

**M42 Junction 6 Improvement
Scheme Number TR010027
Volume 6
6.1 Environmental Statement
Chapter 8 – Landscape**

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

January 2019

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms
and Procedure) Regulations 2009**

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**6.1 Environmental Statement
Chapter 8 Landscape**

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8. Landscape

8.1 Competent expert evidence

- 8.1.1 This chapter presents the results of an assessment of likely significant effects of the Scheme on landscape, a term used to describe landscape (and where relevant townscape) character and the visual environment.
- 8.1.2 The assessment has been undertaken and reported by a team of competent experts within AECOM, the quality and completeness of which has been approved by an Associate Director who holds the qualifications of BA (Hons) Geography and MA Landscape Design, and is a Chartered Member of the Landscape Institute (CMLI).
- 8.1.3 They have 30 years of experience in landscape design/consultancy and contribute to, and manage, landscape and visual impact assessments as part of environmental impact assessments (EIA) and landscape design projects. They possess a detailed knowledge of the landscape and visual impact assessment process, as applied to linear infrastructure developments, and have presented evidence at numerous public inquiries.

8.2 Legislative and policy framework

- 8.2.1 The following legislation and planning policy is of direct relevance to the assessment of landscape. Compliance (or otherwise) with statute and policy relating to the protection and enhancement of landscapes, and the features that influence their character, quality and value, is addressed within the Planning Statement [TR010027/APP/7.1].

Town and Country Planning Act 1990

- 8.2.2 The Town and Country Planning Act 1990 [REF 8-1] (as amended) is a key piece of statute that regulates planning and development control in the UK.
- 8.2.3 A review of the baseline conditions within Section 8.6 has confirmed that a large extent of the Scheme would be located within areas of relatively open landscape that are protected from inappropriate development by Green Belt designation.

Planning (Listed Building and Conservation Areas) Act 1990

- 8.2.4 The Planning (Listed Buildings and Conservation Areas) Act 1990 [REF 8-2] (as amended) is the principal statutory instrument relating to the protection of listed buildings and conservation areas.
- 8.2.5 The extent to which these designated areas and features contribute to understanding the historic and cultural value of landscapes associated with the Scheme have been considered in the assessment.

Town and Country Planning (Tree Preservation) (England) Regulations 2012

- 8.2.6 The Town and Country Planning (Tree Preservation) (England) Regulations 2012 [REF 8-3] provide powers to local planning authorities to make and administer Tree Preservation Orders (TPO), the purpose of which is to protect selected trees and woodlands by prohibiting their cutting down, uprooting, topping, lopping, wilful destruction or wilful damage without prior consent.
- 8.2.7 The locations of trees and woodlands protected by TPO that have a relationship to the Scheme have been considered as part of the assessment.

Hedgerow Regulations 1997

- 8.2.8 The Hedgerow Regulations 1997 [REF 8-4] provide protection for Important Hedgerows, these being hedgerows that meet certain criteria in respect of their length, location and importance.
- 8.2.9 The assessment has referenced the findings of the biodiversity assessment (see Chapter 9 Biodiversity), which identifies the relationships between the Scheme and Important Hedgerows, to evaluate their contribution in defining landscape character and understanding how areas of landscape have evolved over time.

National Policy Statement for National Networks

- 8.2.10 The National Policy Statement for National Networks (NPSNN) [REF 8-5] acknowledges that the construction and operation of road infrastructure has the potential to result in effects on landscape and visual amenity, and provides guidance on their identification, assessment and mitigation.
- 8.2.11 The NPSNN [REF 8-5] sets out the matters that the Secretary of State for Transport should give due regard to when determining Development Consent Order (DCO) applications that would affect areas of defined landscape character – particularly those proposed within nationally designated areas – and/or would result in visual impacts on receptors (people who would be affected by changes in views or visual amenity at different places).
- 8.2.12 The requirements of the NPSNN [REF 8-5] in relation to identifying the characteristics, value and importance of designated and undesignated landscapes, and assessing and mitigating the effects of the Scheme on areas of defined (and where relevant historic) landscape character and visually sensitive receptors, have been taken account of in the assessment.
- 8.2.13 In identifying the likely significant effects that the Secretary of State for Transport needs to give due regard to in their decision-making, consideration has also been given to the findings of the noise and vibration assessment (see Chapter 12 Noise and vibration), which can influence the appreciation, experience and tranquillity of the landscape and the overall amenity of its users.

National Planning Policy Framework

- 8.2.14 The National Planning Policy Framework (NPPF) [REF 8-6] sets out the Government's planning policies for England, and provides a framework within which Local Planning Authorities can formulate development plans. A core principle is that planning should recognise the intrinsic character and beauty of the countryside.
- 8.2.15 The NPPF [REF 8-6] acknowledges the importance of: achieving good design by ensuring developments are sympathetic to the local character and settings of landscapes; protecting valued landscapes from inappropriate development; and conserving and enhancing landscapes by encouraging developments to provide wider recreation and biodiversity benefits.
- 8.2.16 The requirements of the NPPF [REF 8-6] have been accounted for in the assessment, with particular emphasis placed on: establishing the value and importance of landscapes and their character-forming components; avoiding, or minimising the extent and duration of, potential landscape and visual effects; and the development of a planting strategy (illustrated in **Figure 8.3 [TR010027/APP/6.2]**) for the Scheme that positively responds to local environmental conditions.

National Planning Practice Guidance

- 8.2.17 The National Planning Practice Guidance (NPPG) for the Natural Environment [REF 8-7] provides context to the NPPF [REF 8-6] and advises on how the consideration of landscape character can inform planning decisions.
- 8.2.18 Further NPPG concerning Light Pollution [REF 8-8] provides related advice on when pollution from artificial lighting introduced by developments should be considered, for example in landscapes characterised as being intrinsically dark or where glare could be introduced in established views.
- 8.2.19 This guidance has been considered by: undertaking desk-based and site-based surveys to define areas of distinctive landscape character and the extent to which artificial lighting currently influences the experience and amenity of visual receptors; assessing the extent to which the Scheme would alter the balance of components within established landscapes and available views; and developing appropriate mitigation measures and agreeing these with relevant statutory bodies.

Solihull Local Plan: Shaping a Sustainable Future

- 8.2.20 The adopted Solihull Local Plan: Shaping a Sustainable Future [REF 8-9] recognises the role that the natural environment has to the economic and social wellbeing of the borough.
- 8.2.21 Policy P10: Natural Environment identifies that development proposals should take full account of national and local guidance concerning landscape, and incorporate measures to protect, enhance and restore landscapes.

- 8.2.22 Policy P14: Amenity acknowledges: the importance of development proposals respecting the amenity of existing occupiers of houses, businesses and other uses; that important trees, hedgerows and woodland should be safeguarded from development; that replacement tree and hedgerow planting should be encouraged as part of new developments; and that areas of dark sky should be protected from the impacts of light pollution.
- 8.2.23 Policy P17: Countryside and Green Belt centres on promoting quality of place, and emphasises that development in areas of Green Belt within the borough will not be permitted except in very special circumstances. Acknowledgment is also given to the importance of the rural setting of villages including Catherine-de-Barnes and Hampton in Arden and the contribution in defining local landscape and townscape character.
- 8.2.24 These local policy requirements have been addressed through the design-development process set out in Chapter 4 Scheme history and alternatives and the outcomes of the assessment. Collectively, these have: considered the need for, and location of, lighting within the Scheme design; examined the relationship of the Scheme to areas of landscape protected by Green Belt designation; sought to minimise the loss of existing vegetation where possible; and resulted in the development of the planting strategy for the Scheme.

North Warwickshire Local Plan

- 8.2.25 The North Warwickshire Local Plan (Submission Version) [REF 8-10] was formally submitted for independent examination in March 2018, and contains policies relating to the conservation, restoration and enhancement of the borough's landscapes.
- 8.2.26 As areas of landscape associated with the north-eastern extents of the assessment's 2km study area (see Section 8.5) extend into the boundary of North Warwickshire, relevant policies within this document have been considered in the assessment.
- 8.2.27 Policy LP14: Landscape seeks to ensure that new development retains existing trees, hedgerows and nature conservation features and strengthens visual amenity through the delivery of hard and soft landscaping.
- 8.2.28 These policy requirements have been addressed in the assessment by considering the potential indirect effects that the Scheme could have on North Warwickshire's landscape character areas (LCAs).

8.3 Assessment methodology

Scope of the assessment

- 8.3.1 A scoping exercise was undertaken in late 2017 to identify the matters to be covered by the landscape and visual impact assessment, and to agree the approach with relevant statutory bodies.

- 8.3.2 The outcomes of the scoping exercise were recorded in a scoping report [REF 8-11], which was consulted upon as part of a formal request to the Inspectorate for a scoping opinion. The scoping report [REF 8-11] included a summary of all assessment work undertaken as part of the design-development of the Scheme up to the point of its publication.
- 8.3.3 The Inspectorate's scoping opinion [REF 8-12] identified a number of additional overarching EIA and topic-specific matters that were subsequently brought into the overall scope of the assessment. These further considerations are detailed in Appendix 5.3 [TR010027/APP/6.3] and include a summary of how Highways England has responded to the points raised, and where the relevant information is presented within this chapter and elsewhere in the Environmental Statement.
- 8.3.4 In addition to the matters raised in the scoping opinion [REF 8-12], the final assessment scope has also been shaped by the following:
- a. the outcomes of consultation with statutory bodies, non-statutory organisations and other stakeholders with an interest in landscape character and the visual environment;
 - b. design changes made to the Scheme in respect of its form and extent, and the area of land required for its construction, operation and maintenance; and
 - c. the outcomes of further desk-based and site-based surveys undertaken to establish the baseline conditions associated with the landscape and visual environment, and to inform the identification of the likely significant effects of the Scheme.
- 8.3.5 Consideration was given to the activities associated with the future maintenance and management of the Scheme, and whether these have the potential to result in significant effects on landscape character and visual amenity. Following a review of the maintenance activities presented in Chapter 3 The project, the process concluded that there would be limited potential of such effects to occur, and that these activities are comparable with standard maintenance operations already being undertaken elsewhere on the strategic and local road networks. Accordingly, the effects associated with this phase of the Scheme were scoped out of the assessment and not considered further.
- 8.3.6 Following a review of the type and location of road lighting incorporated into the design of the Scheme (see Chapter 3 The project), it was determined that night time visual effects would not be significant on visual receptors due to the distance between receptors and the components of the Scheme that would be lit. Furthermore, it was identified that the M42 motorway corridor and development such as the National Exhibition Centre (NEC) and Birmingham Airport are already lit, and are the principal source of light spillage in existing night time views within the landscape. Accordingly, night time visual effects associated with road lighting were scoped out of the assessment.

Assessment guidance

- 8.3.7 The following guidance has been used to inform the scope and content of the assessment, and to assist the identification and mitigation of likely significant effects. This builds upon the overarching EIA methodology and guidance presented in Chapter 5 EIA methodology and consultation.

Design Manual for Roads and Bridges: Interim Advice Note 135/10 Landscape and Visual Effects Assessment

- 8.3.8 Guidance contained within Interim Advice Note (IAN) 135/10 [REF 8-13] has been applied in the assessment to identify the value and sensitivity of landscape and visual receptors, and the impacts and effects that construction and operation of the Scheme would likely result in.

- 8.3.9 As scoping identified a likelihood of significant environmental effects resulting from the Scheme, a detailed assessment has been undertaken in line with this guidance.

Guidelines for Landscape and Visual Impact Assessment (Third Edition)

- 8.3.10 Guidance contained in the third edition of the Guidelines for Landscape and Visual Impact Assessment (GLVIA3) [REF 8-14] has been used in the assessment to supplement the advice and best practice presented in IAN 135/10 [REF 8-13].

- 8.3.11 This guidance has also been referenced to assist in the analysis and evaluation of townscape character, as a component of wider landscape character.

An Approach to Landscape Character Assessment

- 8.3.12 Natural England advice contained within An Approach to Landscape Character [REF 8-15] was used to supplement the guidance and approaches to undertaking landscape character assessment contained in IAN 135/10 [REF 8-13] and GLVIA3 [REF 8-14]

Photography and photomontage in landscape and visual impact assessment: Landscape Institute Advice Note 01/11

- 8.3.13 The techniques and guidance set out in the Landscape Institute's Advice Note 01/11 [REF 8-16] have been applied when undertaking photography to inform the assessment.

Design Manual for Roads and Bridges: Volume 10, Section 0, Part 3 – Landscape elements

- 8.3.14 The planting strategy incorporated into the design of the Scheme has been developed in line with the design guidance contained in the Design Manual for Roads and Bridges: Volume 10, Section 0, Part 3 – Landscape elements [REF 8-17]. The planting strategy is illustrated in **Figure 8.3 [TR010027/APP/6.2]**.

Establishment of the baseline conditions

- 8.3.15 Establishment of the baseline environment has involved reference to existing data sources, consultation with statutory bodies and other organisations, and fieldwork surveys.

Desk studies

- 8.3.16 Information and views concerning the Scheme were obtained from the following organisations:
- Natural England;
 - Solihull Metropolitan Borough Council (SMBC);
 - North Warwickshire Borough Council; and
 - Warwickshire County Council.
- 8.3.17 The following sources of data were obtained from these organisations and reviewed as part of the assessment.
- The National Character Area (NCA) Profile: 97 Arden [REF 8-18] – to identify nationally mapped areas of landscape character and their boundaries in relation to the Scheme;
 - Warwickshire Landscapes Guidelines: Arden [REF 8-19] – to: identify how landscapes associated within the county have changed over time; establish how the key features, elements and components within the landscape combine to create distinctive landscape areas of differing quality and character; and to understand the future management strategies for these areas;
 - Solihull's Countryside – Countryside Strategy: First Review 2010-2020 [REF 8-20] – to understand the strategies developed to protect and enhance the character of different countryside zones relevant to the Scheme; and
 - North Warwickshire Landscape Character Assessment [REF 8-21] – to identify the key characteristics of individual LCAs within the borough and their relationship to the Scheme.
- 8.3.18 These published studies were used to assist in the initial identification of the boundaries, qualities and elements of individual character areas, and their susceptibility to change.
- 8.3.19 Reference was also made to the prevailing policy framework [REF 8-9, 8-10] to identify any designated landscapes of value and their relationship to the Scheme.
- 8.3.20 Other information sources referenced as part of the baseline review included 1:25,000 and 1:10,000 scale Ordnance Survey mapping, 3-dimensional topographical data, and aerial photography available in the public domain.
- 8.3.21 Engagement was also undertaken with Birmingham Airport to inform the development of the planting strategy, as described in the Consultation Report [TR010027/APP/5.1].

Fieldwork

- 8.3.22 Field surveys were undertaken by a qualified and experienced landscape architect on 26 September 2017 to inform the scoping process and record summer season conditions, with further surveys carried out on 6 and 7 March 2018 to record winter season conditions.

- 8.3.23 The purpose of these field surveys was to identify, record and map the following aspects and characteristics of the landscape:
- landcover, pattern and texture;
 - scale and appearance;
 - tranquillity;
 - cultural associations; and
 - human interaction.
- 8.3.24 Attributes recorded as part of the surveys included features and elements associated with the built environment, the historic environment, and areas of managed landscape. Less tangible aesthetics and qualities of the landscape such as background noise and tranquillity were also recorded.
- 8.3.25 An arboricultural survey were undertaken in September 2018 by a suitably qualified and experienced arborist, to identify and map the location, age, species and health of all trees within the Scheme's Order Limits (see Appendix 8.2 [TR010027/APP/6.3]).

Viewpoints and visualisations

- 8.3.26 A preliminary Zone of Theoretical Visibility (ZTV) was developed to inform the scoping of potential landscape and visual effects, the purpose of which was to:
- assist the identification of an assessment study area;
 - identify the maximum theoretical extents of Scheme visibility i.e. the locations from which the Scheme and its associated traffic could potentially appear in existing views; and
 - identify a number of locations (viewpoints) to be assessed that are representative of the experience afforded to different types of visual receptor.
- 8.3.27 The preliminary ZTV was created using GIS software to create a 3-dimensional digital model of the Scheme, overlaid onto a digital terrain model (DTM) based on the Ordnance Survey (OS) Terrain 5 dataset. The visibility extents were defined by placing points along the Scheme at intervals not exceeding 50m, and assuming: a viewer's height of 1.5m; and viewers from cars and heavy goods vehicles would be from 1.5m and 4.5m respectively. The modelling process also included 3-dimensional data to represent built form (of a height of 7.5m), and woodland areas (of a height of 12.5m) which could potentially screen or filter views of the Scheme.
- 8.3.28 A total of 23 representative viewpoints were then identified within the preliminary ZTV extents. These included residential areas, public rights of way (PRoW), roads, commercial land and property, and recreational facilities. Information relating to the landscape and visual environment gathered as part of the earlier stages of Scheme design-development was also referenced in the scoping exercise.

- 8.3.29 The preliminary ZTV was updated as part of the assessment process in 2018 to identify whether changes to the Scheme arising from its continued design-development would alter the maximum extents of visibility previously modelled. The final ZTVs are illustrated in **Figure 8.5 [TR010027/APP/6.2]** (assuming the viewer can view a vehicle at 1.5m in height) and **Figure 8.6 [TR010027/APP/6.2]** (assuming the viewer can view a vehicle at 4.5m in height).
- 8.3.30 A review was also undertaken of the viewpoints identified as part of the scoping exercise, presented in the scoping report [REF 8-11], to verify that these receptors remained representative of locations likely to experience visual change as a consequence of Scheme progression.
- 8.3.31 The 23 viewpoints identified in the scoping report [REF 8-11] (Viewpoints A to W) were discussed with SMBC on 1 February 2018 and were presented as being representative of the existing visual environment. Following review and design-development of the Scheme, additional viewpoints (Viewpoints AA, BB, CC, EE and FF) were requested by SMBC and these were subsequently brought into the assessment scope.
- 8.3.32 Consultee responses from The Canal and River Trust received as part of the scoping opinion [REF 8-12] requested that an additional viewpoint (Viewpoint DD) be included in the assessment scope from the Grand Union Canal in Catherine-de-Barnes, as this is considered to be an important recreational receptor. This location was accordingly surveyed as part of the March 2018 field surveys, and these established that no views towards the Scheme would be available to users of the canal. Accordingly, this additional receptor was scoped out of further consideration in the assessment.
- 8.3.33 Following refinements made to the Scheme during the design-development process in early 2018, two viewpoints (Viewpoints O and P) from a PRoW to the west and east of the M42 motorway (north of Shadowbrook Lane) were examined and subsequently removed from the assessment, due to their distance and orientation away from the Scheme.
- 8.3.34 Around this period, a further two viewpoints (Viewpoints X and Z) were identified by the assessment team and were brought into the assessment scope due to the form and nature of the Scheme's design changes.
- 8.3.35 The final list of viewpoints evaluated in the visual assessment is presented in Appendix 8.1 [**TR010027/APP/6.3**]. This includes viewpoints that represent grouped effects associated with multiple individual receptors, such as those located within areas of settlement who have comparable views.
- 8.3.36 Six of the assessed viewpoints (viewpoints BB, C, I, R, T and Z) were developed into detailed visualisations (photomontages) to visually demonstrate the nature or extent of likely visual impact, to illustrate a particular issue, or to demonstrate the effectiveness of the planting strategy. These locations were selected by the assessment team as they provided a wide representation of the types of views available from a range of locations and receptors, from which different components of the Scheme would emerge as new features in existing views.

8.3.37 A further three locations (viewpoints GG, HH and II) were also developed into visualisations to inform the design-development process. Although these locations were not identified or agreed as viewpoints for consideration in the assessment, the visualisations have been presented alongside the six assessed visualisations for completeness, all of which are presented in **Figure 8.7a to 8.7i [TR010027/APP/6.2]**.

Sensitivity of the landscape and visual environment

8.3.38 The sensitivity of the landscape and the visual environment has been established through the identification and evaluation of the susceptibility of LCAs and visual receptors to changes arising from the Scheme, and the value attached to these.

8.3.39 Susceptibility relates to the ability of a landscape or visual receptor to accommodate change without undue consequences.

8.3.40 Landscape value is typically defined through the process of landscape character assessment and is influenced by factors such as: condition; rarity; scenic quality; perceptual aspects; and presence of formal designation. Conversely, value in visual terms is inherently more subjective and can vary between individuals; however, considerations can include whether the view is: of or from important heritage assets; afforded its own designation or is from a designated landscape; or named or promoted (such as those found in guidebooks and tourist literature).

8.3.41 Sensitivity has been determined using the criteria presented in **Table 8.1**, which derive from the guidance presented in IAN 135/10 [REF 8-13] and GLVIA3 [REF 8-14], which take account of the above factors.

Table 8.1: Criteria for landscape and visual sensitivity

Sensitivity	Description (Landscape)	Description (Visual)
High	<p>Landscapes which by nature of their character would be unable to accommodate change of the type proposed. Typically these would be:</p> <ul style="list-style-type: none"> Of high quality with distinctive elements and features making a positive contribution to character and sense of place. Likely to be designated, but the aspects which underpin such value may also be present outside designated areas, especially at the local scale. Areas of special recognised value through use, perception or historic and cultural associations. Likely to contain features and elements that are rare and could not be replaced. 	<p>Residential properties.</p> <p>Users of PRoW or other recreational trails (e.g. national trails, footpaths, bridleways etc.).</p> <p>Users of recreational facilities where the purpose of that recreation is enjoyment of the countryside (e.g. Country Parks, National Trust or other access land etc.)</p>

Sensitivity	Description (Landscape)	Description (Visual)
Moderate	<p>Landscapes which by nature of their character would be able to partly accommodate change of the type proposed. Typically these would be:</p> <ul style="list-style-type: none"> • Comprised of commonplace elements and features creating generally unremarkable character but with some sense of place. • Locally designated, or their value may be expressed through non-statutory local publications. • Containing some features of value through use, perception or historic and cultural associations. • Likely to contain some features and elements that could not be replaced. 	<p>Outdoor workers.</p> <p>Users of scenic roads, railways or waterways or users of designated tourist routes.</p> <p>Schools and other institutional buildings, and their outdoor areas.</p>
Low	<p>Landscapes which by nature of their character would be able to accommodate change of the type proposed. Typically these would be:</p> <ul style="list-style-type: none"> • Comprised of some features and elements that are discordant, derelict or in decline, resulting in indistinct character with little or no sense of place. • Not designated. • Containing few, if any, features of value through use, perception or historic and cultural associations. • Likely to contain few, if any, features and elements that could not be replaced. 	<p>Indoor workers.</p> <p>Users of main roads (e.g. trunk roads) or passengers in public transport on main arterial routes.</p> <p>Users of recreational facilities where the purpose of that recreation is not related to the view (e.g. sports facilities).</p>

Magnitude of impact criteria

- 8.3.42 The magnitude of impact on the landscape and visual environment has been established in relation to the extent that the Scheme would directly or indirectly affect the character and components of individual LCAs, and the extent to which the Scheme would emerge in existing views.
- 8.3.43 The identification of impacts takes account of all embedded and standard mitigation measures described in Section 8.8.
- 8.3.44 The criteria contained within IAN 135/10 [REF 8-13] have been adopted in the assessment to identify the magnitude of impact (adverse or beneficial) that the Scheme is likely to have on landscape character and its component features and elements. These criteria are reproduced in **Table 8.2**.

Table 8.2: Magnitude of landscape impact criteria

Magnitude of Impact	Description (Landscape)
Major adverse	Total loss or large scale damage to existing character or distinctive features and elements, and/or the addition of new but uncharacteristic conspicuous features and elements.
Moderate adverse	Partial loss or noticeable damage to existing character or distinctive features and elements, and/or the addition of new but uncharacteristic noticeable features and elements.
Minor adverse	Slight loss or damage to existing character or features and elements, and/or the addition of new but uncharacteristic features and elements.
Negligible adverse	Barely noticeable loss or damage to existing character or features and elements, and/or the addition of new but uncharacteristic features and elements
No change	No noticeable loss, damage or alteration to character or features or elements.
Negligible beneficial	Barely noticeable improvement of character by the restoration of existing features and elements, and/or the removal of uncharacteristic features and elements, or by the addition of new characteristic elements.
Minor beneficial	Slight improvement of character by the restoration of existing features and elements, and/or the removal of uncharacteristic features and elements, or by the addition of new characteristic elements.
Moderate beneficial	Partial or noticeable improvement of character by the restoration of existing features and elements, and/or the removal of uncharacteristic and noticeable features and elements, or by the addition of new characteristic features.
Major beneficial	Large scale improvement of character by the restoration of features and elements, and/or the removal of uncharacteristic and conspicuous features and elements, or by the addition of new distinctive features.

8.3.45 The criteria contained within IAN 135/10 [REF 8-13] have been adopted in the assessment to identify the magnitude of impact that the Scheme is likely to have on visual receptors. These criteria are reproduced in **Table 8.3**.

Table 8.3: Magnitude of visual impact criteria

Magnitude of Impact	Description (Visual)
Major (adverse or beneficial)	The project, or a part of it, would become the dominant feature or focal point of the view.
Moderate (adverse or beneficial)	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 (adverse or beneficial)	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 (adverse or beneficial)	Only a very small part of the project would be discernible, or it is at such a distance that it would form a barely noticeable feature or element of the view.
No Change	No part of the project, or work or activity associated with it, is discernible.

Identification of likely significant effects

- 8.3.46 The identification of the likely significant effects on landscape and visual receptors has been undertaken using professional judgement, and has involved combining the sensitivity towards change with the predicted magnitude of impact.
- 8.3.47 The process has been guided by the following matrix in **Table 8.4** reproduced from IAN 135/10 [REF 8-13].

Table 8.4: Significance of effect matrix

Sensitivity	Magnitude of Impact				
	No Change	Negligible	Minor	Moderate	Major
High	Neutral	Slight	Slight/ moderate	Moderate/ large	Large/very large
Moderate	Neutral	Neutral/slight	Slight	Moderate	Moderate/ large
Low	Neutral	Neutral/slight	Neutral/ slight	Slight	Slight/ moderate

- 8.3.48 Where the significance of an effect is represented by two descriptors, for example large/very large within the matrix, professional judgement has been used to determine which of the significance descriptors applies to the effect being assessed.
- 8.3.49 GLVIA3 [REF 8-14] acknowledges that the assessment of significance is not a prescriptive process. Accordingly, the matrix has been used to guide the identification and assessment of landscape and visual effects; however where professional judgement has resulted in a deviation from the thresholds contained in the matrix these are explained within the relevant sections of the chapter and are supported by appropriate evidence and explanation.
- 8.3.50 Landscape and visual effects have been identified for the following scenarios, which represent the key stages of Scheme development:
- construction (2020 – 2023)** – to represent the changes that would be apparent when construction activity is at its peak i.e. when construction works, vehicles, equipment and machinery are in maximum use;
 - winter in the year of opening (2023)** – to represent the changes that would be apparent on a winter’s day in the year that the Scheme would be open to traffic i.e. prior to the establishment of landscaping; and
 - summer in year 15 (2038)** – to represent the changes that would be apparent on summer’s day fifteen years after opening of the Scheme i.e. once all landscape planting has reached a level of maturity where it is fulfilling its intended screening and integration functions.

8.4 Assessment assumptions and limitations

Scheme design and limits of deviation

- 8.4.1 The assessment has been based on the Scheme description detailed within Chapter 3 The project, and has taken into account the lateral and/or vertical limits of deviation defined on the Works Plans [TR010027/APP/2.3] in order to establish a realistic worst case assessment scenario.
- 8.4.2 This scenario has identified and reported the effect that any lateral and/or vertical deviation would realistically give rise to. This has, for example, taken into account the potential for components if the Scheme to be positioned at a slightly higher elevation, or brought into closer proximity to receptors, and thereby potentially result in a different visual effect.
- 8.4.3 Notwithstanding any potential deviation, all landscape mitigation measures incorporated into the design of the Scheme, as described in Section 8.8, would still be deliverable within the limits of deviation and would still fulfil their intended function.

Warwickshire Gaelic Athletic Association

- 8.4.4 Using professional judgement, the illustrative reconfiguration design options for the Warwickshire Gaelic Athletic Association presented in **Figure 3.5a to 3.5e** [TR010027/APP/6.2] were appraised to take account of the variation in the physical extents, pitch layout, buildings, fencing and lighting provision across the options.
- 8.4.5 The objective of the appraisal was to identify whether one option would potentially give rise to different effects than another, in order to then identify the worst case for the purposes of the assessment presented within this chapter.
- 8.4.6 The appraisal concluded that the design variation between the options would not be of a level that would result in different types or significance of effect on landscape character and visual receptors.

Baseline survey data

- 8.4.7 The assessment has been undertaken with reference to the baseline conditions recorded at the time of undertaking winter and summer field surveys (2017 to 2018). These were obtained from publicly accessible locations and are considered to also be representative of the conditions that would exist at the point of commencing Scheme construction, as described in Section 8.6, as the nature of the landscape is such that no material changes to its character are predicted to occur during this time.
- 8.4.8 One viewpoint (Viewpoint N) presented in Appendix 8.1 [TR010027/APP/6.3] does not have winter photography associated with it, as the PRoW was inaccessible at the time of undertaking field surveys. The lack of winter photography did not, however, limit the ability to undertake a comprehensive assessment from this viewpoint as professional judgement was used to predict from the summer photography how the outlook would be different without vegetation in full leaf.

Impact assessment and mitigation

- 8.4.9 The accuracy of the preliminary and final ZTVs modelled as part of scoping and the assessment has been constrained by the distance and height parameters adopted in their generation, as described in Section 8.3. As it is not possible to identify and assess every individual visual receptor within the ZTV extents, this limitation has been addressed by grouping receptors, where appropriate, and then identifying and assessing the greatest adverse impact within the group. In adopting this approach, the assessment considers the most realistic worst case outcome for the receptors within the group, and reports this as a single representative viewpoint.
- 8.4.10 The assessment of temporary construction effects has considered the peak activity periods, for example when taller and/or visually prominent plant and equipment such as cranes would be visible and in use, in order to assess the reasonable worst case within these works.
- 8.4.11 The assessment has assumed that the screening benefit provided by existing vegetation, and that included within the planting strategy, would be reduced during winter months when vegetation is not in leaf. The extent to which this would potentially increase the degree of visual exposure of the Scheme has been considered within the winter year of opening (year 1) assessment scenario.
- 8.4.12 The identification and evaluation of likely effects in year 15 assumes that all landscaping incorporated into the Scheme design has established, has been appropriately managed over the period to achieve its intended function, and is in full leaf.

8.5 Study area

- 8.5.1 Based on the ZTV outputs, a 2km study area was initially defined around the main physical works of the Scheme within which baseline information relating to the landscape and visual environment was collected.
- 8.5.2 Following desk based review and site based verification of existing vegetation patterns and built form within the 2km study area, it was determined using professional judgement that the Scheme would not influence landscape character or emerge as a prominent new feature in existing views beyond 500m of the Scheme.
- 8.5.3 Accordingly, the study area extents were narrowed to an area extending to 500m around the Scheme's Order Limits, on the basis that the Scheme would not give rise to significant environmental effects beyond this distance.
- 8.5.4 The 500m study area extents are illustrated in **Figure 8.1 [TR010027/APP/6.2]**.
- 8.5.5 The process of study area refinement accords with guidance contained in IAN 135/10 [REF 8-13].

8.6 Baseline conditions

Overview of the landscape and visual environment

- 8.6.1 There are no statutory or non-statutory landscape designations within the study area; however, the absence of a formal designation does not determine that a landscape is necessarily of low value, as factors such as accessibility and local scarcity can render areas of unremarkable quality highly valuable as a local resource.
- 8.6.2 The Scheme falls within an area of Green Belt designation referred to as the Meriden Gap. This is a mostly rural area located in the West Midlands between Solihull and Coventry, and serves as a part of the wider West Midlands Green Belt.
- 8.6.3 There are a number of individual and grouped TPOs present within the study area, but none are located within the Scheme's Order Limits.
- 8.6.4 The majority of PRowWs within the study area provide access in and around Bickenhill and the surrounding landscape, many of which run in an east-west direction connecting various points along B4438 Catherine-de-Barnes Lane to Damson Parkway, as illustrated within **Figure 8.1 [TR010027/APP/6.2]**.
- 8.6.5 Other notable footpaths include the Green Man Trail which runs along Church Lane and crosses the M42 motorway north of Shadowbrook Lane.
- 8.6.6 The settlements of Bickenhill and Hampton in Arden contain conservation areas. These are relatively well contained by existing woodland and vegetation from the M42 motorway and larger developments at Birmingham Airport and the NEC.

Landscape character

National character areas

- 8.6.7 At the national scale, the landscape of the study area falls within the broader Natural England's NCA 97: Arden [REF 8-18], the key characteristics of which are recorded as being:
- well-wooded farmland landscape with rolling landform;
 - geologically diverse with rocks ranging from the Precambrian to the Jurassic and overlain by superficial Quaternary deposits;
 - mature oaks, mostly found within hedgerows, together with ancient woodlands, and plantation woodlands that often date from the time of enclosure. Woodlands include historic coppice bounded by woodbanks;
 - narrow, meandering clay river valleys with long river meadows; the River Blythe Site of Special Scientific Interest (SSSI) lying between the cities of Coventry and Birmingham is a good example of this;
 - numerous areas of former wood-pasture with large, old, oak trees often associated with isolated remnants of more extensive heathlands. Village greens/commons have a strong association with remnant lowland heath. Fragmented heathland persists on poorer soils in central and northern areas;

- f. diverse field patterns, ranging from well hedged, irregular fields and small woodlands that contrast with larger semi regular fields on former deer park estates, such as, Packington Hall and Stoneleigh Park;
- g. complex and contrasting settlement pattern with some densely populated where traditional settlements have amalgamated to form the major West Midlands conurbation while some settlements remain distinct and relatively well dispersed;
- h. north eastern industrial area based around former Warwickshire coalfield, with distinctive colliery settlements. North western area dominated by urban development and associated urban edge landscapes such as managed greenspace, for example allotments, gardens, parks, golf courses (rough areas) and public open spaces; playing fields, churchyards, cemeteries and institutional grounds (schools, hospitals);
- i. transport infrastructure, the M42, M40, M6 and M5 are major transport corridors that sit within the landscape of this NCA; and
- j. Shakespeare's 'Forest of Arden', featured in 'As You Like It', is still reflected through the woodland cover, mature oaks, small ancient woodlands and former wood pasture.

8.6.8 The local landscapes within the study area exhibit some of these key characteristics and are taken as an appropriate description of it at a regional scale.

Regional landscape character assessments

8.6.9 Landscape character assessments undertaken by Warwickshire County Council [REF 8-19], SMBC [REF 8-20] and North Warwickshire Borough Council [REF 8-21] have been referenced in the assessment to inform the analysis of the existing landscape within the study area and the development of LCAs.

8.6.10 At the regional scale, the study area captures part of the Arden Parkland Character Area defined in the Warwickshire Landscape Guidelines [REF 8-19]. This regional landscape consists of an enclosed, gently rolling landscape defined by woodland edges, parkland and belts of trees. The landscape is characterised by the gently rolling countryside with medium to large scale defined woodland edges, belts of trees and wooded streamlines. The impression of enclosure is enhanced by the almost flat topography, which emphasises woodland edges. The enclosed landscape is created by ancient woodlands, hedgerow trees and belts of trees although this is not a common feature with the most significant instances found alongside transportation corridors.

8.6.11 The landscape character of the study area is described by the Solihull's Countryside Strategy 2010-2020 [REF 8-20] and the North Warwickshire Landscape Character Assessment [REF 8-21]. The relevant character areas identified within Solihull's document [REF 8-20] are: 2: The Western Fringe; 3: The Motorway Corridor; 4: The Setting of Knowle and Dorridge; and 5: The Rural Heartland. Within the North Warwickshire Character Assessment [REF 8-21] the relevant areas are: 8: Blythe Valley Parkland Farmland, and 10: Cole Valley.

Local landscape character areas

- 8.6.12 These strategies and assessments have informed the development of three LCAs within the study area. The identified LCAs are shown in **Figure 8.1 [TR010027/APP/6.2]** and are described in the following sections.

LCA 1 Arden Farmland

- 8.6.13 This LCA is formed of the rural landscape extending from the edges of the Solihull and the Birmingham urban areas in the west, towards the broader Arden landscape and Coventry in the east, and includes the village of Catherine-de-Barnes to the south.
- 8.6.14 The LCA is formed of former historic parkland which has largely been replaced by agricultural production. Field patterns reflect this transition with pockets of grassland and smaller fields with strong mature boundaries still existing around the fringes of the village settlements and woodlands, with the more prevalent larger arable fields occupying the intervening farmland. These larger fields have been expanded which together with the sparse hedges, have meant much of the field pattern definition has been lost.
- 8.6.15 The M42 motorway corridor, local highways, the West Coast Mainline and local rail lines also heavily influence the area as they cut through the landscape and create barriers within it, whilst overhead power lines interrupt the broader skyline. The major developments around Birmingham Airport and the NEC are also prominent visual indicators of the nearby conurbation of Birmingham.
- 8.6.16 Vegetation cover includes the ancient woodlands of Aspbury's Copse, Hampton Coppice and Barber's Coppice in the south and west, as well as numerous smaller stands of woodland scattered within the study area. The mature trees concentrated within and around the small villages and lining the wider local road network provide structure in the landscape. The topography of the LCA broadly falls gently from approximately 130m above ordnance datum (AOD) in the west to the east towards the River Blythe at approximately 85m AOD, and exhibits a series of local rises which contribute to the perception of this being a rolling landscape, some of which contain brooks. The Grand Union Canal is located within the south of the LCA and passes through Catherine-de-Barnes.
- 8.6.17 This LCA is a settled rural landscape surrounded and dissected by major development and transport corridors. Despite these pressures, it remains functional and intact with relatively few areas where its components break down or transition towards more diverse and conflicting land uses typical of urban fringe landscapes.
- 8.6.18 Overall this LCA comprises a good quality rural landscape which continues to resist, but remains vulnerable to, the pressures of urban fringe development. Accordingly, this LCA is considered to be moderate value with a moderate susceptibility. Sensitivity towards change is assessed as being moderate.

LCA 2 Blythe Valley Parkland Farmland

- 8.6.19 This LCA is focused around the River Blythe which meanders around the A452 towards Coleshill, and the confluence of the Rivers Tame, Cole and the Blythe.
- 8.6.20 The River Blythe is set within a broad, gently sloping valley with highpoints along the valley sides of approximately 100m AOD. Field patterns include the small irregular pastoral fields close to the river, semi-regular arable fields associated with former estates and deer parks, and larger fields on the more steeply sloping valley sides to the south.
- 8.6.21 Land cover includes extensive areas of parkland associated with Packington Hall, situated on the A45 Coventry Road (A45), where woods that contributed to the former deer parks, treed parklands and golf courses provide a strong vegetation framework within the LCA. Combined with the riparian vegetation along the River Blythe and the infilling farmland defined by low trimmed hedges and frequent hedgerow trees, a diverse but cohesive rural character results.
- 8.6.22 This LCA is generally a sparsely settled landscape containing few scattered settlements and farmsteads, these being set along a broad network of connecting lanes. There is little influence from the nearby urban expanses and transport corridors within the LCA, with the exception of the southern and western extents near to the M42 and A45 corridors where extensive road layouts, lighting and overhead electricity transmission infrastructure disrupt the rural character.
- 8.6.23 Despite its proximity to a major city and its associated infrastructure, this LCA is an intimate rural landscape with strong links to the historic land uses and settlement patterns, evidenced through the estate and parkland landscapes. Overall this LCA is comprised of a good quality remnant parkland landscape with relatively limited influences from modern day development. Accordingly, this LCA is considered to be of high value and moderate susceptibility. Sensitivity towards change is assessed as being high.

LCA 3 Transport Interchange, NEC and Business Park

- 8.6.24 This LCA is formed around the urban fringe transport and business areas, bounded by the A45, M42 motorway and residential areas at Sheldon, Marston Green and Chelmsley Wood.
- 8.6.25 Birmingham Airport, the NEC and Birmingham Business Park dominate this area as large scale urban features which continue to progressively expand. The West Coast Main Line, the boundary of Birmingham Airport and traffic flow systems including winding access roads with frequent junctions restrict movement through the area and collectively discourage pedestrian access.
- 8.6.26 Woodland, particularly associated with Pendigo Lake and Bickenhill Plantations, breaks up the expanse of large buildings and car parks to an extent. The layers of buildings and woodland combine to reduce awareness of the surrounding rural and residential areas and the A45 and M42 corridors. The well wooded, narrow strip of fields in the north of the LCA act as a buffer between some of the commercial units and the residential areas.

8.6.27 Overall this LCA is a developed urban fringe area and despite the presence of woodland and a narrow strip of fields, it is dominated by large scale transport and commercial features. Accordingly, this LCA is considered to be of low value and low susceptibility. Sensitivity towards change is assessed as being low.

Visual amenity

Visual environment

- 8.6.28 The visual environment of the study area is largely defined by the settled rural character of the landscape. The combination of the gentle topography, broad network of lanes and strong vegetation framework introduces a sense of enclosure to views from within lower lying areas, with views from the local road network frequently lined and contained by roadside vegetation.
- 8.6.29 Users of PRoW that traverse open fields (see **Figure 8.1 [TR010027/APP/6.2]**) and higher ground within the study area are afforded a wider aspect due to degraded field boundaries. From these locations, the presence of Birmingham Airport and the NEC are particularly evident in views, as are other elements of the Birmingham conurbation.
- 8.6.30 Views from settlements within the study area are available from locations on the edges of the Birmingham conurbation to the north and west, and from the villages of Bickenhill, Hampton in Arden and Catherine-de-Barnes. Further views are available from the smaller hamlets and more isolated properties scattered throughout the rural farmland.
- 8.6.31 Intermittent visual awareness of the landscapes of the study area is afforded to those travelling on the M42 motorway, the A46, the A452 and the local road network. Similar transient views of the landscape are available to rail users travelling on the West Coast Mainline.

Representative viewpoints

- 8.6.32 **Figure 8.1 [TR010027/APP/6.2]** illustrates the location of each representative viewpoint in relation to the Scheme and the study area, with viewpoint photography presented in **Figure 8.2 [TR010027/APP/6.2]**.
- 8.6.33 The baseline conditions of each representative viewpoint were evaluated and recorded during the field surveys undertaken in September 2017 and March 2018, which enabled their existing visual outlook to be recorded in both summer and winter months.
- 8.6.34 Detailed descriptions of the current visual outlook available from each viewpoint are presented within Appendix 8.1 **[TR010027/APP/6.3]**, which describes the locations of each viewpoint and their relationship to the Scheme, the value of their existing view, their susceptibility, and their overall sensitivity towards change.

8.7 Potential impacts

- 8.7.1 The process of scoping identified that the introduction and/or modification of road infrastructure associated with the Scheme would potentially result in different types and durations of impact on landscape character and visual receptors, during both the construction and operational phases.

Construction

Landscape character

- 8.7.2 Impacts on landscape character during construction of the Scheme are likely to include the following:
- the introduction of construction plant, materials stockpiles, machinery, compounds, fencing, signage and lighting with the landscape, which could temporarily change the perception of local landscape character;
 - general construction activity and operations, and the movement of construction vehicles, which could temporarily detract from the appreciation of local landscape character; and
 - the removal of vegetation such as hedgerows, trees, woodland, buildings and structures as part of site clearance works, which may alter the balance of components that combine to form local landscape character.

Visual receptors

- 8.7.3 Impacts on visual receptors during construction of the Scheme are likely to include the following:
- the introduction of construction plant, materials stockpiles, machinery, compounds, fencing, signage and lighting with the landscape, which may emerge in the existing outlook afforded to visual receptors as a detracting new feature;
 - general construction activity and operations, and the movement of construction vehicles, which may feature as a temporary point of focus within existing views; and
 - the removal of vegetation, buildings and structures as part of site clearance works, which may alter the visual baseline by opening up new views towards construction working areas for visual receptors such as PRow users, occupants of residential properties and road users.

Operation

Landscape character

- 8.7.4 Impacts on landscape character during the operational phase of the Scheme are likely to include the following:
- the introduction of permanent new road features and modifications to existing roads, which may lead to the fragmentation and urbanisation of the landscape or be at odds with wider landscape character;
 - modifications to the profile of the landscape, through the permanent introduction of features such as earthworks, bridges and junctions; and
 - the direct and permanent loss of character-forming features such as trees, woodland and hedgerows, which may further impact on landscape character by changing the pattern and balance of components within the landscape.

Visual receptors

- 8.7.5 Impacts on visual receptors during the operational phase of the Scheme are likely to include the following:
- a. the removal of character-forming features, which may permanently change the composition of existing views from visual receptors; and
 - b. the introduction of new road infrastructure and modifications to existing roads, and the associated changes to traffic flows, which may permanently alter the existing outlook afforded to different visual receptors.

8.8 Design, mitigation and enhancement measures

- 8.8.1 The Scheme has been designed, as far as possible, to avoid and minimise impacts and effects on landscape character and visual receptors through the process of design-development (see Chapter 4 Scheme history and alternatives), and by embedding measures into the design of the Scheme.
- 8.8.2 A number of standard measures have been identified, which would be implemented by the appointed Contractor to reduce the impacts and effects that construction of the Scheme would have on landscape character and visual receptors.
- 8.8.3 Compensation measures have been included within the design of the Scheme to offset effects on existing landscape resources that cannot be avoided or addressed through the implementation of embedded or standard mitigation measures.
- 8.8.4 Potential enhancements to the landscape and visual environment have also been identified through the design-development process.

Embedded mitigation measures

- 8.8.5 The new mainline link road has been designed to position the majority of its length within an earthwork cutting, the objective being to visually contain much the new carriageway and associated infrastructure and traffic movements from existing views available from residential properties and some PRow in proximity to the corridor.
- 8.8.6 The placement of the new mainline link road beneath the level of the surrounding topography was also undertaken to reduce the visual awareness of the road in more distant views available from a range of locations within the surrounding landscape. The cutting slopes have generally been designed to a gradient of 1 in 3 to soften their appearance in the local landscape.
- 8.8.7 Lighting of new and improved sections of road within the Scheme has been confined to locations where road safety is a priority, in order to minimise the potential for light spill in night time views across the landscape.
- 8.8.8 Signage provision has been designed to minimise the potential for visual clutter along new and improved roads.

- 8.8.9 The extent of landtake associated with M42 Junction 5A and B4102 Solihull Road (Solihull Road) overbridge has been minimised, where possible, to reduce encroachment into Aspbury's Copse ancient woodland.
- 8.8.10 A planting strategy has been developed and incorporated into the design of the Scheme, and is illustrated in **Figure 8.3 [TR010027/APP/6.2]**. This has been developed in accordance with the landscape design guidance and principles contained in DMRB Volume 10 [REF 8-17], and has taken into account the restrictions on introducing woodland and tree planting within Birmingham Airport's safeguarding zone.
- 8.8.11 The objectives of the planting strategy have been to:
- filter, screen and contain more prominent components in existing views from visual receptors;
 - provide planting for trees, hedgerows, shrubs, woodland and grassland lost as a result of permanent landtake within the Scheme, and to reinstate planting removed as a consequence of site clearance activities;
 - reinforce the existing vegetation pattern by planting species found locally, and those specified in CAP 772 [REF 8-22] as being suitable for application under flight paths;
 - assist the integration of drainage features into the surrounding landscape framework and pattern; and
 - provide visual interest to people travelling on new and modified sections of road.
- 8.8.12 The areas of planting and length of hedgerows to be planted as part of the strategy are detailed in Section 8.9.
- 8.8.13 Further details of the landscaping measures embedded into the Scheme design, including their functions and objectives, are presented within the Register of Environmental Actions and Commitments (see Appendix 3.1 [TR010027/APP/6.3]).
- 8.8.14 The Environmental Masterplan for the Scheme, which places the planting strategy within the wider framework of other environmental mitigation measures for biodiversity and drainage, is contained within **Figure 8.8 [TR010027/APP/6.2]**.
- 8.8.15 The appointed contractor would be responsible for undertaking landscape management within the contract period, after which the longer term maintenance and management responsibilities would transfer to Highways England.
- 8.8.16 The appointed contractor would also be responsible for the preparation of a Handover Environmental Management Plan (HEMP) during the contract period. The purpose of the HEMP is to provide information relating to existing and future environmental commitments that would need to be delivered by those responsible for the future management and operation of the Scheme. The HEMP would include specific requirements concerning the long term maintenance and management of all landscaping incorporated into the Scheme.

8.8.17 The planting strategy for the Scheme has sought, where possible, to incorporate tree, shrub, scrub and grassland species that would not only provide an essential landscape mitigation (screening and integration) function, but also offer biodiversity benefits (see Chapter 9 Biodiversity).

Standard mitigation measures

8.8.18 The Outline Environmental Management Plan (OEMP) [TR010027/APP/6.11] details the measures that would be undertaken during construction of the Scheme to mitigate temporary effects on landscape character and visual receptors.

8.8.19 These measures focus on:

- a. maintaining well-managed and tidy construction working areas and site compounds to minimise their visual impact and appearance in the landscape;
- b. ensuring that materials are delivered on an “as and when” basis, to minimise the potential for stockpiling and associated visual impact;
- c. so far as practicable, minimise the height of soils and other stockpiled materials in order to reduce their visual impact;
- d. the protection and retention of trees in proximity to construction working areas, to avoid damage to existing vegetation;
- e. finishing site offices and facilities within the main site compound in a recessive colour to blend into the local landscape and immediate surroundings; and
- f. keeping construction lighting to the minimum luminosity necessary within site compounds and working areas, and directing and positioning this sympathetically, and where possible, fitting it with motion sensors to minimise potential light spill in night time views.

Compensation measures

8.8.20 The planting strategy includes an area of compensatory planting south of Aspbury’s Copse, adjacent to the eastern boundary of the M42 motorway. This involves:

- a. the inclusion of an area of compensatory planting into the design of the Scheme, the purpose being to offset the loss of ancient woodland within Aspbury’s Copse (associated with the introduction of M42 Junction 5A and its associated slip roads at this location); and
- b. the retention and translocation of ancient woodland soils (and their associated seed bank), coppice stools, saplings and deadwood from Aspbury’s Copse to identified donor sites.

8.8.21 The area identified for compensatory planting is contiguous with Aspbury’s Copse, and is of a size greater than the extent of ancient woodland that would be lost to the Scheme (see Section 8.9 for further details).

8.8.22 Further details of the translocation measures for Aspbury’s Copse are presented as part of the biodiversity assessment (see Chapter 9 Biodiversity).

8.9 Assessment of significant effects

8.9.1 The prediction of impacts and the assessment of effects has taken account of the embedded and standard mitigation measures, and the compensation measures, identified within Section 8.8.

Construction

Vegetation loss and replanting

8.9.2 Construction of the Scheme would result in the following vegetation loss:

- a. 4.56km of hedgerow;
- b. 4.5ha of woodland and woodland edge planting;
- c. 0.346ha of ancient woodland within Aspbury's Copse;
- d. 5.66ha of scrub planting; and
- e. 72 individual trees.

Landscape character

8.9.3 The existing character and perception of LCA 1 and LCA 2 would be directly impacted by construction of the Scheme, principally associated with the introduction of construction activity into the existing landscape pattern.

8.9.4 Within these LCAs, there would be a loss of established trees and hedgerows as a consequence of site clearance works, the removal of which would change the balance of character-forming features and would open new views towards construction compounds (both main and satellite), construction working areas and their associated activity.

8.9.5 The extent of vegetation loss within the Scheme's Order Limits, and trees to be retained, is illustrated in **Figure 8.4 [TR010027/APP/6.2]**. Further details of vegetation loss are provided within Appendix 8.2 [TR010027/APP/6.3].

8.9.6 It is predicted that earthworks operations and materials stockpiles would introduce temporary new features in the landscape, which would be set against the profile of existing landform and character-forming features.

8.9.7 The main site compound located immediately south east of Clock Interchange would appear as a new feature in the landscape, leading to a change in the balance of elements within LCA 2. Similar but more localised changes to LCA 2 would also occur at the locations of satellite compounds formed to serve the works at M42 Junction 5A.

8.9.8 The character of agricultural landscape is such that new activity and larger construction infrastructure elements would combine to adversely impact on local landscape character, particularly from locations around the fringes of Bickenhill.

8.9.9 Any visual connections of construction activity and infrastructure within the southern margins of LCA 3 would be limited to an extent by woodland and built form.

- 8.9.10 The assessment has concluded the following impacts and effects on landscape character during the construction phase of the Scheme, attributed to the loss of distinctive features, the introduction of uncharacteristic and conspicuous features within these landscapes, and the duration of the works:
- LCA 1 would be subjected to a temporary large adverse effect, as the character area is moderately sensitive to change and would experience a major adverse magnitude of impact;
 - LCA 2 would be subjected to a temporary large adverse effect, as the character area is highly sensitive to change and would experience a major adverse magnitude of impact; and
 - LCA 3 would be subjected to a temporary slight adverse effect, as the character area is of low sensitivity to change and would experience a minor adverse magnitude of impact.

Visual amenity

- 8.9.11 The predicted impacts and effects during construction of the Scheme have been detailed for each representative viewpoint. Appendix 8.1 [TR010027/APP/6.3] provides a detailed schedule and description of the predicted changes for each viewpoint and the associated magnitude of impact and significance of effect during construction.
- 8.9.12 The assessment has recorded that visual receptors associated with settlements, PRoW and the local road network would be subjected to varying degrees of temporary impact during construction, depending on their relationship and proximity to site compounds and working areas, and the type and duration of construction activities they would be exposed to.
- 8.9.13 Based on the sensitivity of the 28 assessed representative viewpoints towards change, and the scale, nature and duration of the impacts predicted to occur during construction, the following effects presented within **Table 8.5** would occur in relation to visual amenity.

Table 8.5: Construction impacts and effects on visual amenity

Viewpoint	Receptor type	Sensitivity of view	Construction	
			Magnitude of impact	Significance of effect
A – A452/Garden Centre	Recreation	Low	Minor adverse	Slight adverse
B – NEC/Hotel Car Park	Recreation	Low	Minor adverse	Slight adverse
C – East Way Overbridge	Local road users	Low	Major adverse	Moderate adverse
D – Coventry Road A45 westbound	Local road users	Low	Negligible adverse	Neutral
E – National Motorcycle Museum/National Conference Centre (NMM/NCC)	Recreation	Low	Moderate adverse	Slight adverse

Viewpoint	Receptor type	Sensitivity of view	Construction	
			Magnitude of impact	Significance of effect
F – Old Station Road	Residential	Moderate	Moderate adverse	Moderate adverse
G – Right of way on railway over bridge south	Recreation	Moderate	Minor adverse	Slight adverse
H – Right of way on railway over bridge north	Recreation	Moderate	Minor adverse	Slight adverse
I – Bickenhill North conservation area	Residential	Moderate	Major adverse	Moderate adverse
J – St Peters Lane conservation area	Residential	High	Major adverse	Large adverse
K – Right of Way west of Bickenhill 1	Recreation	High	Major adverse	Large adverse
L – Right of Way west of Bickenhill 2	Recreation	High	Major adverse	Large adverse
M – Right of Way near Castle Hills Farm	Recreation	High	Minor adverse	Moderate adverse
N – Right of Way at Hazel Farm	Recreation	Moderate	No change	Neutral
O – Right of Way West of M42 Crossing	Viewpoint was scoped out of consideration in the assessment due to the limited potential for impact recorded (see Section 8.3).			
P – Right of Way East of M42 Crossing	Viewpoint was scoped out of consideration in the assessment due to the limited potential for impact recorded (see Section 8.3).			
Q – Gaelic Football Grounds	Recreation	Moderate	Major adverse	Large adverse
R – B4438 Catherine-de-Barnes Lane	Local road users	Moderate	Major adverse	Large adverse
S – Shadowbrook Lane	Local road users	Moderate	Moderate adverse	Moderate adverse
T – Rights of Way south of Shadowbrook Lane	Recreation	Moderate	Major adverse	Large adverse
U – Friday Lane	Local road users	Low	Minor adverse	Slight adverse
V – Solihull Road (B4102)	Local road users	Moderate	Minor adverse	Slight adverse
W – Eastcote Lane	Local road users	Moderate	Negligible adverse	Slight adverse
X – Footpath to the east beyond the Gaelic Football Club	Recreation	Moderate	Negligible adverse	Slight adverse
Z – Over bridge above B4438 Catherine-de-Barnes Lane	Recreation	Moderate	Major adverse	Large adverse
AA – Rights of Way south of Shadowbrook Lane	Recreation	Moderate	Moderate adverse	Moderate adverse

Viewpoint	Receptor type	Sensitivity of view	Construction	
			Magnitude of impact	Significance of effect
BB – Solihull Road	Local road users	Moderate	Moderate adverse	Moderate adverse
CC – Eastcote Lane PRow	Recreation	Moderate	Negligible adverse	Slight adverse
DD – Grand Union Canal	Viewpoint was scoped out of consideration in the assessment due to the limited potential for impact recorded (see Section 8.3).			
EE – Four winds residential property	Residential	Moderate	Major adverse	Large adverse
FF – St Peters Lane/Garden Centre	Residential	Moderate	Major adverse	Large adverse

8.9.14 In summary, the assessment of construction phase effects on visual amenity concluded that:

- a. nine viewpoints would experience temporary large adverse effects, of which four were residential, four were recreational and one were local road users;
- b. seven viewpoints would experience temporary moderate adverse effects, of which two were residential, two were recreational and three were local road users;
- c. ten viewpoints would experience temporary slight adverse effects, of which seven were recreational and three were local road users; and
- d. two viewpoints would experience neutral effects, of which one was recreational and the other was local road users.

Operation

Planting

8.9.15 The following areas, lengths and types of planting would mitigate and compensate for vegetation lost as a result of Scheme construction, and would also function to integrate the Scheme into the local landscape framework and provide visual screening once operational:

- a. approximately 12km of new hedgerow planting;
- b. 3.89ha of woodland and woodland edge planting;
- c. 1.9ha of new woodland planting contiguous to Aspbury's Copse (to compensate for the loss of ancient woodland at this location);
- d. 4.08ha of scrub planting;
- e. 0.4ha of shrub planting;
- f. 2.11ha of shrub with intermittent tree planting; and
- g. 28.52ha of grassland.

8.9.16 Additionally, a further 6.88ha of land across the Scheme has been identified for ecological mitigation (see Chapter 9 Biodiversity), comprising a combination of grassland and scrub planting.

Landscape character

8.9.17 The following sections provide a description of the predicted impacts and effects upon landscape character within the study area during operation of the Scheme.

8.9.18 Impacts and effects are recorded for the winter (year 1) and summer (year 15) assessment scenarios, the latter of which takes into account the contribution that planting measures embedded into the design would make to reducing effects once established.

LCA 1

8.9.19 The Scheme would alter the perception and physical character of LCA 1 in both winter year 1 and summer year 15 through the introduction of new traffic movements and associated highways infrastructure into the rural landscape as part of the new mainline link road, particularly around the village of Bickenhill.

8.9.20 The positioning of the new mainline link road within a deep cutting would contain its appearance within the landscape, which would reduce the extent to which the road severs the landscape and alters the existing character of LCA 1.

8.9.21 The Scheme would reduce the tranquillity of the landscape, principally associated with the introduction of additional movement and noise from vehicles travelling on the new mainline link road to the south of Clock Interchange, on the eastern fringes of LCA 1.

8.9.22 The new mainline link road would result a direct loss and alteration of existing features and components comprising hedgerows, grassland and field boundaries.

8.9.23 LCA 1 would accordingly experience a moderate adverse magnitude of impact in winter year 1.

8.9.24 By year 15, boundary hedgerows and scrub planting along the cutting slopes of the new mainline link road would have established to provide a degree of landscape integration and containment of this component of the Scheme within LCA 1.

8.9.25 The extent of hedgerow and scrub planting would have established by year 15 and would form an integral part of the landscape pattern; however, due to restrictions on planting taller tree and plant species within Birmingham Airport's safeguarding zone, the Scheme would be unable to be fully screened or integrated into the local landscape, and would accordingly continue to exert a moderate adverse magnitude of impact at year 15.

8.9.26 The assessment has concluded that the moderately sensitive LCA 1 would experience a moderate adverse effect in winter year 1, which would remain as moderate adverse in summer year 15.

LCA 2

8.9.27 The Scheme would alter the physical character of LCA 2 in a comparable way to the impacts reported for LCA 1.

- 8.9.28 M42 Junction 5A and its associated slip roads, Barber's Coppice Roundabout and the southern extents of the new mainline link road would be positioned in the southern extents of LCA 2. The majority of works proposed on the M42 motorway would also fall within LCA 2.
- 8.9.29 The introduction of new highway infrastructure in LCA 2 would serve to increase the (relatively limited) influence of modern day development on the character of this area.
- 8.9.30 The physical alterations to the landscape within LCA 2 would combine with those within LCA 1 to alter the perception local character, primarily as a result of the introduction of new road infrastructure and associated traffic movements within this rural landscape. These would also combine to reduce the tranquillity of the landscape, resulting in the fragmentation of the pattern and framework of LCA 2 and increasing the sense of urbanisation.
- 8.9.31 The localised changes introduced by M42 Junction 5A and the works to take down and rebuild the Solihull Road overbridge would result in the loss of the ancient woodland resource within Aspbury's Copse.
- 8.9.32 LCA 2 would experience a moderate adverse magnitude of impact in winter year 1.
- 8.9.33 Planting incorporated into the design of the Scheme components within LCA 2 would provide a framework for visual screening and integration by year 15, as woodland planting proposed around M42 Junction 5A would contain this elevated feature within available views. Compensation planting for the loss of ancient woodland resource at Aspbury's Copse at this location would also provide screening benefit. Accordingly, in summer year 15, the operational magnitude of impact of the Scheme would reduce to minor adverse.
- 8.9.34 The assessment has concluded that the highly sensitive LCA 2 would experience a large adverse effect in winter year 1, which would reduce to moderate adverse by summer year 15.
- LCA 3*
- 8.9.35 Progression of the Scheme would result in limited physical change within LCA 3.
- 8.9.36 Junction and slip road works associated with Clock Interchange and M42 Junction 6, and works to the M42 motorway north of the junction, would take place on the southern and eastern periphery of LCA 3 and would be set against an existing context of major road infrastructure and built form.
- 8.9.37 As the majority of visual connections within LCA 3 to the M42 motorway and the A45 are already limited by established planting, buildings and structures, the assessment has concluded that any changes introduced by the Scheme within this character area would not result in substantive changes to the way in which the area is perceived.
- 8.9.38 LCA 3 would experience a minor adverse magnitude of impact in winter year 1.

8.9.39 By summer year 15, landscaping comprising grassland measures, shrubs and intermittent trees along the fringes of the new A45 eastbound to M42 northbound free flow link, and wider grassland measures, would have established to soften the appearance of the improvements proposed within LCA 3, to the extent that the magnitude of impact on this character area would reduce to negligible adverse.

8.9.40 The assessment has concluded that LCA 3 is of low sensitivity and would experience a slight adverse effect in winter year 1, reducing to a neutral effect in summer year 15.

Visual amenity

8.9.41 The new mainline link road and M42 Junction 5A would extend the physical extent of transportation corridors within existing views, which would lead to either a new or increased sense of scale associated with new or modified road infrastructure and vehicle activity.

8.9.42 The new mainline link road would extend the perception of road infrastructure, particularly where this would emerge in views that already contain the M42 motorway and the A45 corridor as discernible features. Similarly, improvements to M42 Junction 6 and changes to the flow and movement of traffic using the junction would increase current levels of awareness of the M42 motorway corridor in views, where this already forms a prominent component within the overall view.

8.9.43 Based on the sensitivity of the 28 assessed representative viewpoints towards change and the scale, nature and duration of the impacts predicted to occur during the Scheme's operational phase, the following impacts and effects presented within **Table 8.6** would occur on visual amenity in winter year 1 and summer year 15.

Table 8.6: Operational impacts and effects on visual amenity

Viewpoint	Receptor type	Sensitivity of view	Winter year 1		Summer year 15	
			Impact	Effect	Impact	Effect
A – A452/ Garden Centre	Recreation	Low	Negligible adverse	Neutral	No change	Neutral
B – NEC/Hotel Car Park	Recreation	Low	Minor adverse	Slight adverse	No change	Neutral
C – East Way Overbridge	Local road users	Low	Minor adverse	Slight adverse	Negligible adverse	Slight adverse
D – Coventry Road A45 westbound	Local road users	Low	Negligible adverse	Neutral	No change	Neutral
E – National Motorcycle Museum/ National Conference Centre (NMM/NCC)	Recreation	Low	Minor adverse	Slight adverse	Minor Adverse	Slight adverse

Viewpoint	Receptor type	Sensitivity of view	Winter year 1		Summer year 15	
			Impact	Effect	Impact	Effect
F – Old Station Road	Residential	Moderate	Minor adverse	Slight adverse	No change	Neutral
G – Right of way on railway over bridge south	Recreation	Moderate	Negligible adverse	Neutral	No change	Neutral
H – Right of way on railway over bridge north	Recreation	Moderate	Negligible adverse	Neutral	No change	Neutral
I – Bickenhill North conservation area	Residential	Moderate	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse
J – St Peters Lane conservation area	Residential	High	Major adverse	Large adverse	Major adverse	Large adverse
K – Right of Way west of Bickenhill 1	Recreation	High	Moderate adverse	Large adverse	Moderate adverse	Moderate adverse
L – Right of Way west of Bickenhill 2	Recreation	High	Moderate adverse	Large adverse	Moderate adverse	Moderate adverse
M – Right of Way near Castle Hills Farm	Recreation	High	Moderate adverse	Moderate adverse	Moderate adverse	Moderate adverse
N – Right of Way at Hazel Farm	Recreation	Moderate	No change	Neutral	No change	Neutral
O – Right of Way West of M42 Crossing	Viewpoint was scoped out of consideration in the assessment due to the limited potential for impact recorded (see Section 8.3).					
P – Right of Way East of M42 Crossing	Viewpoint was scoped out of consideration in the assessment due to the limited potential for impact recorded (see Section 8.3).					
Q – Gaelic Football Grounds	Recreation	Moderate	Major adverse	Large adverse	Major adverse	Large adverse
R – B4438 Catherine-de-Barnes Lane	Local road users	Moderate	Major adverse	Large adverse	Major adverse	Large adverse
S – Shadowbrook Lane	Local road users	Moderate	Moderate adverse	Moderate adverse	Minor adverse	Slight adverse

Viewpoint	Receptor type	Sensitivity of view	Winter year 1		Summer year 15	
			Impact	Effect	Impact	Effect
T – Rights of Way south of Shadowbrook Lane	Recreation	Moderate	Major adverse	Large adverse	Moderate adverse	Moderate adverse
U – Friday Lane	Local road users	Low	Minor adverse	Slight adverse	Negligible adverse	Neutral
V – Solihull Road (B4102)	Local road users	Moderate	Minor adverse	Slight adverse	Negligible adverse	Neutral
W – Eastcote Lane	Local road users	Moderate	Negligible adverse	Slight adverse	Negligible adverse	Slight adverse
X – Footpath to the east beyond the Gaelic Football Club	Recreation	Moderate	Minor adverse	Slight adverse	Minor adverse	Slight adverse
Z – Over bridge above B4438 Catherine-de-Barnes Lane	Recreation	Moderate	Major adverse	Large adverse	Major adverse	Large adverse
AA – Rights of Way south of Shadow-brook Lane	Recreation	Moderate	Moderate adverse	Moderate adverse	Minor adverse	Slight adverse
BB – Solihull Road	Local road users	Moderate	Moderate adverse	Moderate adverse	Minor adverse	Slight adverse
CC – Eastcote Lane PRoW	Recreation	Moderate	Negligible adverse	Slight adverse	Negligible adverse	Slight adverse
DD – Grand Union Canal	Viewpoint was scoped out of consideration in the assessment due to the limited potential for impact recorded (see Section 8.3).					
EE – Four Winds residential property	Residential	Moderate	Major adverse	Large adverse	Major adverse	Large adverse
FF – St Peters Lane/Garden Centre	Residential	Moderate	Major adverse	Large adverse	Major adverse	Large adverse

8.9.44 Based on **Table 8.6**, the assessment of operational phase effects on visual amenity has concluded that, in winter year 1:

- a. nine viewpoints would experience large adverse effects, of which three are residential, five are recreational and one comprises local road users;
- b. five viewpoints would experience moderate adverse effects, of which one are residential, two are recreational and two are local road users;

- c. nine viewpoints would experience slight adverse effects, of which one are residential, four are recreational and four are local road users; and
- d. five viewpoints would experience neutral effects, of which four are recreational and one comprises local road users.

8.9.45 By summer year 15, the assessment of operational phase effects on visual amenity has concluded that landscape mitigation measures would have established and be fulfilling their intended function of visually screening and filtering a proportion of these views, resulting in the following effects:

- a. six viewpoints would experience large adverse effects, of which three are residential, two are recreational and one comprises local road users;
- b. five viewpoints would experience moderate adverse effects. of which one comprises residential, and four are recreational;
- c. eight viewpoints would experience slight adverse effects, of which four are recreational and four are local road users; and
- d. nine viewpoints would experience neutral effects, of which one are residential, four are recreational and four are local road users.

8.9.46 Full details of the predicted operational effects on visual amenity associated with the Scheme are presented within Appendix 8.1 [TR010027/APP/6.3].

8.10 Monitoring

8.10.1 None of the identified significant landscape and visual effects are considered to require monitoring during the Scheme's construction or operational phases, as the implementation of the long term planting maintenance and management measures (see Section 8.8) would ensure that all landscaping establishes and achieves its intended environmental functions and objectives.

8.11 References

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