Design Manual for Roads and Bridges

Sustainability & Environment
Appraisal

LA 107
Landscape and visual effects

(formerly DMRB Volume 11 Section 3 Part 5 Landscape Effects and IAN 135/10)

Revision 2

Summary
This document contains the requirements for assessing and reporting the landscape and visual effects of highway projects.

Application by Overseeing Organisations
Any specific requirements for Overseeing Organisations alternative or supplementary to those given in this document are given in National Application Annexes to this document.

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

This is a controlled document.

Contents

Release notes

Version	Date	Details of amendments
2	Feb 2020	Revision 2 (February 2020) Additional update to informative references. Ref 4.I replaces previous Ref 1.I and 5.I. Revision 1 (January 2020) Revision to update references only. Revision 0 (September 2019) LA 107 replaces DMRB Volume 11 Section 3 Part 5 and IAN 135/10. This full document has been re-written to make it compliant with the new Highways England drafting rules.

Foreword

Publishing information

This document is published by Highways England.

This document supersedes DMRB Volume 11, Part 5 Landscape Effects and IAN 135/10 Landscape and visual effects assessment which are now withdrawn. This document makes provision for requirements outlined within EU Directive 2011/92/EU as amended by 2014/52/EU (hereafter referred to as the 2014/52/EU [Ref 3.N]).

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

Construction, improvement, operation and maintenance of motorways and all-purpose trunk roads can result in environmental effects on landscape and the visual amenity.

Development of this document has been influenced by:

1) the UK Government's commitment in ratification of the European Landscape Convention ELC 2000 [Ref 10.N] (hereafter referred to as the Convention), to recognising landscape matters in law, and promoting landscape planning, protection, and management policies;
2) the Convention's ELC 2000 [Ref 10.N] widely adopted definition of landscape which recognises:
   a) landscape as a resource inclusive of townscape;
   b) the relationship between people and place; and
   c) all landscapes are important, irrespective of their location (i.e. natural, rural, urban, and peri-urban areas) or condition (i.e. outstanding or degraded);
3) Landscape Institute and IEMA's Guidelines for Landscape and Visual Impact Assessment GLVIA [Ref 1.I]; and
4) Landscape Institute's Technical Information Notes (i.e. Townscape Character Assessment, LI TN 05/2017 [Ref 3.I], Landscape Character Assessment, (Technical Info Note 08/15 [Ref 2.I]) and their visualisation information guidance (Advice on photography and photomontages, and Visual representation of development proposals, TGN 06/19 [Ref 4.I]).

This document aligns with Directive 2011/92/EU as amended by 2014/52/EU [Ref 3.N]

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 7.N] apply to this document.

Abbreviations

Abbreviations

Abbreviation	Definition
EIA	Environmental Impact Assessment
ELC	European Landscape Convention
EMP	Environmental Management Plan
ES	Environmental Statement
GLVIA	Guidelines for Landscape and Visual Impact Assessment
HEMP	Handover Environmental Management Plan
IEMA	Institute of Environmental Management and Assessment
LCA	Landscape Character Area
LI	Landscape Institute
LMP	Landscape Management Plan
LVIA	Landscape and Visual Impact Assessment
NPA	National Parks Authority
PRoW	Public Rights of Way
SLA	Special Landscape Areas
TGN	Technical Guidance Note (Landscape Institute)
TIN	Technical Information Note (Landscape Institute)
VED	Visual Effects Drawing
VES	Visual Effects Schedule
VIA	Visual Impact Assessment
ZTV	Zone of Theoretical Visibility
ZVI	Zone of Visual Influence

Terms and definitions

Terms and definitions

Term	Definition
Baseline studies	Work to provide an outline, understanding of landscape and visual conditions before or without implementation of the project requiring a mix of desk study consultation and field work.
Characteristics	Elements or combination of elements, which make a particular contribution to distinctive character.
Cumulative effects	Impacts resulting from incremental changes caused by other present or reasonably foreseeable actions likely to occur together with the project. NOTE: For the purposes of this document, a cumulative effect can arise as the result of: 1) specific impacts from a single project on a single receptor/resource; and/or 2) the combined impact of a number of different projects (in combination with the environmental impact assessment) on a single receptor/resource.
Effect	Term used to express the consequence of an impact (expressed as the 'significance of effect').
Enhancement	A beneficial measure that is over and above what is required to mitigate the adverse effects of a project.
Environmental assessment	A process by which information about environmental effects is collected, assessed and used to inform decision-making. NOTE: This can include Environmental Impact Assessment and non-statutory environmental assessment.
Environmental factors	1) Population and human health; 2) Biodiversity; 3) Land, soil, water, air and climate; 4) Material assets, cultural heritage, and landscape; 5) The interaction between the factors listed above (2014/52/EU [Ref 3.N]).
Features	Particularly prominent, "eye-catching" elements or characteristic components (i.e.tree clumps, church towers, or wooded skylines).

Terms and definitions (continued)

Term	Definition
Handover environmental management plan	Package of information on existing and future environmental commitments and objectives, ongoing actions and risks to be managed, handed over to those responsible for future management and operation of the asset.
Impact	Action being taken. NOTE 1: Source of definition GLVIA 3 GLVIA [Ref 1.I]. NOTE 2: For consistency within LVIA "impact" cannot be used interchangeably with "effect" nor to mean a combination of several effects.
Landscape	'An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.' ELC 2000 [Ref 10.N] NOTE 1: About the relationship between people and place. NOTE 2: Inclusive, covering natural, rural, urban, and peri-urban areas and applies not only to special or designated landscapes or countryside but to everyday or degraded landscapes. NOTE 3: A resource that 'results from the way that different components of our environment - natural and cultural - interact together and are perceived'. Source of definition GLVIA 3 GLVIA [Ref 1.I].
Landscape Architect	Competent expert to mean: 1) Chartered Member of the Landscape Institute (CMLI) or; 2) member of a recognised equivalent landscape professional body.
Landscape character	A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Landscape character area	Single unique areas "which are the discrete geographical areas of particular landscape type." NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I] .
Landscape character assessment	Process of identifying and describing variation in character of the landscape - the unique combination of elements and features that make landscapes distinctive - to assist in managing change in the landscape. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].

Terms and definitions (continued)

Term	Definition
Landscape character type	Distinct types of relatively homogeneous landscape, generic in nature but "...share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetics attributes." NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Landscape component	Interplay of physical, natural and cultural factors of our surroundings.
Landscape effects	The consequence of an impact (expressed as the 'significance of effect') on the landscape as a resource in its own right. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Landscape elements	Individual parts of the landscape include physical influences (geology, soils, landform, drainage, and water bodies); land cover (different types of vegetation, patterns, and types of tree cover); and human influences (land use and management, character of settlements of buildings, and pattern and type of fields and enclosure). NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Landscape establishment period	A period after initial planting requiring intervention such as weed control to allow for successful plant establishment. NOTE: Establishment period is also often referred to as the aftercare period.
Landscape management plan	Sets out sustainable management and upkeep requirements of the landscape within a particular area.
Landscape quality (or condition)	Measure of the physical state of the landscape based on judgements, which can include typical character represented in individual areas, integrity of the landscape, and condition of individual elements. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Landscape receptor	Defined aspect of the landscape resource that potentially could be affected by the project. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Landscape resource	Natural and physical attribute (i.e. soils vegetation).
Landscape sensitivity	Applied to specific landscape receptors, combining judgements of the susceptibility of the receptor to the specific type of change proposed and the value related to the receptor. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].

Terms and definitions (continued)

Term	Definition
Landscape and visual impact assessment (LVIA)	A "... tool used to identify and assess the significance of and the effects of change resulting from..." a project on both the landscape as a resource and on people's views and visual amenity. NOTE: Source of definition GLIVA 3 GLVIA [Ref 1.I].
Magnitude of effects	Combines judgements about size and scale of effect, extent of area it occurs over, whether reversible or irreversible and whether short or long term in duration. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Project	Construction works, installations, schemes, or interventions (in the natural surroundings and landscape) including those involving the extraction of mineral resources.
Setting	Contribution of the surroundings to the appearance of an area or feature and the interrelationship of the area or feature to the wider context and sense of place.
Scoping	The process of considering the information required for reaching a (reasoned) conclusion on the likely significant effects of a project on the environment.
Sense of place	The essential character and spirit of an area (genius loci - spirit of the place).
Sensitivity	Term applied to specific receptors, combining judgements of the susceptibility of the receptor to specific type of change proposed and the value related to that receptor. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Susceptibility	Ability of a defined landscape or visual receptor to accommodate the specific proposed change without negative consequences. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Townscape (urban environment)	The landscape within the built-up area, including the buildings, urban open spaces, including green spaces and the relationship between buildings and between buildings and open spaces. NOTE 1: Important relationships of landscape and townscape, often of historic dimensions, contribute to the urban form and character. NOTE 2: Source of definition GLVIA 3 GLVIA [Ref 1.I]

Terms and definitions (continued)

Term	Definition
Value	Relative value or importance of a landscape's quality, special qualities including perceptual aspects such as scenic beauty, tranquillity, or wildness, cultural associations or other conservation issues. NOTE 1: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Visual amenity	Overall enjoyment of a particular area, surroundings, or views in terms of people's activities - living, recreating, travelling through, visiting, or working. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Visual envelope	An area from which the scheme can be visible.
Visual receptor	Individuals and/or defined groups of people who potentially could be affected by a project. NOTE: Source of definition GLVIA 3 GLVIA [Ref 1.I].
Visual sensitivity	Visual experience be it sensitivity to light or visual clutter.
Zone of theoretical visibility	Map produced (usually digitally) to specific criteria to illustrate the area(s) from which a project can theoretically be visual. NOTE: For cumulative visual effects assessment it is the areas of overlap with the ZTV which can prove significant.
Zone of visual influence	Area within which a proposed development can have an influence or effect on visual amenity. NOTE: This is different from the visual envelope.

1. Scope

Aspects covered

1.1 The requirements in this document shall be applied to the assessment, reporting and management of environmental effects on landscape and visual amenity from the delivery of projects.

1.2 Environmental assessments shall describe the likely impacts on the landscape as a resource, and visual amenity in line with the wider requirements and advice provided in;

1) LA 101 [Ref 6.N] Introduction to environmental assessment;
2) LA 102 [Ref 9.N] Screening projects for Environmental Impact Assessment;
3) LA 103 [Ref 8.N] Scoping projects for environment assessment; and
4) LA 104 [Ref 4.N] Environmental assessment and monitoring.

1.3 Environmental assessments must, in accordance with Annex IV of the EIA Directive 2014/52/EU 2014/52/EU [Ref 3.N], identify, describe and assess the likely significant effects of a project on the landscape (i.e. the direct and indirect change to the landscape character, the landscape quality/condition, and the visual amenity and visual receptors).

NOTE 1 *In undertaking landscape and visual assessment (LVIA), an understanding of the interaction between environmental factors and their effect on landscape elements (i.e. individual parts of the landscape such as human influences, land cover and physical influences) is necessary, see GLVIA 3 GLVIA [Ref 1.I].*

NOTE 2 *The LVIA process does not differentiate between "landscape" and "townscape", as it is applicable to any landscape - urban, rural or a combination of both, see GLVIA 3 GLVIA [Ref 1.I].*

NOTE 3 *For townscape assessment the Landscape Institute have developed a Technical Information Note (TIN) "Townscape Character Assessment" specifically for undertaking a character assessment for "townscape" LI TN 05/2017 [Ref 3.I].*

1.4 LVIA shall be clear about the distinction between the following two elements:

1) effects on the landscape as a resource; and
2) effects on views and visual amenity.

NOTE 1 *Effects on landscapes of historical, cultural or archaeological significance are assessed in LA 106 [Ref 2.N] Cultural heritage assessment.*

NOTE 2 *Effects on nature conservation and biodiversity are assessed in LA 108 [Ref 1.N] and LA 115 [Ref 5.N] Habitats Regulations assessment.*

Implementation

1.5 This document shall be implemented forthwith on all projects involving landscape and visual effects on the Overseeing Organisations' motorway and all-purpose trunk road network according to the implementation requirements of GG 101 [Ref 7.N].

Use of GG 101

1.6 The requirements contained in GG 101 [Ref 7.N] shall be followed in respect of activities covered by this document.

2. Principles and purpose

Assessment and consultation

2.1 The iterative planning, design and assessment process shall include analysis of the landscape and character of a site as well as its visual amenity and its context to minimise landscape and visual effects.

2.2 Landscape design shall seek:

1) to deliver excellence in design quality that responds to the needs of people and places, while complying with the Overseeing Organisation's design vision and principles; and
2) to deliver an inclusive, resilient and sustainable design solution.

2.3 LVIA, as a key tool to effective decision making that includes landscape character assessment, shall be undertaken by a Landscape Architect.

2.4 Baseline studies shall establish the landscape and visual conditions, potential constraints (i.e. sensitive landscapes - designated sites or locally valued areas) and possible design opportunities (i.e. use of existing land-form/topography to better integrate the design) to inform the design process.

2.5 LVIA application of the term 'sensitivity', as defined in terms and definitions, shall be applied throughout this document.

2.6 Assessment of the project's potential effects against the baseline situation shall examine and assess:

1) seasonal differences with or without the project including summer with foliage and winter without foliage;
2) both day and night time situations with or without the project;
3) a winter scenario in the year of opening, and a summer scenario - fifteenth year of operation to traffic;
4) landscape character types and/or landscape character areas; and
5) the opinions and consensus of the local public and different interest groups, their perception of the landscape, the value they place it and assessment of the change the project will incur.

2.7 The effect of a project on the landscape and visual amenity shall be assessed independently and the outcome combined to a single conclusion of the likely significant effect on landscape and visual amenity.

2.8 Consultation about the impact on the landscape and visual amenity shall be undertaken in accordance with the the Overseeing Organisation's requirements and LA 104 [Ref 4.N] and LA 103 [Ref 8.N].

NOTE 1 *Consultation includes stakeholders likely to be affected by the project, or are aware of certain information or issues to assist the design and assessment (i.e. concerns regarding local sensitivity).*

NOTE 2 *Consultation includes the appropriate statutory body responsible for primary, definitive source of policy, information and opinion on statutory protected landscape.*

2.9 Qualitative judgements used in landscape impact assessment and visual impact assessment shall be clear and transparent so as the reasoning applied at different stages can be understood.

NOTE *Aspects of LVIA are objective (i.e. landscape character assessment), however, many require professional judgement (i.e. determining landscape quality or condition, ascertaining magnitude level of change).*

3. Assessment methodology

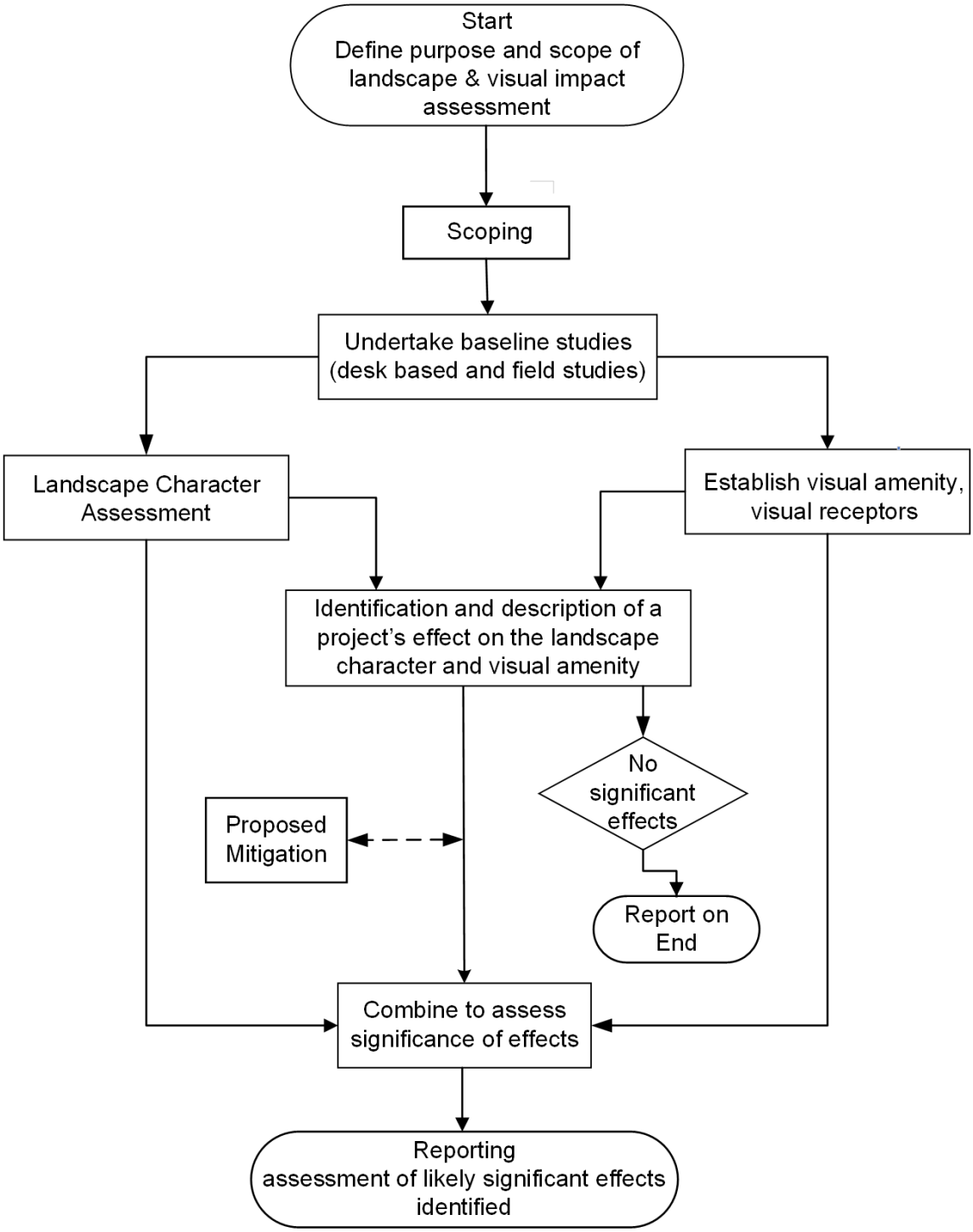
Overview

3.1 LVIA shall identify and assess the significance of and the effects of change of a project on the landscape as a resource, and people's views and visual amenity as part of the iterative steps in assessment and design development, GLVIA 3 GLVIA [Ref 1.I].

3.2 LVIA whether undertaken as part of a statutory Environmental Impact Assessment or non-statutory environmental assessment shall apply to all projects and be informed by these key iterative steps:

1) defining the purpose and scope of assessment;
2) undertaking a desk based study;
3) undertaking a field study to support the assessment; and
4) classification/description of landscape character types/areas, establishing the visual amenity and visual receptors.

Figure 3.2 Steps in assessment levels for landscape and visual effects



3.3 Scoping of landscape and visual effects shall establish principles of good design and best practice measures when reporting likely significant effects.

3.4 The assessment of the likely significant effects shall be informed by:

1) the sensitivity of the landscape receptor (susceptibility to changes combined with value of the receptor) and the magnitude of effects on the landscape (change - scale, extent, duration); and
2) the sensitivity of a visual receptor (susceptibility to changes in views combined with values of the receptor) and magnitude of effects (change - scale, extent, duration) GLVIA 3 GLVIA [Ref 1.I].

3.4.1 The assessment of susceptibility to change should be tailored to the project.

NOTE *A possible example could be where receptors with prominent views towards the highway infrastructure are more likely to have a low susceptibility to change of a project, than receptors with no existing views towards the highway infrastructure which are more likely to have a high susceptibility to change.*

3.4.2 Assessment and reporting of the impacts on the landscape resource, and views and visual amenity from temporary construction works, should follow the wider advice and requirements found in LA 104 [Ref 4.N].

3.5 Baseline information (desk based studies, consultation, field studies) shall be informed by:

1) identifying the local and wider landscape likely to be affected (i.e. character, condition, constituent elements, experience of it, geographical extent, history, its value);
2) identifying the different landscape and visual receptors likely to be affected;
3) identifying the visual amenity and views likely to be affected (i.e. ZTV to identify areas visibly connected with the proposal); and
4) utilising data obtained from a range of relevant sources (i.e. statutory environmental bodies, local authorities, and/or National Park Authorities).

3.5.1 Visualisation (i.e. computer simulation, digital technology, photographs, photomontages, etc.) is important in communicating information and should be proportionate and accord with the Overseeing Organisation's requirements.

3.6 An overall assessment of the likely significance of the cumulative landscape and visual effects required by LVIA shall provide clear evidence and justifications as to inform the professional judgements made.

3.7 Overlaps in assessment shall be identified and clearly cross-referenced as to where the assessment is being reported.

NOTE *For example, the installation of noise screening can have visual implications whereas screen planting can disturb archaeological remains or conflict with wildlife considerations.*

Assessment of landscape effects

Scoping

3.8 LVIA scoping assessment shall identify and report on:

1) the likely nature, extent and scale of the project to determine effects of change and development;
2) the likely nature and scale of landscape effects (positive, neutral or negative) during the construction and operation of the project;
3) the likelihood of the project to affect the aesthetic and perceptual aspects of the landscape, its distinctive character and its elements; and
4) issues likely to require further assessment together with the methods to be applied.

3.9 The scoping assessment shall identify potential significant effects by answering the following questions to gain an understanding of the need to undertake further landscape assessment:

1) is the project likely to affect designated landscapes (statutory or local designation)?;
2) is the project likely to affect the distinctiveness of a landscape character area or type?;
3) is the project likely to affect national, regional or local characteristics or distinctive features?;

4) is the project likely to affect the condition or quality of a landscape?;
5) is the project likely to affect the intrinsic character, qualities and local identity of the urban environment (sense of place)?

3.10 Where the response to one or more of the scoping assessment questions is 'yes', further assessment shall be undertaken.

NOTE *A positive response to the queries above would indicate potential significant effects.*

Study area

3.11 The study area shall be identified on a project by project basis and be proportionate to the following factors:

1) the project boundary/construction activity (including compounds and temporary land take);
2) the wider landscape setting within which the project/its works has the potential to influence;
3) the extent of the area visible by the project; and
4) the full extent of adjacent or affected landscape receptors of special value (i.e. conservation areas, designated areas) whose setting can be influenced by the project.

Baseline scenario

3.12 The scale of landscape character assessment information required to provide a basis for LVIA shall be established at the outset.

3.13 Baseline studies, appropriate and proportionate to the context of the project, shall establish the relative value of the areas of landscape to be affected, either as a whole or individual components that contribute to its character.

3.14 Baseline studies shall identify important characteristics of the landscape including:

1) a description of the landscape receptors that make up the landscape to include night-time characteristics, geological, habitat, as well as historic and cultural landscape features;
2) a description of the aesthetic and perceptual characteristics contributing to the landscape's distinctive character (i.e.pattern, scale, tranquillity, wildness);
3) the condition or quality of the landscape;
4) its importance and/or value (i.e. national parks, Special Landscape Areas (SLAs), local importance or value); and
5) influences of past and future trends and forces for landscape change (i.e. current pressures causing change, future developments with planning permission, climate change).

3.15 Site surveys shall be appropriate/proportionate to confirm, supplement and update the baseline data obtained (i.e. reports, mapping, aerial photographs) for assessing landscape effects, GLVIA 3 GLVIA [Ref 1.I].

Assessment

3.16 Landscape assessment shall judge the nature of receptors likely to be affected (sensitivity), and the nature of effects likely to occur on the landscape (magnitude) to report on a project's likely significant effects.

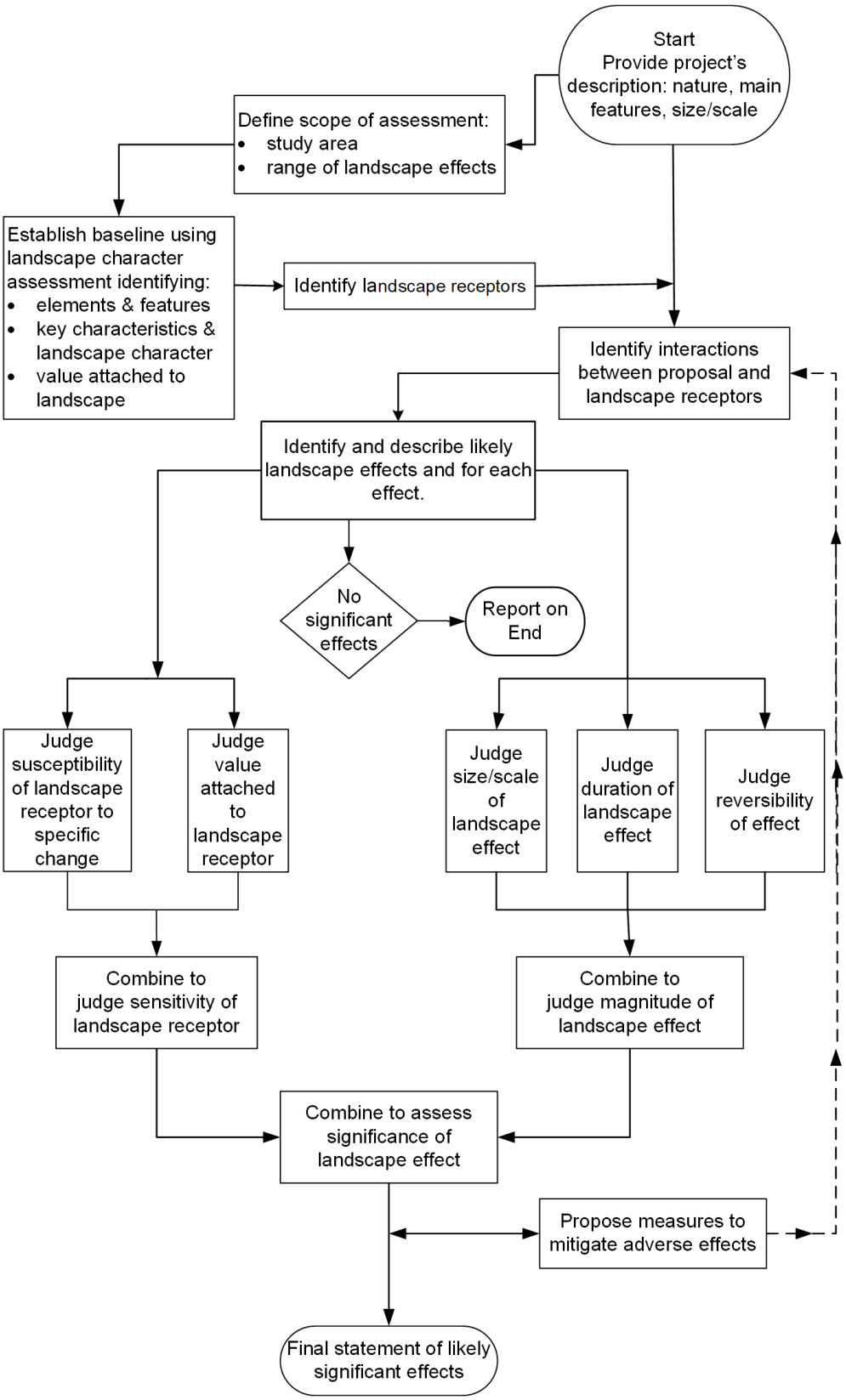
3.17 Landscape character assessment, the key tool to understanding the landscape, shall describe the variation in the landscape's character against the baseline, explaining a project's likely effect on a combination of landscape components, which include:

1) natural/physical (i.e. geology/soils, land form, river/drainage systems, land cover/vegetation, buildings);
2) aesthetic/perceptual (i.e. appearance, architectural styles, scales, tranquillity), and

3) cultural/social (i.e. human interaction, land use, heritage, open spaces, street patterns) that together inform the character of the area.

NOTE *In addition to the requirements of LA 104 [Ref 4.N] Environmental assessment and monitoring, the flow chart (Figure 3.17N) summarises the steps to be taken in undertaking an assessment of landscape effects.*

Figure 3.17N Steps in assessing landscape effects



3.18 Assessment of the sensitivity of landscape receptors shall report on a combined judgement of:

1) the susceptibility of the receptor to the proposed change from the baseline situation; and

2) the value attached to that receptor.

NOTE *A structured approach of identifying and assessing the value of the landscape and its susceptibility to proposed change(s) determines the landscape character distinctiveness, GLVIA 3 GLVIA [Ref 1.I].*

3.19 Assessment of the magnitude of effects on the landscape shall report on a combined judgement of:

1) the size and scale of effect;
2) year 1 (opening year) and year 15 (design year) including summer and winter;
3) the geographical extent of the area to be affected; and
4) the duration of the effect and its reversibility.

Significance criteria

3.20 Reporting the significance of the landscape's sensitivity to change shall include an evaluation of each key landscape element/characteristic affected by the project.

3.21 The significance of the landscape's sensitivity to change shall be informed by its:

1) importance;
2) quality/condition;
3) rarity;
4) value;
5) scale of contribution to the landscape character; and
6) degree to which it can be protected, mitigated, replaced or substituted.

3.22 The landscape sensitivity of receptors/resource in the assessment shall be reported in accordance with the criteria provided in Table 3.22.

Table 3.22 Landscape sensitivity (susceptibility and value) and typical descriptions

Landscape sensitivity (susceptibility and value) of receptor/resource	Typical description
Very high	Landscapes of very high international/national importance and rarity or value with no or very limited ability to accommodate change without substantial loss/gain (i.e. national parks, internationally acclaimed landscapes - UNESCO World Heritage Sites).
High	Landscapes of high national importance containing distinctive features/elements with limited ability to accommodate change without incurring substantial loss/gain (i.e. designated areas, areas of strong sense of place - registered parks and gardens, country parks).
Medium	Landscapes of local or regional recognition of importance able to accommodate some change (i.e features worthy of conservation, some sense of place or value through use/perception).
Low	Local landscape areas or receptors of low to medium importance with ability to accommodate change (i.e. non-designated or designated areas of local recognition or areas of little sense of place).
Negligible	Landscapes of very low importance and rarity able to accommodate change.

NOTE 1 *Whilst designated areas are highly valued, the majority of land is comprised of non-designated areas which can still be of high quality and/or of great local importance.*

NOTE 2 *A landscape in a good state of repair is not necessarily of high quality.*

3.23 Reporting the magnitude of landscape effects (adverse or beneficial) on receptors, the assessment of each effect shall be demonstrated in terms:

1) of size/scale;
2) of geographical extent of influence; and
3) its duration and reversibility.

3.24 The magnitude of effect (change) shall be reported in the assessment in accordance with the criteria provided in Table 3.24.

Table 3.24 Magnitude and nature of effect on the landscape and typical descriptions

Magnitude of effect (change)		Typical descriptions
Major	Adverse	Total loss or large scale damage to existing landscape character or distinctive features or elements; and/or addition of new uncharacteristic, conspicuous features or elements (i.e road infrastructure).
	Beneficial	Large scale improvement of landscape character to features and elements; and/or addition of new distinctive features or elements, or removal of conspicuous road infrastructure elements.
Moderate	Adverse	Partial loss or noticeable damage to existing landscape character or distinctive features or elements; and/or addition of new uncharacteristic, noticeable features or elements (i.e. road infrastructure).
	Beneficial	Partial or noticeable improvement of landscape character by restoration of existing features or elements; or addition of new characteristic features or elements or removal of noticeable features or elements.
Minor	Adverse	Slight loss or damage to existing landscape character of one (maybe more) key features and elements; and/or addition of new uncharacteristic features and elements.
	Beneficial	Slight improvement of landscape character by the restoration of one (maybe more) key existing features and elements; and/or the addition of new characteristic features.
Negligible	Adverse	Very minor loss, damage or alteration to existing landscape character of one or more features and elements.
	Beneficial	Very minor noticeable improvement of character by the restoration of one or more existing features and elements.
No change		No noticeable alteration or improvement, temporary or permanent, of landscape character of existing features and elements.

3.25 The approach to deriving impact significance from receptor/resource sensitivity (susceptibility and value) and magnitude of effects shall be in accordance with the Table 'Significance categories and typical descriptions', set out in the Environmental assessment methodology section of LA 104 [Ref 4.N].

3.26 The approach to deriving impact significance from landscape sensitivity and magnitude of effects shall be based on the significance matrix within the Environmental assessment methodology section of LA 104 [Ref 4.N] and include evidence to support any professional judgements that have been made.

3.26.1 For landscape, LVIA's term for sensitivity should apply to read - 'Landscape sensitivity (susceptibility and value)' instead of 'Environmental value (sensitivity)', as set out in the Environmental assessment methodology section of LA 104 [Ref 4.N].

3.27 Reporting the assessment shall state whether or not a project is likely to give rise to significant landscape effects and the significance of the effect (i.e. large or slight, adverse or beneficial, temporary or permanent).

NOTE *Significant effects comprise of effects that are/remain within the moderate, large or very large categories once design development has identified the necessary mitigation to be taken into account.*

Assessment of visual effects

Scoping

3.28 Visual impact scoping assessment shall identify and report on:

1) the likely nature, extent and scale of the project to determine effects of change and development;
2) the likely nature and scale of effects (positive, neutral or negative) on views and visual receptors during the construction and operation of the project;
3) the likelihood of the project to result in significant visual effects; and
4) issues likely to require further assessment together with the methods to be applied.

3.28.1 The assessment scope, to include identification of representative viewpoints and/or visual receptors should, in accordance with the Overseeing Organisation's requirements, be agreed with the relevant local authority.

3.29 The scoping assessment shall identify likely significant effects by answering the following questions to gain an understanding of the need to undertake further visual assessment:

1) is the project likely to affect receptors (individuals or range of people) views and the visual amenity of the area?;
2) is the project likely to affect the sensitivity of views to and from designated and/or valued landscapes, or from public rights of ways, public open spaces or from national trials?;
3) is the project likely to affect a range of viewpoints and nature of views from which the project is visible?;
4) is the project likely to generate significant visual effects (daytime and night time)?

3.30 Where the response to one or more of the scoping assessment questions is 'yes', further assessment shall be undertaken.

Study area

3.31 The study area shall be identified on a project by project basis and proportionate to the following factors:

1) the project/construction visual footprint (including compounds and temporary land take);
2) the wider visual envelope within which the project has the potential to influence;
3) the extent of representative viewpoints visible of the project; and
4) the extent of adjacent or affected visual receptors and the visual amenity of the area that can be influenced by the project.

3.32 The study area and selection of viewpoints shall be agreed with the Overseeing Organisation.

NOTE 1 Viewpoints selected for assessment and illustration of visual effects fall into three broad categories:

1) representative viewpoints - represents the experience of different types of visual receptors, where large numbers of viewpoints cannot be included individually, with similar (unlikely to differ) significant effects;

2) specific viewpoints - key and sometimes promoted viewpoints in noteworthy areas; and

3) illustrative viewpoints - to demonstrate a particular effect or specific issue, GLVIA 3 GLVIA [Ref 1.I].

NOTE 2 Actual visibility can depend on such visual obstructions as buildings, topography, tree cover, as well as elevation, direction and distance of views and light and weather conditions, GLVIA 3 GLVIA [Ref 1.I].

3.33 Relevant local authorities shall be consulted on the study area and selection of viewpoints early in the assessment process.

3.33.1 The study area, using digital methods to identify the ZVI or ZTV, should include the whole of the area from which any part of the proposed project can be visible.

NOTE Map products ZVI or ZTV, are commonly referred to as ZTV with the latter being the desk study component of visibility analysis and used throughout in reference to land from which the proposal could theoretically be visible, GLVIA 3 GLVIA [Ref 1.I].

Baseline scenario

3.34 The baseline shall establish the various categories of visual receptors, their locations and quantity, as well as the sensitivity of each, focusing on information that helps to identify significant visual effects.

3.34.1 Viewpoints selected should be informed not only through discussions with local authorities, but by the ZTV analysis and fieldwork and take account of:

1) accessibility to the public;
2) number and sensitivity of viewers who can be affected;
3) viewing direction, distance (i.e short, medium or long distance views) and elevation;
4) nature of the viewing experience;
5) view type; and
6) cumulative views in conjunction with other projects.

3.35 The ZTV identified for linear infrastructure projects, such as roads, shall be constructed for a sequence of points along the road with heights of structures (i.e. bridges and gantries) and vehicles along with existing screening features built into it to better demonstrate visibility of all aspects.

3.35.1 Mapping existing screening features identified (i.e. tree lines, woodland, industrial/large buildings, etc.) in the ZTV to assist the visibility analysis is difficult to achieve accurately, therefore field surveys should be used to judge their effects.

NOTE The Landscape Institute's advice on photography and photomontage, technical guidance note on visualisation TGN 06/19 [Ref 4.I], together with advice on visual effects within GLVIA 3 (GLVIA [Ref 1.I]), provide information for what can be required for assessment and presentation purposes.

3.36 ZTVs, determined by computer analysis, shall be site verified to ensure accuracy and applicability.

3.36.1 Separate ZTVs may be required in certain circumstances for a project to facilitate determination of the degree of change resulting from the project.

3.36.2 ZTVs should be undertaken under the guidance of or by a Landscape Architect with an understanding of the requirements in undertaking these together with detailed knowledge of the project proposals.

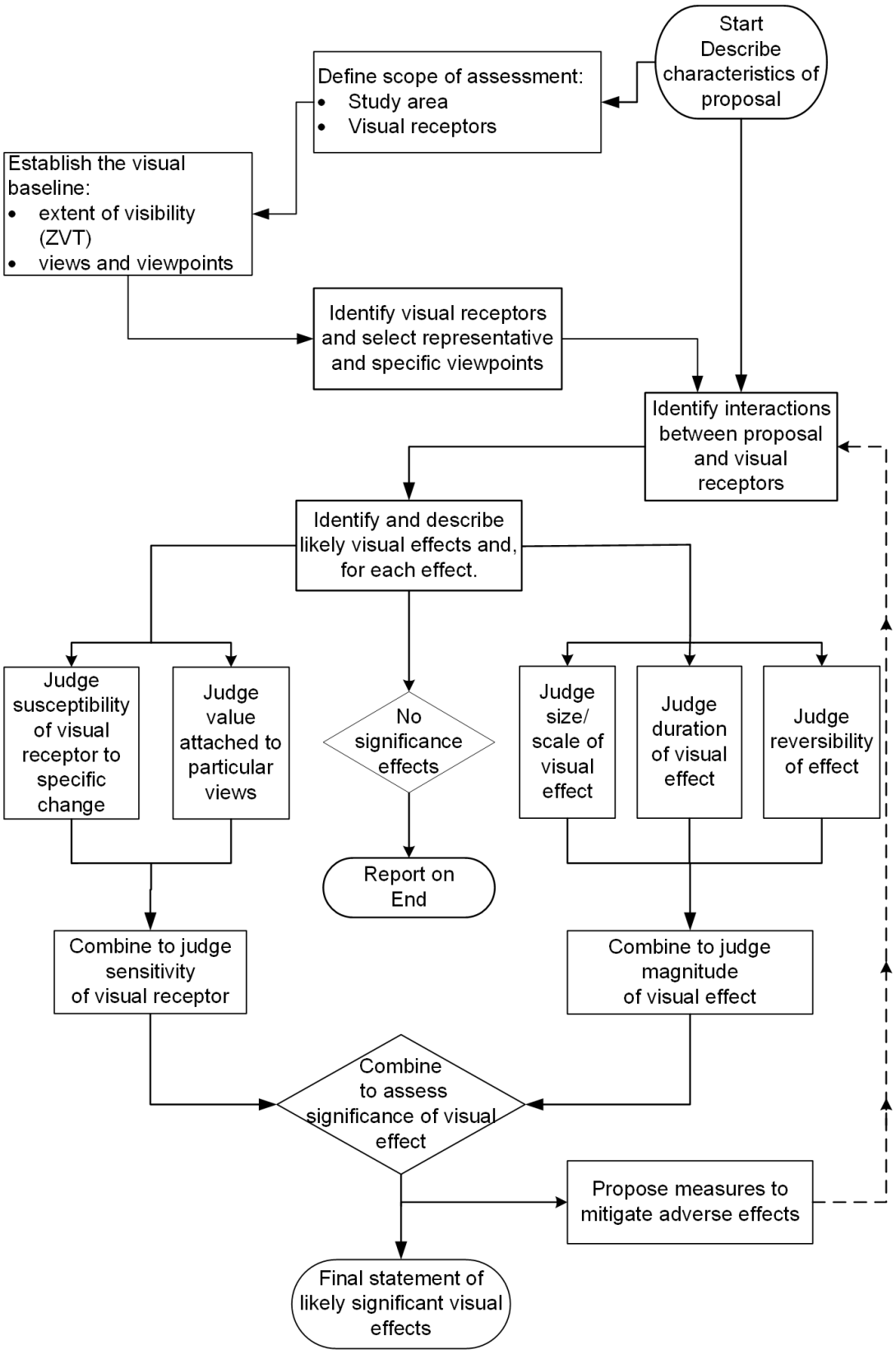
Assessment

3.37 Visual assessment shall record the degree of change in the composition of the view from that which would exist without the project to that which would result as a consequence of the project.

NOTE *Key spatial aspects of visual assessment can be illustrated by means of a ZVI or ZTV plan (or equivalent) together with a visual effects drawing (VED) (or suitable for visualisation) and accompanying visual effects schedule (VES) (depending on the nature of the scheme).*

3.38 The steps in assessing visual effects, as outlined in Figure 3.38 shall be applied to the assessment.

Figure 3.38 Steps in assessing visual effects



3.39 Assessment of sensitivity of the visual receptor shall record judgements of the effect of change in views brought about by the project and its effects on visual receptors in combination with separate projects,

GLVIA 3 GLVIA [Ref 1.I].

NOTE *Determining the susceptibility of different visual receptors to change and the value attached to particular views identified within the ZTV, is of particular importance to the assessment process.*

Significance criteria

3.40 Final judgement of the likely significance of visual effect shall combine judgement of the sensitivity of each visual receptor and the magnitude of their visual effect as a result of the proposed project (Figure 3.38).

3.41 The significance of visual sensitivity shall be reported in the assessment in accordance with the criteria provided in Table 3.41.

Table 3.41 Visual sensitivity (susceptibility and value) and typical descriptions

Sensitivity (susceptibility and value)	Typical descriptions
Very high	1) Static views from and of major tourist attractions; 2) Views from and of very important national/international landscapes, cultural/historical sites (e.g. National Parks, UNESCO World Heritage sites); 3) Receptors engaged in specific activities for enjoyment of dark skies.
High	1) Views by users of nationally important PRoW / recreational trails (e.g. national trails, long distance footpaths); 2) Views by users of public open spaces for enjoyment of the countryside (e.g. country parks); 3) Static views from dense residential areas, longer transient views from designated public open space, recreational areas; 4) Views from and of rare designated landscapes of national importance.
Moderate	1) Static views from less populated residential areas, schools and other institutional buildings and their outdoor areas; 2) Views by outdoor workers; 3) Transient views from local/regional areas such as public open space, scenic roads, railways or waterways, users of local/regional designated tourist routes of moderate importance; 4) Views from and of landscapes of regional importance.
Low	1) Views by users of main roads or passengers in public transport on main arterial routes; 2) Views by indoor workers; 3) Views by users of recreational/formal sports facilities where the landscape is secondary to enjoyment of the sport; 4) Views by users of local public open spaces of limited importance with limited variety or distinctiveness.

Table 3.41 Visual sensitivity (susceptibility and value) and typical descriptions (continued)

Sensitivity (susceptibility and value)	Typical descriptions
Negligible	1) Quick transient views such as from fast moving vehicles; 1) Views from industrial area, land awaiting re-development; 2) Views from landscapes of no importance with no variety or distinctiveness.

NOTE *The flowchart, Steps in assessing visual effects in Figure 3.38, sets out the steps to judging sensitivity; that is to judge susceptibility of the receptor to change and value of the views separately, combining them together to arrive at the sensitivity of the visual receptor or visual sensitivity.*

3.42 Reporting on the magnitude of visual effects shall be informed by the following:

1) scale of change;
2) nature of change;
3) duration of change;
4) distance;
5) screening;
6) direction and focus of the view;
7) year 1 (opening year) and year 15 (design year) including summer and winter;
8) removal of past mitigation or existing vegetation; and
9) whether the receptor is static or moving.

3.43 The magnitude of visual effect shall be reported in the assessment in accordance with the criteria provided in Table 3.43.

Table 3.43 Magnitude (change) of visual effect and typical descriptions

Magnitude (change) of visual effect	Typical descriptions
Major	The project, or a part of it, would become the dominant feature or focal point of the view.
Moderate	The project, or a part of it, would form a noticeable feature or element of the view which is readily apparent to the receptor.
Minor	The project, or a part of it, would be perceptible but not alter the overall balance of features and elements that comprise the existing view.
Negligible	Only a very small part of the project work or activity would be discernible, or being at such a distance it would form a barely noticeable feature or element of the view.
No change	No part of the project work or activity would be discernible.

3.44 The approach to deriving impact significance from visual sensitivity and magnitude of effects shall be based on the Significance matrix as set out in the Environmental assessment methodology section of LA 104 [Ref 4.N] and include evidence to support any professional judgements that have been made.

NOTE Mitigation measures can cause visual intrusion themselves (i.e. environmental barriers, earth mounds, lighting, etc.and/or night time effects).

3.45 For visual sensitivity, 'Environmental value (sensitivity)' LVIA's term for sensitivity shall apply to the vertical column to read instead - 'Visual sensitivity (susceptibility and value)'.

3.46 Assessment of the visual effects of the project and its infrastructure shall include the visual effects of the impacts of any proposed mitigation measures (i.e. environmental barriers, earth mounds, or screening planting).

3.46.1 In determining the magnitude of visual effect (degree of change), it should be agreed prior whether just listing what has been taken into consideration is sufficient or whether some additional explanation is required for clarity.

Cumulative effects

3.47 Cumulative effects, as set out in LA 104 [Ref 4.N] shall establish a project's consequences on key landscape characteristics and visual amenity by examining links between landscape and visual effects, as well as effects identified in other factors (intra-project) and between projects (inter-project).

Design and mitigation

3.48 Design and mitigation hierarchy outlined in LA 104 [Ref 4.N] Environmental assessment and monitoring shall be applied to avoid, reduce or remediate (offset) potential effects on the landscape, views and visual amenity.

3.49 Landscape design shall seek to:

1) reflect the beauty of the natural, built and historic environment through which it passes; and
2) avoid likely significant effects by taking account of the importance and sensitivity of the landscape resource, of views and the visual amenity, their susceptibility and value, to avoid likely significant effects.

3.49.1 Where effects cannot be avoided through alignment/design choices, a mitigation strategy should be developed to reduce the potential effects.

Enhancement

3.50 The LVIA process shall identify enhancement opportunities to form an integral part of project design for improving, reconstructing, and/or restoring the local landscape character and/or visual amenity.

4. Monitoring

4.1 In addition to the requirements found in LA 104 [Ref 4.N], monitoring shall determine the effectiveness of delivery of mitigation measures linked to the landscape or screening commitments agreed as part of the assessment process.

4.2 A handover environmental management plan (HEMP) and/or landscape management plan (LMP), as part of an EMP, shall set out the landscape mitigation measures and commitments agreed to and delivered, together with specific management and/or monitoring requirements over a set period of time stated.

NOTE *A HEMP is an iterative document to be continually updated during the initial environmental and landscape establishment period (aftercare period) and to form the basis for a LMP to agree the management requirements during the routine management period.*

4.3 Monitoring results shall be reported to the Overseeing Organisation and used to update the LMP identifying any necessary non-conforming or remedial actions to be undertaken and the agreed time frame to complete them in.

5. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Highways England. LA 108, 'Biodiversity'
Ref 2.N	Highways England. LA 106, 'Cultural heritage assessment'
Ref 3.N	2014/52/EU, 'Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment'
Ref 4.N	Highways England. LA 104, 'Environmental assessment and monitoring'
Ref 5.N	Highways England. LA 115, 'Habitats Regulations assessment '
Ref 6.N	Highways England. LA 101, 'Introduction to environmental assessment'
Ref 7.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'
Ref 8.N	Highways England. LA 103, 'Scoping projects for environmental assessment'
Ref 9.N	Highways England. LA 102, 'Screening projects for Environmental Impact Assessment'
Ref 10.N	Council of Europe, 2000. ELC 2000, 'The European Landscape Convention (2000)'

6. Informative references

The following documents are informative references for this document and provide supporting information.

Ref 1.I	Routledge. Landscape Institute and the Institute of Environmental Assessment and Management. GLVIA, 'Guidelines for Landscape and Visual Impact Assessment'
Ref 2.I	Landscape Institute. Technical Info Note 08/15 , 'The Landscape Insitute. Technical Information Note 08/15, 'Landscape Character Assessment''
Ref 3.I	Landscape Insitute. LI TN 05/2017, 'Townscape Character Assessment'
Ref 4.I	Landscape Institute. TGN 06/19, 'Visual representation of development proposals'