, locally showing indications of former saltmarsh channel systems, and subsequently river-flood plain systems. Drainage ditch systems typical of broad alluvial plain.'*[10]

[8] NRW LANDMAP website, May 2024
[9] NRW LANDMAP website, May 2024
[10] NRW LANDMAP website, May 2024

2.28 LANDMAP evaluates this Aspect Area as being of 'Low' value - being of little or no importance. The Justification of the Overall Evaluation notes as follows:

'*Natural character of Aspect Area significantly altered by reclamation of estuary and construction of docks and associated industrial facilities*.'[11]

Landscape Habitats Aspect *(refer to Appendices, Figure L16_LVIA_008)*

2.29 LANDMAP places the Site within the Landscape Habitats Aspect Area identified as 'Vale of Glamorgan' VLFGLLH203. This large Aspect Area is classified at Level 3 as Dry (Relatively) Terrestrial Habitats/Built Up Areas/Residential. It is described as '*Built-up area encompassing Barry. Coastal fringe, gardens, vegetated steep slopes, amenity grasslands and sites such as Cadoxton Ponds provide the focus for biodiversity interest. Small areas of calcareous grassland are associated with the coastal fringes at Cold Knap Point and Fryers Island*.'[12]

2.30 LANDMAP evaluates this Aspect Area as being of 'Low' value - of little or no importance. The Justification of the Overall Evaluation is given as '*Generally of low value, however locally coastal grasslands of high value may be present*.'[13]

Landscape value

Landscape Designations and Established values

(Refer to the Landscape Context and Designations, drawing number L16_LVIA_002)

2.31 There are no landscape designations applicable to the development proposal site. There are no national or local landscape designations within the study area, such as National Parks, National Landscapes (former AONBs), or Special Landscape Areas.

2.32 Other designations in the study area, principally heritage and nature conservation designations, are identified on Drawing L16_LVIA_002 *Landscape Context and Designations*. Hayes Point to Bendrick Rock Site of Special Scientific Interest (SSSI) is located approximately 1km to the south of the development proposal site and is designated in respect of their geological interest. Ancient and Semi Natural Woodland is designated within parts of Coed yr Hayes approximately 1km to the southeast, but none directly adjacent to the development proposal site. There is an

[11] NRW LANDMAP website, May 2024
[12] NRW LANDMAP website, May 2024
[13] NRW LANDMAP website, May 2024

8 hectare 'Site of Importance for Nature Conservation' (SINC), known as Cadoxton Wetlands, located immediately to the northeast of the site. This is a non-statutory conservation site managed by the local Wildlife Trust, comprising two large ponds with marginal vegetation, a reedbed, and a mosaic of scattered scrub, tall herb vegetation and open grassland. A large part of the wetlands comprises Barry Ponds angling site.

2.33 A Conservation Area covers part of the old village of Cadoxton, approximately 1km north of the site, north of Victoria Park. There are several listed buildings scattered through the study area, with the nearest being the Grade I listed Cadoxton Court (approx. 0.5km). There are several Grade II* and II listed buildings approximately 1km to the east at Barry Docks including the Former Customs House. There is a Grade II* and two Grade II listed buildings approximately 1km to the north that lie within the Cadoxton Conservation Area. The nearest scheduled monument – a round barrow – is approximately 0.6km to the south of the site.

2.34 There is no registered Common Land, Countryside and Rights of Way Act Section 15 land, or Countryside and Rights of Way Act Access Land within the study area.

Non-established values

2.35 In accordance with guidance contained within Guidelines for Landscape and Visual Impact Assessment (3rd Edition (GLVIA3), and subsequently revised in Landscape Institute Technical Guidance Note 02/21 *Assessing landscape value outside national designations* (TGN 02/21*)*, the following factors can help in the identification of valued landscapes:

- Natural heritage - ecological, geological, geomorphological or physiographic interest which contributes positively to the landscape
- Cultural heritage - archaeological, historical or cultural interest which contributes positively to the landscape
- Landscape condition – the physical state of individual elements and overall landscape structure
- Associations – connections with notable people, events and the arts
- Distinctiveness – the sense of identity of the landscape
- Recreational - recreational opportunities where experience of landscape is important
- Perceptual (Scenic) – the appeal to the senses, primarily the visual sense

- Perceptual (Wildness and tranquillity) – the perceptual value notably wildness, tranquillity and/or dark skies
- Functional - The identifiable and valuable function of the landscape

2.36 The proposed development area is composed of an extensive concrete slab and hardstanding, located within an industrialised dockland setting. However, the 'Site of Importance for Nature Conservation' (SINC), known as Cadoxton Wetlands, is located immediately to the northeast of the site. There is a strip of Ancient and Semi Natural Woodland at Coed yr Hayes approximately 1km to the southeast, but none directly adjacent to the development proposal site.

2.37 The study area has some heritage designations in the form of as scheduled monument, listed buildings and a conservation area, but not within 0.5km distance of the site. There are no known distinctive cultural associations within the study area.

2.38 Most of the study area is urban. The site and its context are predominantly industrial, with various dockside operations and other industrial operations together with large areas of open, unused land and the open water of the docks. The extensive area of residential built form lies on rising ground to the north. The condition of the landscape within the study area is mostly poor. The level of enclosure is generally low, with some enclosure provided by vegetated bunds to the northwest and southwest.

2.39 There are no known connections with notable people, events and the arts within the study area.

2.40 The landscape of the study area is urban and industrial, with a maritime character; it generally conforms with the summary description with the LANDMAP Visual & Sensory Aspect Area *Barry;*

'The docks still function to an extent while other parts are being redeveloped but the area appears open at present…Change detection 2014: considerable on-going redevelopment of docks area.'

2.41 The study area does not contain any recreational opportunities where experience of landscape is important. No public rights of way pass through or are adjacent to the development proposal site. The Wales Coast Path long-distance footpath passes approximately 0.2km north of the site alongside the busy Ffordd y Mileniwm road.

2.42 Most of the study area is an industrialised dockland characterised by concrete, hardstanding, and the open water of the docks. Areas of vegetation include the vegetated bunds adjacent to the site boundary; the restored wetland of tall herb, scattered scrub and grassland habitat, together with two small lakes and a reedbed at Cadoxton Wetlands to the northwest of the site. Detracting

elements include the site itself, the extensive areas of waste ground and the construction yard utilised as a mobile plant training. Much of the study area away from these detractors has a low level of tranquillity as would typically be associated with an urban area that features industrial use. Tranquillity within the Cadoxton Wetlands is likely to be higher, although it should be noted that this has a strong industrial setting. The study area features some built structures, but is generally open and exposed, with little vegetation cover apart from the bunds on the northwest and southwest of the site.

2.43 Based on the factors used in the identification of valued landscapes above, the landscape of the development proposal site is judged to be of *low* value and the surrounding landscape of the study area to be *low to medium* value. This is in line with the LANDMAP baseline information of *'Low*' Overall Evaluation Criteria for Barry Visual & Sensory Aspect. Furthermore, we note that two out of the four Evaluation Criteria - 'Integrity' and 'Scenic Quality' - are assessed as '*Low*'.

Landscape receptors

2.44 The landscape receptors of this development comprise the fabric of the landscape and combinations of areas of distinctive landscape character, with valued landscape features and designations, namely:

- The character of *Visual & Sensory Aspect Area 'Barry'*(VLFGLVS219).
- The landscape fabric and rights of way within the site and setting.

Assessment of landscape effects and mitigation

Interactions between the proposal and landscape receptors

<u>The character of *Barry* Visual & Sensory Aspect Area</u>

2.45 The Barry Visual and Sensory Aspect Area extends for approximately 6km across the entire extent of built form of Barry, Barry Island and Barry Docks. LANDMAP classifies this Aspect Area as being of 'Low' value – that is, of little or no importance. For this Aspect Area, the 'Overall Evaluation' notes that it is:

'Strong topography with built form. Areas of core and pleasant suburbs intact <u>but large areas of poor quality illegible urban form with industrial detractors</u>. Areas of core intact and new areas in docks improving and well maintained but much of town not in good condition or of consistent character. Topography and some landmark buildings (Victorian building atop hill) together with presence of water makes for a strong character and sense of place. Character has been eroded

with edge of town and edge of centre shopping. The aspect area is rare as a port in the Vale but much of the town is not rare Wales.' [Our emphasis]

2.46 Whilst we confirm that the site lies within this large urban Visual & Sensory Aspect Area, we note that the site is not specifically mentioned as a detractor within the landscape – these are detailed as '*industrial parts of Barry Island*' and the '*utilitarian warehousing and factory buildings*' in the west of Barry. However, there is a reference under *Perceptual Qualities* to '*Unattractive views…industrial dockland in decline'*. The existing site buildings will be updated and the existing water tank, concrete block retaining structures and weighbridges will also be retained that form part of the baseline environment. The proposed development will result in some localised landscape changes within the site area but will have a very limited influence on landscape change for the remainder of this Aspect Area.

The landscape fabric and rights of way within the site and setting

2.47 The existing site area is an industrialised dockland characterised by concrete, hardstanding, and the open water of the docks. Areas of vegetation include the vegetated bunds on the site boundaries itself will be retained. The restored wetland of tall herb, scattered scrub and grassland habitat, together with two small lakes and a reedbed at Cadoxton Wetlands lies to the northwest of the site and will not be directly affected. There is no pedestrian access to the Wetlands from Wimborne Road. No public rights of way are directly affected by the proposed development, nor will the Wales Coast Path approximately 0.2km north of the site, screened by the vegetated bunds along the northwestern site boundary.

Proposed mitigation incorporated into the proposal

2.48 There is no proposed mitigation incorporated into the development proposals. However, the potential for adverse landscape effects to be generated by this development are extremely limited.

Landscape sensitivity

2.49 The landscape receptors are considered to have varying levels of susceptibility to change to the proposed development, as described below:

The character of *Barry* Visual & Sensory Aspect Area

2.50 The proposed development area is an industrial site situated within an industrialised dockland, with no existing landscape features within the site that are deemed to be of value in respect of

their contribution to the overall character of the area, or in terms historical significance or biodiversity interest. Therefore, the susceptibility of this receptor is judged to be *Low*. With a value of *low* for the site itself and *low to medium* in the landscape of the study area, this receptor is considered to have a *Low* sensitivity to the proposed development. This assessment would concur with the LANDMAP evaluation.

The landscape fabric and rights of way within the site and setting

2.51 The existing vegetated bund on the site boundary will be retained. The restored wetland of tall herb, scattered scrub and grassland habitat, lakes and reedbed at Cadoxton Wetlands lies to the northwest of the site and will not be directly affected. No public rights of way are directly affected by the proposed development, nor will the Wales Coast Path approximately 0.2km north of the site. Therefore, the susceptibility of this receptor is judged to be *Low*. With a value of *Medium*, this receptor is considered to have a *Medium/Low* sensitivity to the proposed development.

Magnitude and Nature of effects

2.52 Tables 5.1 and 5.2 below set out assessment of effects for the identified landscape receptors using the judgements of sensitivity set out above and the predicted magnitude of change at various stages: during construction; during operations and at 15 years post establishment.

Table 5.1: Assessment of landscape effects - The character of Barry Visual & Sensory Aspect Area.

Receptor	The character of *Barry* Visual & Sensory Aspect Area				
Sensitivity	**Susceptibility of receptor to specific change**		***Low***	**Sensitivity of Receptor to change (Susceptibility x Value)**	***Low***
	Value attached to receptor		***Low/medium***		
Magnitude of change	**During construction**	**During operations**		**15 years post establishment**	
	Construction activities to include the existing site buildings being updated. There will be some localised adverse effects with a very limited influence on landscape change for the remainder of this Aspect Area	The development proposal site will remain the same size and scale. The existing site buildings will be updated. The existing water tank, concrete block retaining structures and weighbridges will be retained. The proposed development will result in some localised landscape changes within the site area but will have a very limited		As for During operations. The vegetated bunds along the northwestern boundary will continue to establish. Medium scale; long term; permanent.	

	Medium scale; short term; temporary.	influence on landscape change for the remainder of this Aspect Area Medium scale; long term; permanent.	
	Low	***Low***	***Low***
Overall level of effect (Sensitivity x Magnitude)	***Negligible adverse***	***Negligible adverse***	***Negligible adverse***
Cumulative effects	**No cumulative effects are predicted**	**No cumulative effects are predicted**	**No cumulative effects are predicted**

Table 5.2: Assessment of landscape effects - The landscape fabric and rights of way within the site and setting.

Receptor	Vegetation of the development proposal site.			
Sensitivity	**Susceptibility of receptor to specific change**	***Low***	**Sensitivity of Receptor to change (Susceptibility x Value)**	***Medium/ Low***
	Value attached to receptor	***Medium***		
Magnitude of change	**During construction**	**During operations**	**15 years post establishment**	
	Construction activities to include the existing site buildings being updated. There will be no direct effects on vegetation or public rights of way. Medium scale; short term; temporary.	The perimeter vegetated bunds will be retained. There will be no direct effects on vegetation or public rights of way. The effects of the proposed development on the landscape fabric will be imperceptible. Medium size/scale; long term and permanent.	As for During operations. The vegetated bunds along the northwestern boundary will continue to establish. Medium size/scale; long term and permanent.	
	Negligible	***Negligible***	***Negligible***	
Overall level of effect (Sensitivity x Magnitude)	***Negligible adverse***	***Negligible adverse***	***Negligible adverse***	
Cumulative effects	**No cumulative effects are predicted**	**No cumulative effects are predicted**	**No cumulative effects are predicted**	

2.53 Table 5.3 below summarises the findings of the assessment of landscape effects.

Table 5.3: Summary Findings of the Assessment of Landscape Effects.

Landscape receptor	Overall level of effect		
	During construction	**During operations**	**15 years post establishment**
Landscape Effects			
The character of *Barry* LANDMAP Visual & Sensory Aspect Area	***Negligible adverse***	***Negligible adverse***	***Negligible adverse***
The landscape fabric and rights of way within the extension area site and setting	***Negligible adverse***	***Negligible adverse***	***Negligible adverse***

Overall significance

2.54 The landscape effects of the proposed development are predicted to be *Negligible adverse*. They are also limited to the site itself and its close setting. The overall landscape effects of the proposed development are not considered to be significant in terms of the EIA Regulations (ie - below Moderate/Major or Major adverse). No cumulative landscape effects are predicted.

3 Visual Assessment

Scope of the Visual Assessment

Introduction

3.1 The 'Guidelines for Landscape and Visual Impact Assessment' 3rd Edition, published by the Institute of Environmental Management and Assessment and the Landscape Institute in 2013 (Landscape Institute, 2013) (GLVIA3) defines visual effects as follows:

An assessment of visual effects deals with the effects of change and development on the views available to people and their visual amenity. The concern here is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change or loss of existing elements of the landscape and/or introduction of new elements.

3.2 The methodology for assessing the significance of visual effects employed in this report is detailed in Appendix A. The primary aim of the visual assessment is to identify any significant effects on the visual environment of residents and visitors to the study area resulting from the proposed development.

Visual study area

3.3 A visual study area, based on desk and field study, of 1.5 to 2.0 km from the centre of the development proposal site has been chosen for this assessment and this is shown on drawing L16_LVIA_003 *Visual Appraisal*. The urban/industrial setting indicated that a Zone of Theoretical Visibility projection would be unhelpful in identifying viewpoints and this was reinforced by reference to a Corylus Planning and Environmental Ltd LVIA for a similar development on the same site undertaken in 2015 [14]. The area of search was consequently refined by a site visit to identify inter-visibility from the site with the setting. A series of illustrative viewpoint photographs were taken looking outwards from 4 locations within the site (Illustrative Viewpoints 1, 2, 3a-d and 4) and the approximate extents of inter-visibility with 8m high proposed storage piles plotted on the Visual Appraisal plan.

[14] Proposed Facility for the Recycling of Incinerator Bottom Ash (IBA) to Produce Aggregates and the Recovery of Metals; Landscape and Visual Impact Assessment Prepared for Raymond Brown Minerals & Recycling Ltd by Corylus Planning & Environmental Ltd. March 2015

Range of potential visual effects

3.4 This a proposal for re-use of an existing external stockyard with a permitted but unimplemented bottom-ash processing facility (Raymond Brown 2015). The main visual changes will comprise wood waste piles up to 8m in height and lorry and mobile plant operations including loading shovels, excavators and a stacker-conveyor up to 8.8m in height. It is anticipated to be a permanent development that will affect views from the dock access road, areas within the dock, elevated nearby area of the town of Barry to the northwest and some elevated areas of Barry Island to the southwest.

Baseline Visual Studies

Viewpoints

3.5 The viewpoint locations are shown on drawing L16_LVIA_003 *Visual Appraisal.* The photographs from representative viewpoints are included on drawings L16_LVIA_016 to L16_LVIA_027 inclusive. Photographs were taken on 1st May with early deciduous leaf-cover apparent. The presence of leaf-cover at this time of the year was taken into account in the later assessment of visual effects. The table below identifies the 12 Representative Viewpoints and 7 Illustrative Viewpoints as recommended in in GLVIA3 and the Methodology in Appendix A. No Specific Viewpoints were identified. Photographic images have been taken in compliance with the guidelines set out in Landscape Institute Technical Guidance Note 06/19 (TGN 06/19), as summarised in Appendix A. Given the low level of predicted visual change and the nature of the application, Type 1 annotated viewpoint photographs have been used for this study.

Table 5.4 Viewpoints

Ref.	Type	Viewpoint description and representation
1	Illustrative	Looking southwest from southwest end of the Site
2	Illustrative	Looking northwest from the southwest end of the Site
3a	Illustrative	Looking north-northeast from top of block wall located towards centre of the Site
3b	Illustrative	Looking northeast from top of block wall located towards centre of the Site
3c	Illustrative	Looking southeast from top of block wall located towards centre of the Site
3d	Illustrative	Looking south-southeast from top of block wall located towards centre of the Site
4	Illustrative	Looking northwest from northeast end of the Site

5	Representative	Looking west from Wimborne Rd on the eastern corner of the Site – proximate roadside view from around Dock No.2
6	Representative	Looking northwest from Wimborne Rd on the south side of Number 2 dock – proximate roadside view from around Dock No.2
7	Representative	Looking northwest from Atlantic Way from the entrance to the Port of Barry restricted access area – proximate roadside view from around Dock No.2
8	Representative	Looking southwest from Wimborne Rd by the Site entrance - proximate roadside views from the site entrance
9	Representative	Looking south from Wimborne Road, near junction with Ffordd Y Mileniwm- proximate roadside views from the approaches from Ffordd Y Mileniwm and the Construction Hub Academy
10	Representative	Looking east from Ffordd Y Mileniwm by bridge over railway - the only view from Ffordd Y Mileniwm and local section of Wales Coast Path National Trail
11	Representative	Looking south from southern section of Victoria Park - views from the park and upper eastern areas of Cadoxton
12	Representative	Looking east from Dock View Rd between George St and Lower Pyke St - views from Dock View Road and upper floor windows of adjacent dwellings
13	Representative	Looking east from Dock View Rd between Lower Pyke St and Cyril St - views from Dock View Road and upper floor windows of adjacent dwellings
14	Representative	Looking southeast from Dock View Rd at junction with Wilfred St - views from Dock View Road and upper floor windows of adjacent dwellings
15	Representative	Looking southeast from Hillary Rise junction with Hill St - views from allotments and several adjacent dwellings on Hillary Rise
16	Representative	Looking northeast from Dyfrig St near junction with Redbrink Crescent, Redbrink Point – also represents views from Clos Y Fulfran & Clos Y Wylan, Neils Point

Assessment of visual effects and mitigation

Interactions between the proposal and visual receptors

3.6 The potential interactions between the proposal and visual receptors comprise views of:

- Continued use of entrance, offices, weighbridge and water tank.
- Replacement portacabin style welfare facilities

- Relocating various concrete retaining structures.
- HGV vehicle and plant movements (excavators and loading shovels), including 4.8m high shredder, 3.5m screener and mobile conveyor with discharge between 3.5m and 8.8m high.
- Waste wood storage mounds up to 8m high.
- Discharge to lorries and boats.
- Lorry parking in northeast sector.

Proposed mitigation incorporated into the proposal

3.7 Most of the proposed uses have either been previously undertaken or permitted for this site. No additional mitigation measures are proposed, although it is recognised that the woodland planted on the off-site bund adjacent to the northern boundary will continue to grow and increase the obstruction of views from the north.

Visual effects

3.8 For each group of the above representative viewpoints a table is included below the photograph to assess the predicted effects in accordance with the methodology described in Appendix A. The sensitivity of each receptor, magnitude of effects and significance are included on the tables, as are the cumulative effects of the existing and proposed operation.

Table 5.5: Summary Findings of the Assessment of Visual Effects

Visual receptor group	Overall level of effect		
	During construction	**During operations**	**15 years post establishment**
5, 6 & 7 - Looking west and northwest from Wimborne Rd on the eastern corner of the Site, looking northwest from Atlantic Way from the entrance to the Port of Barry – proximate roadside views from around Dock No.2	Negligible adverse	Negligible adverse	Negligible adverse
8 & 9 - Looking southwest from Wimborne Rd by the Site entrance & looking south from Wimborne Road, near junction with Ffordd Y Mileniwm -	Negligible adverse	Negligible adverse	Negligible adverse
10 - Looking east from Ffordd Y Mileniwm by bridge over railway - the only view from Ffordd Y Mileniwm and local section of Wales Coast Path National Trail	None	Negligible/Neutral	Negligible/Neutral
11 - Looking south from southern section of Victoria Park - views from the park and upper eastern areas of Cadoxton	Minor/ Negligible adverse	Negligible adverse	Negligible adverse
12, 13 & 14 - Looking east from Dock View Rd between George St and Wilfred St - views from Dock View Road and upper floor windows of adjacent dwellings	Negligible adverse	Negligible adverse	Negligible adverse
15 - Looking southeast from Hillary Rise junction with Hill St - views from allotments and	Negligible adverse	Negligible adverse	Negligible adverse

several adjacent dwellings on Hillary Rise			
16 - Looking northeast from Dyfrig St near junction with Redbrink Crescent, Redbrink Point – also represents views from Clos Y Fulfran & Clos Y Wylan, Neils Point	Up to Negligible adverse	Neutral	Neutral

Additional visual effects

3.9 Paragraph 2.4 above explains why the proposed up to 3-storey housing scheme (ref: 2020/00775/OUT) located between the railway and Ffordd Y Mileniwm, directly northwest of its junction with Wimborne Road, should not be assessed for cumulative landscape and visual effects with the Berth 31 proposals. However, this future development could generate two sources of additional visual effects:

- Effects on views from Victoria Park and upper eastern areas of Cadoxton
- Effects on views from the upper storeys of the new development.

3.10 The proposed housing development would be constructed on a plateau at the same level as the adjacent railway. It appears that the 3-storey houses will probably block the existing views from Victoria Park illustrated in Representative Viewpoint 11, thereby negating the potential effects of the Berth 31 proposals on these receptors.

3.11 There are several layers of intervening vegetation between the proposed houses and the Berth 31 site. However, the upper storey windows may have direct views of the eastern end of the site and possibly filtered winter views of other parts to the west. These are apartments, so may include rooms with daytime use at upper floors. Their susceptibility to change is therefore rated as *Medium*. They may have panoramic views towards the sea, but the value of these views will be tempered by the dominance of the chemical works and docks. Therefore, the value of views is rated *Medium/Low* and the overall sensitivity as *Medium/Low.* These are close, partially obscured views of a wide panorama, including the Construction Hub Academy in the foreground. Changes to the existing views will not be substantial, therefore the magnitude of change is judged as *Medium.* A *Medium/Low* sensitivity combined with a *Medium* rated magnitude of effect will generate a potential *Minor adverse* visual effect at all stages of the development.

Overall significance

3.12 The proposed development, whilst having receptors located in relatively proximity to the site, is predicted at all stages of the development to generate no more than *Minor/Negligible adverse* visual effects. Most visual effects are judged to be *Negligible adverse.*

3.13 Although there are several elevated receptors located in relatively close vicinity, no adverse visual effects are predicted to be significant (ie - below *Moderate/Major or Major adverse)* at any stage due to: the wooded bund located around much of the northern perimeter of the site, the industrial setting that diminishes receptor sensitivity and the small degree of visual change to what is already an industrial port-side yard. A *Minor adverse* level of additional visual effect may by experienced for new residents in upper storeys of a nearby consented proposed housing development.

Appendices

Appendix 5A - Landscape and Visual Impact Assessment Methodology

Introduction

The guidance for undertaking LVIA has been sourced principally from 'Guidelines for Landscape and Visual Impact Assessment' 3rd edition (GLVIA3), written for the Landscape Institute and the Institute of Environmental Management and Assessment, published by Routledge in 2013.

Definitions

Landscape and visual effects are separate, but closely linked. There is some overlap of methodology, but the two subjects are assessed separately.

*An assessment of **landscape effects** deals with the effects of change and development on landscape as a resource. The concern here is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character……* (GLVIA3_Para 5.1)

*An assessment of **visual effects** deals with the effects of change and development on the views available to people and their visual amenity. The concern here is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the content and character of views as a result of the change to or loss of existing elements of the landscape and/or introduction of new elements.* (GLVIA3_Para 6.1)

Scoping

GLVIA3 (Para_1.16) recognises that the terms 'impact' and 'effect' can be used interchangeably but recommends that for clarity their use should be used separately and consistently. The LVIA will therefore use the term 'impact' for an action being taken, and 'effect' as the change resulting from that action.

Scoping is considered separately for landscape and for visual effects and includes consideration of:

- the extent of the study area and sources of information
- the possible effects that might occur
- the timescale of the study
- the main receptors to be considered
- the extent and appropriate level of detail for the baseline studies
- methods to be used in assessing significance
- the approach to assessment of cumulative effects.

Summary of the assessment method

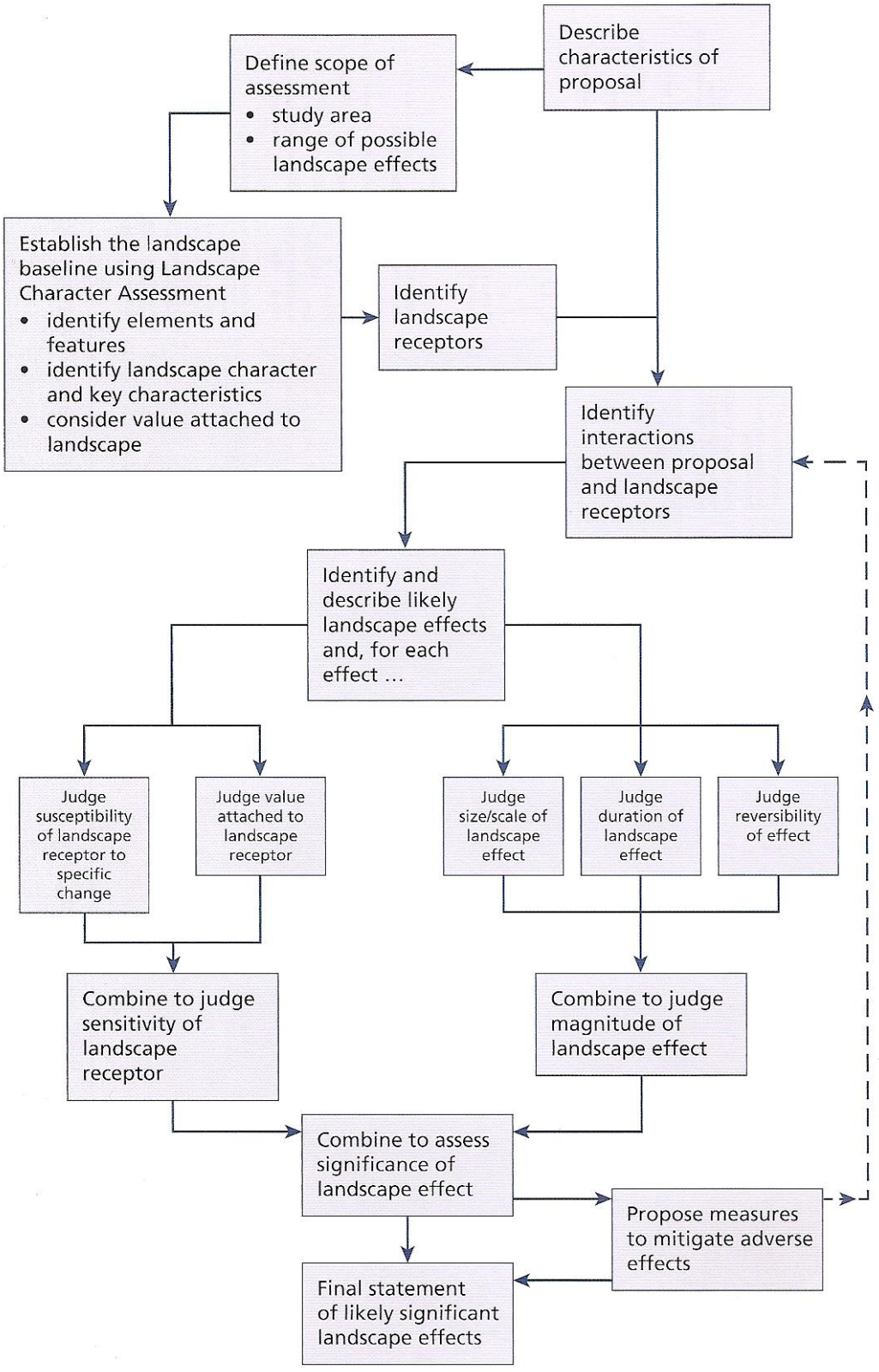
- 1 - The baseline conditions against which the effects of the proposed development will be assessed are established. This may include how the landscape and visual environment will change over time irrespective of the proposals. Landscape and visual receptors will be identified from this process.
- 2 - The sensitivity of the receptors likely to be affected is judged. This combines judgements about their susceptibility to change arising from the specific proposals with judgement about the relative values of the receptors.
- 3 - The magnitude of the effect likely to occur is judged. This combines judgements of the size and scale of change and the geographical extents likely to be affected. This judgement is then adjusted by consideration of the duration of effect and its potential reversibility.
- 4 - Judgements on the sensitivity of the receptors to specific change are combined with those on the magnitude of potential landscape and visual effects.
- 5 – Mitigation measures are considered and the assessment process repeated to derive potential residual landscape and visual effects.

Consultees

GLVIA3 places emphasis on consultation with the competent authorities, usually the Planning Authority's Landscape Advisor. Natural England is a statutory consultee for landscape matters, and it may be beneficial to invite their comments directly at pre-application stage, particularly given their dual role in advising on biodiversity matters and the likely Benefits Proposals.

ASSESSING LANDSCAPE EFFECTS

The following flowchart, taken from Figure 5.1 of GLVIA3, describes the fundamental process for predicting landscape effects of a development.



Scoping landscape effects

After identifying the characteristics of the proposal, the range of possible landscape effects are considered and agreed with the competent authority. Any that are not likely to be significant and may not need to be considered further are discounted. The study area that needs to be covered in assessing landscape effects is defined, including:

- the site itself;
- the extent of wider the landscape which the proposed development may influence:
    - this may be based on the extent of landscape character areas likely to be significantly affected either directly or indirectly;
    - the Zone of Theoretical Visibility may also inform the area selection.

Baseline landscape studies

These are appropriate to the context and in line with the current guidance and terminology for landscape character assessment (LCA), townscape character assessment and seascape character assessment as relevant.

The cultural heritage features and relevant aspects of the historic landscape are recorded and judgements made on their contribution to the landscape, townscape or seascape.

The condition of the landscape and evidence of pressures causing change are documented.

Classification of the landscape

Published LCAs are used, and supplemented where necessary with additional survey, the purposed being to identify the elements and features, landscape character and key characteristics. The purpose is to identify Local Landscape Character Areas appropriate to the scale of the proposed changes and their context within the landscape setting.

Use of published LCAs:

- existing assessments are critically reviewed in terms of quality, age and suitability for the task in hand;
- the scale of character assessment information is judged (published data is interpreted, not just copied);
- fieldwork checks the applicability and refines published data where necessary;
- and if necessary, new landscape surveys are undertaken of the whole study area or of the site and its immediate surroundings.

Landscape Receptors

Initially the landscape receptors are identified. These are the components of the landscape that are likely to be affected by the proposal, such as overall character and key characteristics, individual elements or features, and specific aesthetic or perceptual aspects.

Landscape impact assessment

Interactions

After identifying the landscape receptors, the interaction between the proposal and receptors and the likely effects are identified before judging the significance of predicted landscape effects.

Landscape Sensitivity

Each effect is considered in terms of the sensitivity of the receptor by judging its susceptibility to the type of change arising from the proposal and the value attached to the receptor. Existing sensitivity and capacity studies which deal with the same type of development may provide useful preliminary information. The relationship between the value of landscape and susceptibility to change is important, although the designation of a landscape does not automatically make it susceptible to all types of change. Receptor sensitivity is rated: as *negligible, low, medium, or high.* The criteria for each rating are specific to the landscape of the site. However they may follow the parameters listed in the table 5 below.

Determining Landscape Value

Paragraph 5.19 of GLVIA3 states that:

'This means the relative value that is attached to different landscapes by society, bearing in mind that a landscape may be valued by different stakeholders for a whole variety of reasons...a review of existing landscape designations is usually the starting point in understanding landscape value, but the value attached to undesignated landscape also needs to be carefully considered.'

Any established value of the landscape should be detailed, including:

- National or regional landscape designations – such as World Heritage Sites, National Parks, AONBs, Heritage Coasts, AGLV/AHLVs/SLAs;
- Local landscape designations – important hedgerows, TPOs, veteran trees
- Biodiversity and Geodiversity designations;
- Historic and cultural designations.

These values will influence judgements of overall value of each landscape receptor.

The following factors are also suggested to influence landscape value, based on the guidance set out in *Technical Guidance Note 02/21 Assessing landscape value outside national designations.*

- Natural heritage - ecological, geological, geomorphological or physiographic interest which contributes positively to the landscape
- Cultural heritage - archaeological, historical or cultural interest which contributes positively to the landscape
- Landscape condition – the physical state of individual elements and overall landscape structure
- Associations – connections with notable people, events and the arts
- Distinctiveness – the sense of identity of the landscape
- Recreational - recreational opportunities where experience of landscape is important
- Perceptual (Scenic) – the appeal to the senses, primarily the visual sense
- Perceptual (Wildness and tranquillity) – the perceptual value notably wildness, tranquillity and/or dark skies
- Functional - The identifiable and valuable function of the landscape

The above factors are recorded on a site survey sheet during fieldwork so that the assessment of value is carried out in a clear and transparent way. Any reliance on published material to establish value is made clear in the assessment and the information is treated in a critically reflective way.

Table 1.1 – Criteria for judging landscape natural heritage	
High	A landscape with many features of ecological, geological, geomorphological or physiographic interest. Natural heritage features are common and intact. The landscape has a number of statutory or local ecological and/or geological designations and/or active management plans in place.
Medium	A landscape with some features of ecological, geological, geomorphological or physiographic interest. Natural heritage features are in reasonable condition. The landscape may have local ecological and/or geological designations and/or active management plans in place.
Low	A landscape with few features of ecological, geological, geomorphological or physiographic interest. Occasional features remain that are often fragmented.
Negligible	A landscape with little or no ecological, geological, geomorphological or physiographic interest. Natural heritage value has been fragmented or lost.

Table 1.2 – Criteria for judging cultural heritage	
High	A landscape with many features of archaeological, historical or cultural interest which make a positive contribution to the landscape. The landscape makes a clear contribution to the significance of heritage assets and offers a dimension of time depth. The landscape has a number of statutory or local historic environment and/or archaeological designations and/or active management plans in place.
Medium	A landscape with some features of archaeological, historical or cultural interest which make a positive contribution to the landscape. Features are in reasonable condition. The landscape may have local historic environment and/or archaeological designations and/or active management plans in place.
Low	A landscape with few features of archaeological, historical or cultural interest. Occasional features remain that are often fragmented.
Negligible	A landscape with little or no archaeological, historical or cultural interest. Natural heritage value has been fragmented or lost

Table 1.3 – Criteria for judging landscape condition	
High	A landscape in which the individual elements and overall landscape structure are in consistently good condition. Characteristic features are common and intact. There is a complete absence of detracting or incongruous features.
Medium	A landscape in which the individual elements and overall landscape structure are in reasonably good condition. Some characteristic features remain intact. There may be some detracting or incongruous features, or they are commonly present but do not make a notable impact.
Low	A landscape in a generally poor condition. Occasional characteristic features remain that are often fragmented. Detracting or incongruous features are present.
Negligible	A landscape in a very poor condition. Few characteristic features remain. Detracting features dominate.

Table 1.4 – Criteria for judging landscape associations	
High	A landscape with strong connections with notable people, events and the arts. Connections which are documented in published guidebooks or trails.
Medium	A landscape with some connections with notable people, events and the arts.
Low	A landscape with few or limited connections with notable people, events and the arts.
Negligible	A landscape with no connections with notable people, events and the arts.

Table 1.5 – Criteria for judging landscape distinctiveness	
High	A landscape with a very distinctive character and strong sense of place. A notable presence of distinctive features which are identifiable as characteristic of a particular place. Presence of notable rare or unusual features which help confer a strong sense of place or identity. Presence of settlement gateways/approaches which provides a clear sense of arrival and contribute to the character of the settlement.
Medium	A landscape with a distinctive character and sense of place. Some distinctive features which are identifiable as characteristic of a particular place. Presence of common or everyday features which help confer a sense of place or identity. An identifiable identity or sense of place can be perceived.
Low	A landscape where occasional characteristic features remain that are often fragmented. Detracting features are present. There is little distinctive identity.
Negligible	A landscape with few or no characteristic features. Detracting features dominate. Any distinctive character has been fragmented or lost.

Table 1.6 – Criteria for judging recreational aspects	
High	A landscape with many open-air recreational facilities, such as Country Parks, Access Land, Common Land or town and village greens. The Rights of Way network is extensive, well maintained and well used and may include national or regional trails.
Medium	A landscape with some open-air recreation facilities; where the network of rights of way/access land is reasonably dense, maintained and in regular use.
Low	A landscape with a few open-air recreation opportunities; where the network of Rights of Way/Access land is sparse, poorly maintained but in occasional use.
Negligible	A landscape with few or no open-air recreation opportunities; where the network of Rights of Way/Access land is sparse, poorly maintained or rarely used.

Table 1.7 – Criteria for judging perceptual aspects – scenic	
High	An attractive landscape with many aesthetically pleasing features, possibly containing regionally important views or landmarks. A landscape with characteristic elements in harmonious composition. A regionally or nationally valued landscape.
Medium	A landscape with some aesthetically pleasing features. May include some visually conflicting characteristics. A landscape locally valued.
Low	A landscape with few aesthetically pleasing features, where some characteristics conflict to create a chaotic composition.

Negligible	An unattractive landscape with no aesthetically pleasing features. A landscape where many different characteristics conflict to create a chaotic composition

Table 1.8– Criteria for judging perceptual aspects – wildness and tranquillity	
High	A landscape which has a strong sense of tranquillity or wildness, with no detracting features and limited or only occasional levels of human activity/traffic
Medium	A landscape with some large scale development, but also with tranquil areas or areas perceived as remote or wild. There is infrequent human activity/traffic and little artificial lighting.
Low	A landscape of mostly large scale and visually intrusive development, with periodic or noticeable levels of human activity/traffic resulting in little sense of tranquillity. There may be some artificial lighting present.
Negligible	A landscape dominated by large scale and visually intrusive development, with high levels of human activity/traffic resulting in no sense of tranquillity. There may be high levels of artificial lighting present.

Table 1.9 – Criteria for judging landscape function	
High	A landscape which makes a notable contribution to biodiversity, hydrology, carbon capture and diversity of landcover. Makes a notable contribution to Green Infrastructure networks. Landscapes and landscape elements that have strong physical or functional links with an adjacent national landscape designation, or are important to the appreciation of the designated landscape and its special qualities.
Medium	A landscape which makes a moderate contribution to biodiversity, hydrology, carbon capture and diversity of landcover and to Green Infrastructure networks. Landscapes and landscape elements that have some physical or functional links with an adjacent national landscape designation, or add to the appreciation of the designated landscape and its special qualities.
Low	A landscape makes a small contribution to biodiversity, hydrology, carbon capture and diversity of landcover and to Green Infrastructure networks. Landscapes and landscape elements that have no physical or functional links with an adjacent national landscape designation, or do not contribute to the appreciation of the designated landscape and its special qualities.
Negligible	A landscape makes no or a negligible contribution to biodiversity, hydrology, carbon capture and diversity of landcover and to Green Infrastructure networks.

Determining Landscape Susceptibility

Paragraph 5.40 of GLVIA states that the susceptibility of a landscape to change is:

'..the ability if the landscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or feature, or a particular aesthetic and perceptual aspect) to accommodate the proposed development without undue consequences for the maintenance of the baseline situation and/or achievement of landscape planning policies and strategies'.

The susceptibility of each of the local Landscape Character Areas will be judged specifically in relation to potential effects from the type of proposed development, but with reference to potential changes to the following aspects:

- landform;

- land-cover;
- landscape scale;
- prominent landscape features;
- settlement pattern.

The criteria for judging the susceptibility of these aspects will vary with the type of development and the features of the local Landscape Character Areas.

Determining Landscape Sensitivity

Judgements on landscape value and susceptibility to change resulting from the specific type of proposed development will be combined for each landscape receptor. The relationship between value and susceptibility can be complex. A highly valued landscape such as an AONB may have a low susceptibility to a specific change because of the characteristics of the landscape and the type of proposed development. The final assessment of landscape sensitivity will an informed professional judgement supported by a narrative rationale. However, the basic criteria used for assigning ratings from *high* to *negligible* are as follows:

Table 2 – Criteria for judging overall sensitivity of landscape receptors	
High	Landscapes whose character, features, particular aesthetic or perceptual aspects are very vulnerable to change or loss and which offers few opportunities to accommodate the development. This may include landscapes designated for their national or regional value, such as AONBs, National Parks, Registered Parks and Gardens. Landscapes where there is a strong landscape structure, distinctive and characteristic patterns of landform and land cover. Landscapes where there are features in good condition that are worthy of conservation, a strong sense of place and few detracting elements.
Medium	Landscapes whose character, features, particular aesthetic or perceptual aspects are moderately vulnerable. They would be vulnerable to some change or loss, but may accommodate the proposed development in certain circumstances. Landscapes of local value, such as Special Landscape Areas, Green Belt or protected features such as the settings of heritage assets. Where there is a recognisable landscape structure and characteristic patterns of landform and land cover. Some character may be masked by developed land cover. Where there is a combination of features worthy of conservation and some detracting features.
Low	Landscapes whose character, features, particular aesthetic or perceptual aspects are reasonably robust. They would be tolerant to some change or loss and would accommodate the proposed development in most circumstances. Landscapes of no particular local value, where there is a minimal landscape structure and characteristic patterns of landform and land cover. Landscapes where landform and land-cover are masked by developed land cover. Landscapes where there are many detracting features.
Negligible	Landscapes of low quality whose character, features, particular aesthetic or perceptual aspects lack sensitivity, are tolerant to change and offer good opportunities to accommodate the development. Landscapes where no landscape features of value are found where little or no landscape pattern is evident. Landscapes where the landform and land cover are masked by land use. Landscape where a lack of management has resulted in a degraded appearance or where there are frequent detracting features.

Magnitude of change

The magnitude of effect is identified by combining judgements on:

- the size and scale of the effect; and
- the geographical extent of the area that will be affected;

This judgement is then adjusted up or down by further consideration of:

- the duration of the effect, generally defined as:
  - over 20 years – very long term
  - 10 to 20 years – long term
  - 3 to 10 years – medium term
  - 1 to 3 years – short term
  - Less than 1 year – very short term;
- and the degree of reversibility.

Long term developments, such as mineral operations will be assessed on a staged basis, including at 15 years post restoration, in order to consider the long term effects on character and land cover. Magnitude of effect is rated as: *negligible, low, medium or high.* The criteria for each rating are specific to the potential effects of the development. However they may follow the parameters listed in the following table.

Table 3 – Criteria for judging magnitude of effect on landscape receptors, based on size, scale and geographical extent	
High	Where the proposals would change several key landscape characteristics on a large scale. This may involve the total loss or major alteration to key elements or characteristics of the landscape, and/or the introduction of totally uncharacteristic elements. The development will fundamentally change the baseline landscape and may affect reasons for designation.
Medium	Where the proposals would change a small number of landscape characteristics on a medium scale. This may involve the partial loss or alteration to one or more of the key elements or characteristics, and/or the introduction of prominent, but not totally uncharacteristic elements. The development will form a conspicuous landscape feature and the baseline landscape may be noticeably changed, but is unlikely to affect reasons for designation.
Low	Where the proposals would change a small number of landscape characteristics on a small scale. This may involve the minor loss or alteration to one or more key elements, and/or the introduction of characteristic elements. The development will be perceptible, but the baseline landscape will be largely unchanged.
Negligible	Where the proposals would change a very small number of landscape characteristics on a very small scale. Where the degree of change is negligible to the perception of character.

Determining significance of Landscape effects

The ratings of sensitivity of the receptor and magnitude of the effect are combined to form an overall judgement of significance of effect rated as: *neutral, negligible, minor adverse or beneficial, moderate adverse or beneficial, or major adverse or beneficial.* The criteria for each rating are specific to the potential effects of the development.

Paragraph 5.56 of GLVIA3 describes the correct approach to judging significance:

'*There are no hard and fast rules about what makes a significant effect, and there cannot be a standard approach since circumstances vary with the location and landscape context and with the type of proposal. At opposite ends of the spectrum it is reasonable to say that:*

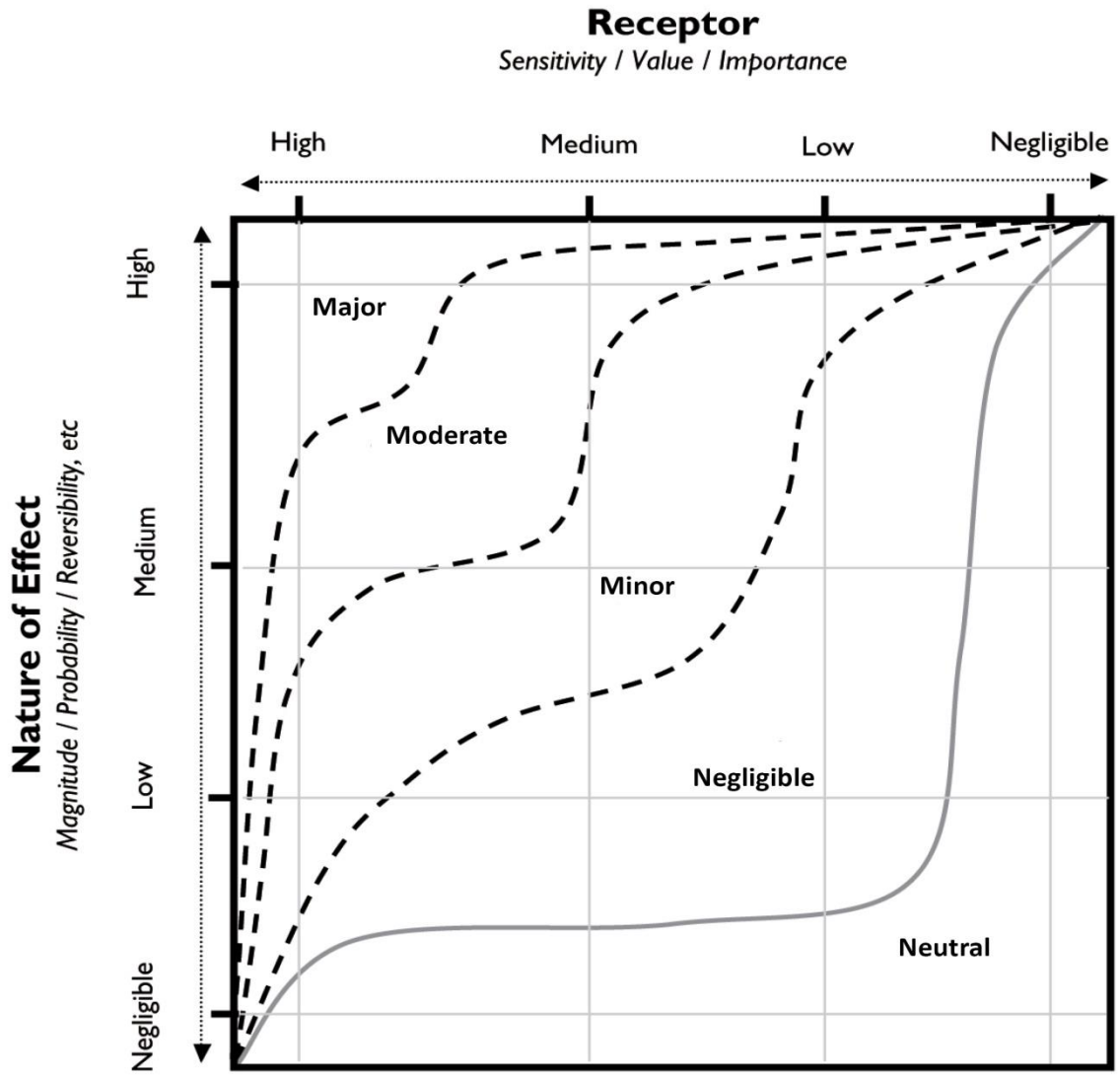
- *major loss or irreversible negative effects, over an extensive area, on elements and/or aesthetic and perceptual aspects that are key to the character of nationally valued landscapes are likely to be of the greatest significance;*
- *Reversible negative effects of short duration, over a restricted 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;*
- *Where assessments of significance place landscape effects between extremes, judgements must be made about whether or not they are significant, with full explanations of why these conclusions have been reached.'*

The rationale for each judgement should be clear, demonstrating:

- how susceptibility to change and value together contribute to the sensitivity of the receptor;
- how judgements about scale, extent and duration contribute to the magnitude of effects;
- how the resulting judgements about sensitivity and magnitude are combined to inform judgements about the overall significance of effects.

While all the individual professional judgements to assess the sensitivity of receptors and magnitude of effects require a narrative approach, the overall significance of effect can be rated within a matrix of judgements. The matrix in Table 7 below is adapted from 'EIA significance evaluation matrix' illustrated as Figure 6.3 of the 'Special Report – The state of Environmental Impact Assessment Practice in the UK', published by IEMA in 2011. This matrix allows for a range of significance judgements within each box that is supported by a narrative describing the various sensitivity and magnitude elements that combine to form the judgement. All effects can be either adverse or beneficial in nature. Each landscape assessment will define in the conclusions what is considered to be a significant effect in terms the ratings tabled below.

Table 4 – Combining judgements of sensitivity with magnitude to derive broad ratings of landscape significance



The implications of the effects on the character or condition of the landscape resulting from the proposed development are described below. Adverse effects can be reduced or moderated by effective mitigation measures.

'Major adverse or beneficial' – Permanent or long term change to key elements such that the local or wider landscape character/condition is substantially affected in an adverse or beneficial way. Potential mitigation measures would be ineffective to prevent adverse effects, but very effective in promoting beneficial effects.

'Moderate adverse or beneficial' – Permanent or temporary detrimental or beneficial change to key elements, or permanent change to less important elements such that the landscape character/condition

is moderately affected in an adverse or beneficial way. Potential mitigation measures would moderate effects to a minor degree.

'Minor adverse or beneficial '– Permanent or temporary detrimental or beneficial change to minor elements such that the landscape character/condition is slightly affected in an adverse or beneficial way. Potential mitigation measures would moderate effects to a major degree.

'Negligible' – Minor change to minor elements such that the landscape character/condition is barely affected in either an adverse or beneficial way.

'Neutral' – Change that does not result in any perceptible effects on landscape character/condition.

Application of mitigation measures and Statement of Residual Effects

After the initial significance of effect is judged for each landscape receptor, measures are introduced to mitigate adverse effects in the design reiteration and the assessment process is repeated. Mitigation measures are proposed to prevent/avoid, reduce and where possible offset/remedy/compensate. This sequence forms the 'mitigation hierarchy'. Mitigation or enhancement measures should be deliverable. When all mitigation measures are exhausted and the assessment of impacts re-run, the final statement of likely residual effects is prepared.

ASSESSING CUMULATIVE LANDSCAPE EFFECTS

Definitions

Paragraph 7.2 of GLVIA3 describes cumulative landscape and visual effects as those that:

'... result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other development (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the reasonable future'.

Paragraph 7.5 of GLVIA3 explains that cumulative landscape assessment is complex and evolving:

'... the challenge is to keep the task reasonable and in proportion to the nature of the project under consideration....it is always important to remember that the emphasis in EIA is on likely significant effects rather than on comprehensive cataloguing of every conceivable effect that might occur...'.

Methodology

Scoping

The scoping process determines what types of cumulative effect are considered:

- only those from projects of the same type as the main project under consideration;
- or include other types of development in the vicinity;
- and/or those that may arise as an indirect consequence of the main project under consideration;
- and/or, in the case of large complex projects, different scheme components or associated and ancillary development that in some cases may require their own planning consent.

The baseline for assessing cumulative landscape effects includes any existing development or one that is under construction. The assessment should then consider the effects on the baseline landscape of potential schemes that are at various stages of the development and consenting process including:

- schemes with planning consent;
- schemes that are the subject of a valid planning application that have not yet been determined.

Schemes that are at the pre-planning stage or 'scoping stage' are not generally considered because of the lack of certainty.

Defining a study area

The study area, which should be reasonable and proportional, is agreed with the competent authority at the scoping stage. The zone of visual influence or zone of theoretical visibility of each development potentially creating cumulative landscape effects will be overlaid to create a composite map of to define the study area. This can be adjusted to reflect the extents of character areas to be affected. Reasonable assumptions about the extents of the study area will be made where this information is not available.

Baseline cumulative landscape studies

This will be similar to the main assessment, but adjusted to take account of any changes in the extents of the study area.

Predicting cumulative landscape effects

The assessment will consider the degree to which the main development will, in combination with other developments, change the existing key characteristics through an incremental effect on elements, features, patterns and quality, or by the addition of new features or the loss of existing features. Cumulative effects will be described in relation to the landscape receptors identified in the main assessment.

The methodology for assessing impact will essentially mirror that of the main assessment: identify the sensitivity of the receptors by combining judgements of susceptibility to specific change and values ascribed to those receptors; identify the magnitude of effect with reference to size/scale and geographical extents, adjusted by consideration of the duration and magnitude of effects; combine judgements of sensitivity and magnitude and reconsider these after the application of mitigation measure.

Determining the significance of cumulative landscape effects

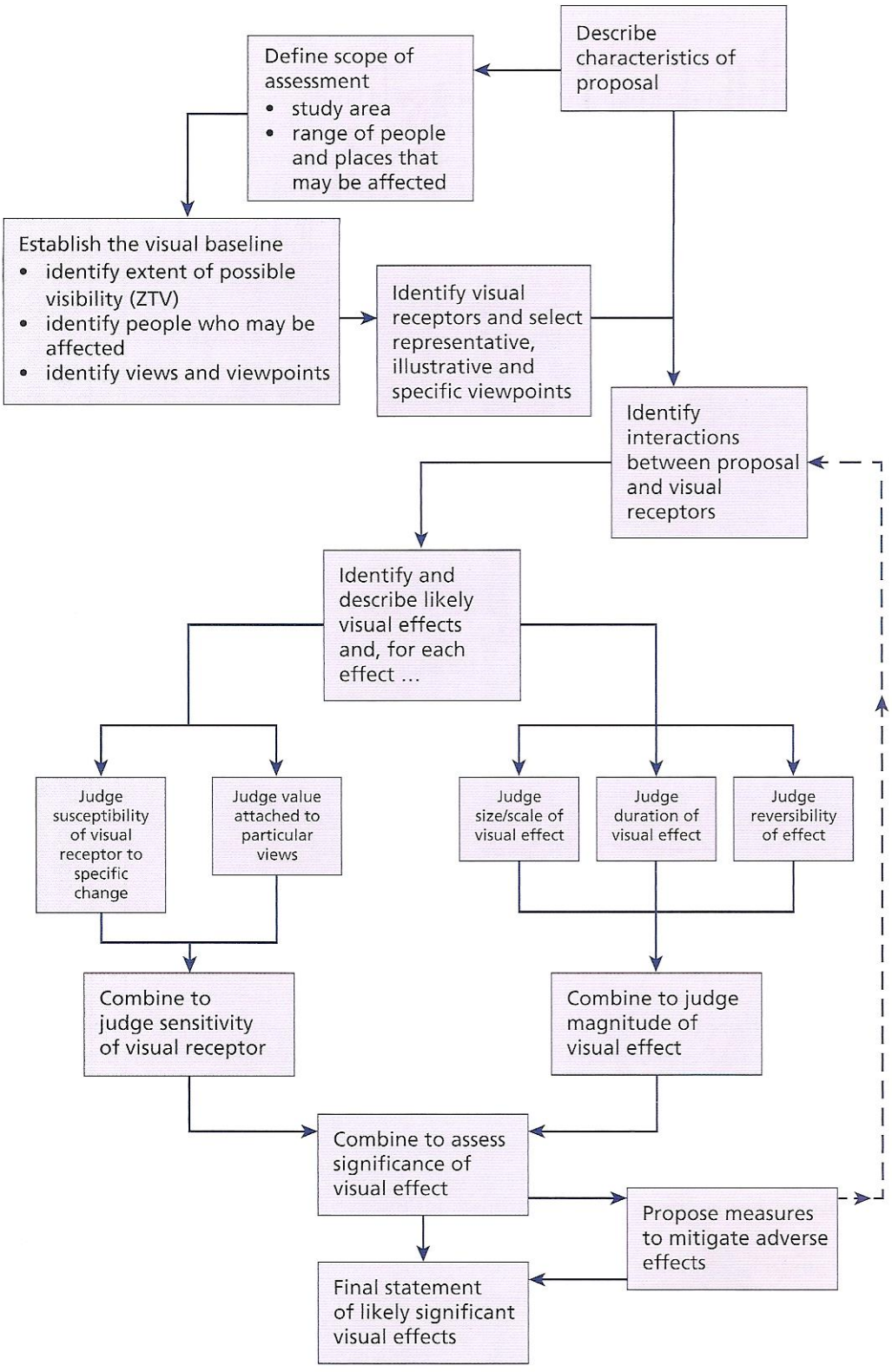
The ratings and matrix of broad ratings are the same for the main assessment. Cumulative adverse effects will always be equal to or greater than effects recorded to the main assessment, by application of the following principles:

- When a predicted significant landscape effect from the main development is added to a predicted significant effect from another proposed development, the overall effect is considered to be significant and cumulative;
- When a predicted significant landscape effect from the main development is added to a predicted non-significant effect from another proposed development, the overall effect is considered to be significant and cumulative, but is attributed to the main development only;
- When a predicted non-significant landscape effect from the main development is added to predicted significant effect from another proposed development, the overall effect is considered to be significant and cumulative, but is attributed to other proposed development only;
- When a predicted non-significant landscape effect from the main development is added to a predicted non-significant effect from another proposed development, the overall effect is still considered to be cumulative and greater than the level of effect for each development individually, but the combined effects may or may not be significant.

The supporting narrative will clearly set out how professional judgments have been made in the same manner as the main assessment.

ASSESSING VISUAL EFFECTS

The following flowchart, taken from Figure 6.1 of 'Guidelines for Landscape and Visual Impact Assessment' 3rd edition describes the fundamental process for predicting visual effects of a development.



Scoping visual effects

The following baseline elements are agreed with the competent authority:

- the extent of the study area, which is proportional to the scale and nature of the proposed development;
- the range of people who may be affected (receptors);
- and the representative or key viewpoints that need to be examined.

A Zone of Theoretical Visibility (ZTV) is created by a desktop study of the topography surrounding the development site and/or computer interrogation of digital terrain models based on an average eye height of 1.65m above ground level. This is followed by a walking survey to check full extents and to identify key or representative viewpoints.

The following groups of visual receptors are identified:

- residents, at home or going to and from;
- users of public open space, rights of way, access areas;
- visitors to attractions, leisure facilities;
- people at work, school, shopping;
- or people travelling on road, rail, waterway.

Baseline visual studies

Viewpoints are selected in part through discussions with the competent authority and other interested parties at the scoping stage. Selection is further informed by the ZTV analysis, fieldwork desk research on access and recreation. Selected viewpoints cover a range of situations sufficient to encompass the likely significant effects including:

- representative – for different types of receptor or from private dwellings
- specific – for key viewpoints from noteworthy locations
- illustrative – of a particular effect or issue, not necessarily a view of the development site itself.

Details of viewpoint locations, direction of view and area covered are accurately mapped and catalogued, sufficient for someone to return to the exact location and record the same view. It should be noted that few views from private residences can be accurately recorded and that these may be considered as part of a separate residential amenity assessment.

The use of photographs and sight-line sections or photomontages is generally considered to be suitable means to assessing and presenting visual assessment. The Landscape Institute Technical Guidance Note 02/17 is considered to help select the types of visualisation which are most appropriate for this assessment.

Photographs

Landscape Institute Technical Guidance Note 06/19 (TGN 06/19) provides guidance as to appropriate techniques to capture site photography and produce appropriate visualisations for development proposals. This is to be taken as the primary source of guidance in the preparation of the LVIA, unless targeted or authority-specific guidance is to be used, in which case the departure from TGN 06/19 will be made clear and the alternative methodology set out.

TGN 06/19 defines 4 Visualisation Types. The appropriate type for inclusion in the LVIA will be identified by a proportionate assessment of the following factors, in accordance with the detailed guidance set out in the guidance;

- the intended Purpose of the visualisation;
- the anticipated Users;
- the stage in the planning application process;
- the Sensitivity of the context/host environment, having regard to the landscape and visual receptors; and
- the likely overall Magnitude of effect of the development in terms of its 'size and scale', 'geographic extent' and 'duration and reversibility

The relationship between purpose, user and visualisation type is shown below

Category	Purpose and Users	Appropriate Visualisation Types
A	Evidence submitted to Public Inquiry, most planning applications accompanied by LVIA (as part of formal EIA), some non-EIA (LVA) development which is contrary to policy or likely to be contentious. Visualisations in public domain.	Type 2 3D wireline/model Type 3 photomontage/photowire Type 4 photomontage/photowire (survey/scale verifiable).
B	Planning applications for most non-EIA development accompanied by LVA, where there are concerns about landscape and visual effects and effective mitigation is required. Some LVIAs for EIA development. Visualisations in public domain.	Type 1 annotated viewpoint photographs Type 2 3D wireline/model Type 3 photomontage/photowire Type 4 photomontage/photowire (survey/scale verifiable).
C	Planning applications where the character and appearance of the development is a material consideration. LVIA / LVA is not required but supporting statements (such as Planning Statements and Design and Access Statements) describe how the proposal responds to landscape context and policies. Visualisations in public domain.	Type 1 annotated viewpoint photographs Type 2 3D wireline/model Type 3 photomontage/photowire
D	To inform the iterative process of assessment and design with client, and / or pre-application consultations with the competent authority. Visualisations mainly confidential.	Type 1 annotated viewpoint photographs Type 2 3D wireline/model

Details of appropriate locational accuracy, photographic equipment and presentational approaches will be applied for each Visualisation Type in general accordance with the detailed guidance in TGN 06/19. Most LVIAs will be supported by Type 1 Photographs only unless Types 2-4 Visualisations are required under Scoping requirements set by the Local Planning Authority. Type 1 Photographs will be annotated to show the extents of the proposal site, and any key locations/objects that are of assistance in understanding the nature of the development and predicted change.

The following camera specifications and settings will be used for all LVIA photography;

Camera specification	**Type 1 & 3 Visualisation** DSLR Cropped frame sensor + 35mm FL prime or zoom lens

	DSLR Full frame sensor + 50mm FL prime lens Full Frame Mirrorless Camera + 50mm FL prime lens **Type 4 Visualisation** DSLR Full frame sensor + 50mm FL prime lens Full Frame Mirrorless Camera + 50mm FL prime lens
Manual settings;	
ISO	100 - 400
Aperture	5.6
Shutter speed	No slower than 1/60
Focus	Single point Autofocus or Manual set to middle distance of view being taken

TGN 06/19 sets the standard for a 'mathematically correct' image as one taken with a 50mm FL (or 50mm equivalent FL for a cropped frame sensor camera) with approximately 39.6 Horizontal Field of View (HFoV) image, printed at a size of 390mm x 260mm on an A3 sheet, and held at 542mm from the eye, and LVIA images will be presented at this standard.

Panoramic images will be created by taking a series of overlapping photographs at approximately 20 degree intervals, which will provide a 50% overlap for each image. The photographs will be taken in portrait format and 'stitched' together using Microsoft Image Composite Editor software to form a single panoramic image with a field and depth of view similar to that seen by the human eye. Each image is then resized so that the individual photograph frames are 390mm high on an A1 paper sheet incorporating a viewpoint analysis table beneath the image. A 'Powerclip' box is applied over the image in CorelDRAW Photopaint to ensure that the overall image was not resized in cropping it to a rectangular shape.

Photomontages

In order to gauge the specific levels of visual intrusion, computer generated visualisations may be generated from key viewpoints identified in the visual appraisal process located in various directions around the site. Panoramic photographs will be taken on a clear day to the specification described above. Digital terrain models of the restoration schemes were constructed using LSS software. The raw model is viewed from the same key viewpoints, matching the photographs in terms of: eastings, northings and elevations of the viewpoint location; the centreline angle of view; the distance, horizontal field and vertical field of view. Each proposed view is captured and exported in a format suitable for inserting within the photographs of the existing views. Photographs and photomontages assist in assessing the potential visual effects of the proposed development over a period of time. They are not virtual reality images and are subject to minor distortions and inaccuracies. A photograph or photomontage can only be a two dimensional representation and therefore can never provide the exact visual experience that a human observer would receive in the field.

The visual receptors along with key, specific or representative viewpoints are identified. The interaction between the proposal and receptors and the likely effects are then examined followed by judgement of the significance of predicted visual effects.

Visual impact assessment

Interactions

After identifying the visual receptors, the interaction between the proposal and receptors and the likely effects are examined before judging the significance of predicted landscape effects. This requires informed professional judgements about whether the effects are likely to be positive (beneficial), negative (adverse) or neutral (negligible), clearly stating the criteria used in reaching this judgement.

Sensitivity of visual receptors

Paragraph 6.31 of GLVIA3 states that the sensitivity of visual receptors *'... should be assessed in terms of both their susceptibility to change in views and visual amenity and also the value attached to particular views'.*

The susceptibility of a visual receptor is defined in the glossary of GLVIA3 as the *'..ability of a defined visual receptor to accommodate the specific proposed development without undue negative consequences'.*

The susceptibility of a visual receptor is assessed according to:

- the occupation or activity of receptors,
- the extent to which their attention or visual interest is focussed on the views, and
- the visual amenity experienced at particular locations.

The value of a view to a receptor and the relative number of potential viewers also helps determine visual sensitivity. Tourist attractions, important landmarks, designated landscapes, heritage site, nationally designated trails that are used by relatively high number of people are likely to be highly sensitive to change. Equally, hill walkers are unlikely to be high in number, but their sensitivity is often high because the primary purpose of the visit is likely to be an appreciation of the landscape and views.

Receptor sensitivity is rated: as *negligible, low, medium, or high.* The criteria for each rating are specific to the type of viewer and the sensitivity of the visual environment or value attached to specific views. However they may follow the parameters listed in the following table.

Table 5 – Criteria for judging overall sensitivity of visual receptors	
High	Where the view forms an essential component of the activity, such as those from: panoramic viewpoints; mountains and hilltops; tourist and visitor destinations; nationally designated walks, cycleways and bridleways; heritage destinations affording specific, highly valued views. Areas with very high expectations of visual amenity, although may not affect a high number of receptors.
Medium	Where the view forms a strong component of the activity, such as those from daytime residential rooms or private gardens, public rights of way, de facto footpaths and access land, particularly designated recreational paths, cycleways and bridleways. Includes views from Public houses, restaurants, parks etc. with outward views towards the development, promoted scenic drives. Open areas of recognised public access where primary enjoyment is obtained from views of the landscape. Areas with moderate to high expectations of visual amenity. May affect a high number of receptors
Low	Where views are noticeable, but not integral to the main activities; such as at sporting or active recreational facilities where amenity is gained from the landscape setting but is not essential to the activity. Includes views from residential rooms used primarily during night hours and from remote country lanes. Areas with moderate expectations of visual amenity.

Negligible	Where views are incidental to other activities, such as those from work in industrial or commercial settings, where visual amenity is currently lacking, or when travelling past the site by rail or road; where scenic attractions are not expected. Areas with low expectations of visual amenity.

Magnitude of change

As with landscape effects, the magnitude of change for visual effect is identified by combining judgements on:

- the size and scale of the effect;
- the geographical extent of the area that will be affected;

This judgement is then adjusted up or down by further consideration of:

- the duration of the effect, generally defined as:
  - over 20 years – very long term
  - 10 to 20 years – long term
  - 3 to 10 years – medium term
  - 1 to 3 years – short term
  - Less than 1 year – very short term;
- and the degree of reversibility.

Long term developments, such as mineral operations will be assessed on a staged basis, including at 15 years post restoration, in order to consider the long term visual effects of changes to land cover. Magnitude of effect is rated as: *negligible, low, medium or high.* The criteria for each rating are specific to the potential effects of the development. However they may follow the parameters listed in the following table. It is important to consider differences in effects caused by filtering or screening of views. Professional judgements are made to predict effects where photographs are not available.

Table 6 - Criteria for judging magnitude of effect on visual receptors, based on size, scale and geographical extent	
High	Where current open views are obtained of a major part of the site; or where close, but partially obscured views of the site dominate the location. Where the proposals would form a significant or dominant feature in a specific vista that would affect the overall impression of the place.
Medium	Where current views of the site are partially obscured by intervening landform, structures or vegetation. Where proposals would form a visible and recognisable new element within a wide field of view, but would not be dominant within the overall view.
Low	Where current views of the site are largely obscured by intervening landform, structures or vegetation; or where the angle or field of view is particularly narrow. Where proposals would constitute only a minor component of the wider view and do not affect the overall composition of the scene.
Negligible	Where views of the site are distant, incidental or barely distinguishable from its surroundings to the naked eye. Where the proposals are just visible within a wide field of view. The development would not change the character or quality of the existing view by any degree.

Determining significance of Visual effects

The ratings of sensitivity of the receptor and magnitude of the effect are combined to form an overall judgement of significance of effect rated as: *neutral, negligible, minor adverse or beneficial, moderate*

adverse, or major adverse or beneficial. The criteria for each rating are specific to the potential effects of the development.

Paragraph 6.44 of GLVIA3 states that *'There are no hard and fast rules about what makes a significant effect.....circumstances vary with the location and context and with the type of proposal'.*

The paragraph continues to describe the spectrum of potential significance as:

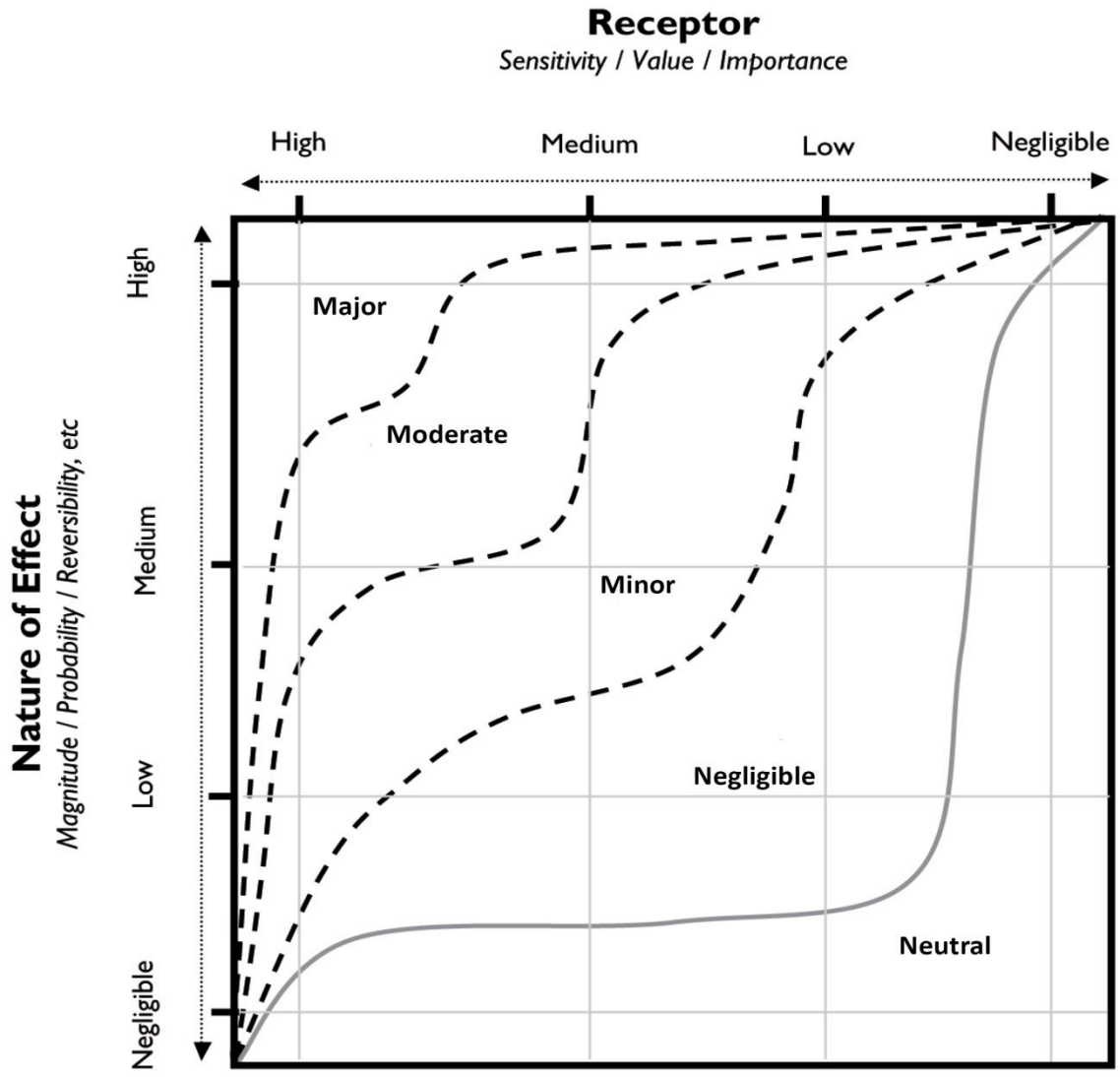
- *'Effects on people who are particularly sensitive to changes in views and visual amenity are more likely to be significant;*
- *Effects on people at recognised and important viewpoints or from recognised scenic routes are more likely to be significant; and*
- *Large-scale changes which introduce new,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

The rationale for each judgement should be clear, demonstrating:

- how susceptibility to change and value together contribute to the sensitivity of the receptor;
- how judgements about scale, extent and duration contribute to the magnitude of effects;
- how the resulting judgements about sensitivity and magnitude are combined to inform judgements about the overall significance of effects.

While all the individual professional judgements to assess the sensitivity of receptors and magnitude of effects require a narrative approach, the overall significance of effect can be rated within a matrix of judgements. The matrix in Table 10 below reflects the 'EIA significance evaluation matrix' illustrated as Figure 6.3 of the 'Special Report – The state of Environmental Impact Assessment Practice in the UK', published by IEMA in 2011. This matrix allows for a range of significance judgements within each box that is supported by a narrative describing the various sensitivity and magnitude elements that combine to form the judgement. All effects can be either adverse or beneficial in nature. Each visual assessment will define in the conclusions what is considered to be a significant effect in terms the ratings tabled below.

Table 7 – Combining judgements of sensitivity with magnitude to derive broad ratings of visual significance



The implications of the effects on visual amenity resulting from the proposed development are described below. Adverse effects can be reduced or moderated by effective mitigation measures.

'Major adverse or beneficial' – Permanent or long term change to key elements such that the local or wider visual amenity is substantially affected in an adverse or beneficial way. Potential mitigation measures would be ineffective to prevent adverse effects, but very effective in promoting beneficial effects.

'Moderate adverse or beneficial' – Permanent or temporary detrimental or beneficial change to key elements, or permanent change to less important elements such that visual amenity is moderately

affected in an adverse or beneficial way. Potential mitigation measures would moderate effects to a minor degree.

'Minor adverse or beneficial' – Permanent or temporary detrimental or beneficial change to minor elements such that visual amenity is slightly affected in an adverse or beneficial way. Potential mitigation measures would moderate effects to a major degree.

'Negligible' – Minor change to minor elements such that the visual amenity is barely affected in either an adverse or beneficial way.

'Neutral' – Change that does that result in any perceptible affects on visual amenity.

Application of mitigation measures and Statement of Residual Effects

After the initial significance of effect is judged for each visual receptor, measures are introduced to mitigate adverse effects in the design reiteration and the assessment process is repeated. Mitigation measures are proposed to prevent/avoid, reduce and where possible offset/remedy/compensate. This sequence forms the 'mitigation hierarchy'. Mitigation or enhancement measures should be deliverable. When all mitigation measures are exhausted and the assessment of impacts re-run, the final statement of likely residual effects is prepared.

ASSESSING CUMULATIVE VISUAL EFFECTS

Definitions

Paragraph 7.2 of GLVIA3 describes cumulative landscape and visual effects as those that:

'... result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other development (associated with or separate to it), or actions that occurred in the past, present or are likely to occur in the reasonable future'.

Paragraph 7.5 of GLVIA3 explains that cumulative landscape assessment is complex and evolving:

'... the challenge is to keep the task reasonable an in proportion to the nature of the project under consideration....it is always important to remember that the emphasis in EIA is on likely significant effects rather than on comprehensive cataloguing of every conceivable effect that might occur...'.

Methodology

Scoping

The scoping process determines what types of cumulative effect are considered:

- only those from projects of the same type as the main project under consideration;
- or include other types of development in the vicinity;
- and/or those that may arise as an indirect consequence of the main project under consideration;
- and/or, in the case of large complex projects, different scheme components or associated and ancillary development that in some cases may require their own planning consent?

The baseline for assessing cumulative visual effects includes any existing development or one that is under construction. The assessment should then consider the effects on the baseline landscape of potential schemes that are at various stages of the development and consenting process including:

- schemes with planning consent;
- schemes that are the subject of a valid planning application that have not yet been determined.

Schemes that are at the pre-planning stage or 'scoping stage' are not generally considered because of the lack of certainty.

Defining a study area

The study area, which should be reasonable and proportional, is agreed with the competent authority at the scoping stage. The zones of visual influence or zones of theoretical visibility of each development potentially creating cumulative visual effects will be overlaid to create a composite map of to define the study area. Reasonable assumptions about the extents of the study area will be made where this information is not available.

Baseline cumulative visual studies

This will be similar to the main assessment, but adjusted to take account of any changes in the extents of the study area.

Predicting cumulative visual effects

The assessment will consider the degree to which the main development will, in combination with other developments, change the existing key characteristics through an incremental effect on elements, features, patterns and quality, or by the addition of new features or the loss of existing features

Cumulative visual effects 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 where the observer has to move to another viewpoint to see different developments. These are likely significant effects rather than a comprehensive catalogue of all conceivable effects. Cumulative effects will be described in relation to the visual receptors identified in the main assessment.

Types of cumulative visual effect (summary based on SNH, 2012)

Generic	*Specific*	*Characteristics*
Combined		
Occurs where the observer is able to see two or more developments from one viewpoint	in combination	Where two or more developments are or would be within the observer's arc of vision at the same time without moving his/her head
	in succession	Where the observer has to turn his/her head to see the various developments – actual and visualised
Sequential		
Occurs when the observer has to move to another viewpoint to see the same or different developments. Sequential effects may be	frequently sequential	Where the features appear regularly and with short time lapses between instances depending on speed of travel

assessed for travel along regularly used routes such as major roads or popular paths		and distance between viewpoints
	Occasionally frequent	Where longer time lapses between appearances would occur because the observer is moving very slowly and/or there are larger distances between the viewpoints

The methodology for assessing impact will essentially mirror that of the main assessment: identify the sensitivity of the receptors by combining judgements of susceptibility to specific change and values ascribed to those receptors; identify the magnitude of effect with reference to size/scale and geographical extents, adjusted by consideration of the duration and magnitude of effects; combine judgements of sensitivity and magnitude and reconsider these after the application of mitigation measure.

Determining the significance of cumulative visual effects

High levels of significance may arise from cumulative visual effects related to:

- developments in close proximity to the main project and clearly visible together in views from selected viewpoints;
- developments that are highly inter-visible, with overlapping ZTVs – even though the individual developments may be at some distance from the main project and from individual viewpoints;
    - in such cases projects may not be particularly significant when viewed individually, but the overall combined cumulative effect at a particular viewpoint may be more significant.

The ratings and matrix of broad ratings are the same for the main assessment. Cumulative adverse effects will always be equal to or greater than effects recorded to the main assessment, by reasons of the following principles:

- When a predicted significant visual effect from the main development is added to a predicted significant effect from another proposed development, the overall effect is considered to be significant and cumulative;
- When a predicted significant visual effect from the main development is added to a predicted non-significant effect from another proposed development, the overall effect is considered to be significant and cumulative, but is attributed to the main development only;
- When a predicted non-significant visual effect from the main development is added to predicted significant effect from another proposed development, the overall effect is considered to be significant and cumulative, but is attributed to other proposed development;
- When a predicted non-significant visual effect from the main development is added to a predicted non-significant effect from another proposed development, the overall effect is still considered to be cumulative and greater than the level of effect for each development individually, but the combined effects may or may not be significant.

The supporting narrative will clearly set out how professional judgments have been made in the same manner as the main assessment.