M5 Junction 10 Improvements Scheme

Environmental Statement

Chapter 9: Landscape and Visual

TR010063 – APP 6.7

Regulation 5(2)(a)

Planning Act 2008

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

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Infrastructure Planning

Planning Act 2008

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

M5 Junction 10 Improvements Scheme

Development Consent Order 202[x]

6.7 Environmental Statement: Chapter 9: Landscape and Visual

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9. Landscape and Visual

9.1. Introduction

9.1.1. This chapter presents the environmental assessment of the M5 Junction 10 Improvements Scheme ("the Scheme") for Landscape and Visual receptors based on the Scheme as it is described in Chapter 2 - The Scheme (application document TR010063 – APP 6.2) and detailed in the General Arrangement Plans (application document TR010063 - APP 2.9).

9.1.2. The purpose of the Landscape and Visual Impact Assessment (LVIA) is to identify potentially significant landscape and visual effects that may arise from the construction and operation of the Scheme.

9.1.3. Landscape effects derive from changes in the physical landscape which may give rise to changes in its important features and thus its character, and how this is experienced. Visual effects relate to the changes that arise in the composition of available views as a result of changes to the landscape, to people's responses to the changes, and to the overall effects with respect to visual amenity.

9.1.4. Landscape characteristics are considered to be of importance in their own right and are valued for their intrinsic qualities irrespective of whether they are seen by people. Impacts on visual amenity are effects as perceived by people and are therefore clearly distinguished from, although closely linked to, impacts on landscape character and resources. Landscape and visual assessments are therefore separate, but linked processes.

9.1.5. The LVIA has been undertaken in accordance with current best practice guidelines as set out within the documents below:

- Sustainability & Environmental Appraisal, LA 107 Landscape and Visual Effects, Design Manual for Roads and Bridges (DMRB), Revision 2 - Feb 2020 (formerly DMRB Volume 11 Section 3 Part 5 Landscape Effects and IAN 135/10).
- Sustainability & Environmental Appraisal, LA 104 Environmental Assessment and Monitoring, DMRB (as above).
- Guidelines for Landscape and Visual Impact Assessment Third Edition (2013) (GLVIA3), published by the Landscape Institute and the Institute of Environmental Management & Assessment.
- GLVIA3 Statement of Clarification 1/13 (2013), published by the Landscape Institute.
- Landscape Institute Advice Note Visual Representation of Development Proposals LI TGN 06/19, published by the Landscape Institute.
- An Approach to Landscape Character Assessment (2014), Christine Tudor, published by Natural England.

9.1.6. DMRB LA 107 and GLVIA 3 define:

- Landscape Character as "A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse."
- Visual Amenity as "Overall enjoyment of a particular area, surroundings, or views in terms of people's activities - living, recreating, travelling through, visiting, or working."

9.1.7. LVIA must address both effects on landscape as a resource in its own right and effects on views and visual amenity.

9.2. Competent expert evidence

9.2.1. This chapter has been undertaken by a qualified and Chartered Landscape Architect (BSc Hons. PGDip LA CMLI) with over 15 years' experience, particularly in Landscape and Visual Impact Assessment.

9.3. Planning policy and legislative context

9.3.1. It should be noted that the details presented in this section are not intended to provide a full consideration of the relevant documents and their application to the Scheme. This information is provided within the Planning Statement and Schedule of Accordance with National Policy Statement (application document TR010063 – APP 7.1) that accompanies the application for a DCO.

National policy

National Planning Statement for National Networks, 2014 (NPS NN, 2014)

9.3.2. The NPS NN is directly relevant to highway infrastructure projects on the national road network that are defined as Nationally Significant Infrastructure Project (NSIP). The Scheme falls within the definition of an NSIP, making the NPS NN the primary planning policy against which an application for a Development Consent Order (DCO) for the Scheme would be judged.

9.3.3. The criteria for 'good design' for national network infrastructure, in Paragraph 4.29, outlines the requirement that 'visual appearance should be a key factor in considering the design of new infrastructure, as well as functionality, fitness for purpose, sustainability and cost. Applying 'good design' to national network projects should therefore produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, matched by an appearance that demonstrates good aesthetics as far as possible.'

9.3.4. Paragraph 5.144 states that 'where the development is subject to EIA the Applicant should undertake an assessment of any likely significant landscape and visual impacts in the environmental impact assessment and describe these in the environmental assessment. This should include reference to any landscape character assessment and any relevant policies based on these assessments in local development documents in England.' Para 5.84 also notes an assessment of likely significant effect from artificial light should be considered.

9.3.5. Paragraph 5.145 notes 'The applicant's assessment should include any significant effects during construction of the project and/or the significant effects of the completed development and its operation on landscape components and landscape character (including historic landscape characterisation).'

9.3.6. Paragraph 5.146 states 'The assessment should include visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include any noise and light pollution effects, including on local amenity, tranquillity and nature conservation.'

9.3.7. Paragraph 5.149 also notes 'Landscape effects depend on the nature of the existing landscape likely to be affected and nature of the effect likely to occur. Both of these factors need to be considered in judging the impact of a project on landscape. Projects need to be designed carefully, taking account of the potential impact on the landscape. Having regard to siting, operational and other relevant constraints, the aim should be to avoid or minimise harm to the landscape, providing reasonable mitigation where possible and appropriate.'

9.3.8. Paragraph 5.151 states that the Secretary of State should refuse development consent for NSIPs in nationally designated areas such as AONB and National Parks, except in exceptional circumstances and where it can be demonstrated that it is in the public interest. Para 5.154 The duty to have regard to the purposes of nationally designated areas also applies when considering applications for projects outside the boundaries of

these areas which may have impacts within them. The aim should be to avoid compromising the purposes of designation and such projects should be designed sensitively given the various siting, operational, and other relevant constraints.' However, Para 5.155 states 'The fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent.'

9.3.9. Furthermore, the criteria for 'good design' for national network infrastructure, in Paragraph 4.29, outlines the requirement that 'visual appearance should be a key factor in considering the design of new infrastructure, as well as functionality, fitness for purpose, sustainability and cost. Applying 'good design' to national network projects should therefore produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction, matched by an appearance that demonstrates good aesthetics as far as possible.'

9.3.10. Paragraphs 5.159-161 set out the requirements for mitigation to avoid or reduce adverse effects of a scheme. Appropriate siting, material choice, design of infrastructure are noted as considerations; as well as potential need for off-site landscaping.

9.3.11. Paragraphs 5.162 - 5.185 relate to 'land use including open space, green infrastructure and Green Belt'. Para 5.170 notes that 'there is a general presumption against inappropriate development within Green Belts' and the guidance stipulates that the Secretary of State should 'consider whether mitigation of any adverse effects on green infrastructure or open space is adequately provided for by means of any planning obligations.'

National Planning Policy Framework, July 2021

9.3.12. Section 12 Achieving well-designed places:

- Para 130. Planning policies and decisions should ensure that developments:
  - (a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development.
  - (b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping.
  - (c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities).
  - (d) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit.
  - (e) optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space) and support local facilities and transport networks.
  - (f) create places that are safe, inclusive and accessible and which promote health and well-being, with a high standard of amenity for existing and future users.
- Para 131. Trees make an important contribution to the character and quality of urban environments and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments, that appropriate measures are in place to secure the long-term maintenance of newly planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.

9.3.13. Section 13 Protecting Green Belt land:

- Para 137. The government attaches great importance to Green Belts. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness

and their permanence.

- Para 150. Certain other forms of development are also not inappropriate in the Green Belt provided they preserve its openness and do not conflict with the purposes of including land within it. These are:
  (c) local transport infrastructure which can demonstrate a requirement for a Green Belt location.

9.3.14. Section 15. Conserving and enhancing the natural environment

- 174. Planning policies and decisions should contribute to and enhance the natural and local environment by:
  (a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils…
  (b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services…
  (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.
  (e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans…
- Para 185 Planning policies and decisions should…:
  (c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.'

Regional and local policy guidance

Gloucestershire Local Transport Plan (LTP) 2020-2041

9.3.15. Policy LTP PD 0.2 – Local Environmental Protection: Key points are:

- Comply with Gloucestershire Highways and Biodiversity Guidance (May 2022) or subsequence guidance and the Green Infrastructure Pledge.
- Realise opportunities for green infrastructure enhancement associated with transport infrastructure resilience and performance.
- Maximise the opportunities for transport interventions to contribute towards major new initiatives, including Nature Recovery Networks and large-scale woodland creation and other similar measures that would help to achieve biodiversity net gain targets.
- Support Natural England's work on the Green Transport Corridors and Green Infrastructure Agreements.

9.3.16. Policy LTP PD 4.1 –Gloucestershire's Highway Network

- Follow green infrastructure principles in the design, maintenance and operation of highway asset as set out in the Green Infrastructure Pledge as well as meeting Building with Nature standards.

9.3.17. Policy LTP PD 4.3 - Highway Maintenance offers important guidance on design of developments in relation to the landscape setting, stating that Gloucestershire County Council (GCC) will:

- Manage the local highway asset in line with the Transport Asset Management Plan (TAMP), the Highways Maintenance Handbook
- Minimise the impact of highway work on the surrounding landscape and ensure where new highway structures are required they are sympathetic to their surroundings including bridges, fencing and walling.

- Comply with the Gloucestershire Highways and Biodiversity Guidance (May 2022) or subsequent guidance. Enhance and restore the wildlife function of highway verges by continuing to work in partnership with Gloucestershire Wildlife Trust (GWT) through GCC's Conservation Road Verges Site Register to ensure that all road verges receive appropriate conservation management as part of highways maintenance and related schemes.

Gloucester, Cheltenham, and Tewkesbury Joint Core Strategy 2011-2031 (adopted Dec 2017)

9.3.18. Policy SD4: Design Requirements outlines several key factors that developments must adhere to. Regarding public realm and landscape, the policy states that 'new development should ensure that the design of landscaped areas, open space and public realm are of high quality, provide a clear structure and constitute an integral and cohesive element within the design.'

9.3.19. Policy SD5: Green Belt ensures the Green Belt is protected from harmful development, limiting development to the types deemed appropriate by the NPPF.

9.3.20. Policy SD6: Landscape builds on Policy SD4 and provides further detailed landscape requirements to consider. In particular, 'development will seek to protect landscape character for its own intrinsic beauty and for its benefit to economic, environmental and social well-being', as well as having regard 'to the local distinctiveness and historic character of the different landscapes in the Joint Core Strategy area'. All developments will be required to 'demonstrate how the development will protect or enhance landscape character and avoid detrimental effects on types, patterns and features which make a significant contribution to the character, history and setting of a settlement or area.'

9.3.21. Policy INF3: Green Infrastructure is important as it places weight on the relevance of the green infrastructure network to landscape character, stating that 'development proposals should consider and contribute positively towards green infrastructure, including the wider landscape context and strategic corridors between major assets and populations.'

Tewkesbury Borough Council Local Plan 2011 to 2031 (adopted June 2022)

9.3.22. Policy LAN2: All development must, through sensitive design, siting, and landscaping, be appropriate to, and integrated into, their existing landscape setting. In doing so, relevant landscape features and characteristics must be conserved and where possible enhanced, having regard to the Gloucestershire Landscape Character Assessment 2006 and the Cotswolds AONB Landscape Character Assessment 2003.

9.3.23. Policy NAT3 – Green Infrastructure: Building with Nature Development must contribute, where appropriate to do so and at a scale commensurate to the proposal, towards the provision, protection and enhancement of the wider green infrastructure network. All proposals for major development will be required to provide a high standard of design for green infrastructure in accordance with established, recognisable standards – including the National Design Guide and Building with Nature Standards.'

Cheltenham Borough Council Local Plan 2011 to 2031 (adopted July 2020)

9.3.24. Policy CP 3: Sustainable Environment states that development will be permitted only where it would 'not harm landscape character.' Furthermore, Policy CP 7: Design states that development will only be permitted where it 'complements and respects neighbouring development and the character of the locality and/or landscape.'

Landscaping in New Development Supplementary Planning Guidance (2004)

9.3.25. The overarching objective of this SPD, produced by Cheltenham Borough Council (CBC), is to set out a framework to ensure that the design, implementation and aftercare of landscaped areas in Cheltenham achieve a high standard. As such, considerable importance is placed on achieving high quality landscaped areas.

9.3.26. Paragraph 4.1 sets out that CBC will expect developers to be responsible for the design, specification, and layout of landscaped areas as part of the overall development of a site.

9.4. Methodology

9.4.1. The assessment follows DMRB LA 107 requirements and advice, together with guidance and recommendations set out within the 2013 Guidelines for Landscape and Visual Impact Assessment (GLVIA3).

9.4.2. A summary of the key steps involved in undertaking this LVIA are set out below. Further details are set out in the following sections:

- Define the scope of assessment, including the study area.
- Establish the baseline − undertake a desk-based study followed by field surveys to:
  - Identify landscape receptors – landscape character as defined by published landscape character assessments, designated landscape areas and landscape features noted on site.
  - Identify visual amenity receptors – people who live or work in or visit the study area and are likely to be affected by the Scheme.
- Identify potential impacts of the Scheme. As set out in LA107 and GLVIA3, the term "*impact*" is defined as "*the action being taken*".
- Identify design measures to mitigate potential adverse effects. As set out in LA107 and GLVIA3, the term "*effect*" is the "*change resulting from that action*" or "*the consequence of that action*". Measures include embedded mitigation (part of the design) and essential mitigation (in addition to design principles). As well as possible enhancement measures (over and above measures required for mitigation).
- Make judgements on receptor sensitivity. This is a receptor's susceptibility to changes combined with the value of the receptor. The DMRB LA107 has tables to assist with establishing sensitivity which are used as a guide for the assessor, these are presented below.
- Identify potential likely magnitude of effect for each receptor, accounting for both embedded and essential mitigation measures. Magnitude of effect is a combination of the size/scale of effect, geographical extent, duration and reversibility. Again, DRMB has tables that guide the assessor in predicting the magnitude of effect on receptors as set out below.
- Combine the receptor's sensitivity with the anticipated magnitude of effect to assess the residual level and significance of the landscape and visual effect systematically and transparently. DMRB has a matrix, as present below, to aid the assessor in establishing the significance of effect, which may be adverse or beneficial.
- Finally, an overall assessment of the potential significant of effect of the Scheme on landscape and visual amenity is provided by considering the effect assessed for each landscape and visual receptor and using professional judgement to establish an overall rating.

9.4.3. The landscape and visual assessment considers the effects of the Scheme during the following timeframes:

- During Construction.
- During year 1 of opening (to represent the maximum effect, before any planted mitigation can take full effect), taking account of the completed project and the traffic using it during both night and day.
- During year 15 after project opening (to represent when any planted mitigation measures can be expected to be reasonably effective, both in winter and summer), taking account of the completed project and the traffic using it during both night and day.

9.4.4. Table 9-1 and Table 9-2 below describe the criteria for the assessment of Sensitivity and Magnitude of Effect (change) for landscape and visual receptors.

9.4.5. These have been compiled from the relevant tables in DMRB 107.

9.4.6. It should be noted the sensitivity rating assigned to residential views has been rated High for all residential receptors, whether in a "dense" area or not. It is considered that residential receptors can generally be considered Highly susceptible to changes to their views and that as a precautionary principle it is assumed that residents would place High value on their view.

Table 9-1 - Sensitivity (susceptibility and value) of receptors

Sensitivity (susceptibility and value) of receptor/resource	Typical description for Landscape Character Receptor	Typical description for Visual Receptors
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).	• Static views from and of major tourist attractions; • Views from and of very important national/international landscapes, cultural/historical sites (e.g. National Parks, UNESCO World Heritage sites); and • Receptors engaged in specific activities for enjoyment of dark skies.
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).	• Views by users of nationally important PRoW / recreational trails (e.g. national trails, long distance footpaths); • Views by users of public open spaces for enjoyment of the countryside (e.g. country parks); • Static views from residential areas, longer transient views from designated public open space, recreational areas; and • Views from and of rare designated landscapes of national importance.
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).	• Static views from schools and other institutional buildings and their outdoor areas; • Views by outdoor workers; • 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; and • Views from and of landscapes of regional importance.
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).	• Views by users of main roads or passengers in public transport on main arterial routes; • Views by indoor workers; • Views by users of recreational/formal sports facilities

Sensitivity (susceptibility and value) of receptor/resource	Typical description for Landscape Character Receptor	Typical description for Visual Receptors
		where the landscape is secondary to enjoyment of the sport; and • Views by users of local public open spaces of limited importance with limited variety or distinctiveness.
Negligible	Landscapes of very low importance and rarity able to accommodate change.	• Quick transient views such as from fast moving vehicles; • Views from industrial area, land awaiting re-development; and • Views from landscapes of no importance with no variety or distinctiveness.

Table Source: DMRB LA 107 Landscape and Visual Effects Table 3.22 and Table 3.41

Table 9-2 - Magnitude of effect

Magnitude of effect (change)		Typical description for Landscape of nature of change	Typical description for Visual Receptors of nature of change
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).	The project, or a part of it, would become the dominant feature or focal point of the view.
	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).	The project, or a part of it, would form a noticeable feature or element of the view which is readily apparent to the receptor.
	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.	

Magnitude of effect (change)		Typical description for Landscape of nature of change	Typical description for Visual Receptors of nature of change
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.	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.
	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.	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.
	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.	No part of the project work or activity would be discernible.

Table Source: DMRB LA 107 Landscape and Visual Effects Table 3.24 and Table 3.43

9.4.7. The significance of landscape and visual effects is determined through combining the sensitivity of the landscape or visual receptor with the magnitude of effect.

9.4.8. The matrix for guiding the professional judgement of the assessor in deciding the significance of landscape and visual effects is set out in the Table 9-3.

Table 9-3 - Landscape and Visual effect significance matrix

Sensitivity of receptor	Magnitude of effect (change)				
	Major	Moderate	Minor	Negligible	No change
Very high	Very large	Large or very large	Moderate or large	Slight	Neutral
High	Large or very large	Moderate or large	Slight or moderate	Slight	Neutral
Medium	Moderate or large	Moderate	Slight	Neutral or slight	Neutral
Low	Slight or moderate	Slight	Neutral or slight	Neutral or slight	Neutral
Negligible	Slight	Neutral or slight	Neutral or slight	Neutral	Neutral

Table Source: DMRB LA 104 Environmental assessment and monitoring Table 3.8.1

9.4.9. Using the principles of LA104 Table 3.7 and professional judgement, effects that are assessed as having either a *Large* or *Very Large* significance of effect, either adverse or beneficial, are generally considered to be 'significant' in EIA terms and thus material in the decision-making process. *Moderate* effects may be considered significant, but depending upon rationale provided by the assessor, may not necessarily be considered material in the decision making. *Slight* or *Neutral* effects are generally not considered significant.

9.4.10. It should be noted that the tables are used as a guide only and reasoning by the assessor is provided for any rating given.

Limits of deviation

9.4.11. The assessment has been conducted within the Limits of Deviation (LoD) outlined within Chapter 2 - The Scheme (application document TR010063 – APP 6.2). The vertical and lateral LoD for the Scheme have been reviewed with respect to sensitive receptors identified within this ES chapter, and would not affect the conclusions of the assessment reported in this chapter.

9.5. Consultation

9.5.1. Full details of consultation undertaken is provided in the Consultation report (TR010063 – APP 5.1 and TR010063 – APP 5.2), a summary is set out below.

9.5.2. A Non-Statutory Consultation took place in the Autumn of 2020 to help identify a preferred option for the new Junction 10. Based on that consultation, the preferred route announcement took place on the 16 June 2021.

9.5.3. A scoping request to PINS included an Environmental Scoping Report (published on the PINS website in July 2021) and a Scoping Opinion was received from PINS in August 2021.

9.5.4. A Statutory Public Consultation took place between December 2021 - February 2022.

9.5.5. Subsequent targeted consultations have been undertaken August – September 2022, December 2022 – February 2023, and May – June 2023.

9.5.6. A combined meeting with GCC officers and the Atkins environment team took place in July 2021 to discuss aspirations for the environmental mitigation and enhancement measures.

9.5.7. This LVIA takes account of relevant comments raised during these consultations.

9.5.8. The Environmental Masterplan (application document TR010063 – APP 2.13) has been produced bearing in mind the requirements of National Highways (NH) design standards and with the assumption that (GCC) would maintain the proposed habitats and planting types in accordance with the Highways and Biodiversity Guidance for Gloucestershire May 2022 (HBGG).

9.5.9. The Environmental Masterplan would be further developed at detail design stage to ensure the principles in the HBGG and those required by NH would be followed to minimise maintenance operations whilst maximising biodiversity, sustainability, and climate resilience aspects, as well as ensuring a visually attractive Scheme.

9.5.10. Further liaison with GCC and NH must be undertaken at detail design to ensure all parties are content with the final landscape and environmental proposals; in particular the plant species requested to not be used (e.g. blackthorn) and planting distances from road edges required for safety.

9.6. Baseline: study area

9.6.1. A Zone of Theoretical Visibility (ZTV) (refer to Figure 9-1 in Appendix 9.1 in application document TR010063 - APP 6.15) was produced to supplement baseline research and to

highlight areas that may potentially be affected by the Scheme. The ZTV is based on a 5m digital terrain model which does not consider the surface detail of buildings or vegetation. 8m building heights were however added to simulate probable screening effects for buildings, but any additional screening effect from existing woodland and trees is not accounted for in the ZTV.

9.6.2. The ZTV covers an extensive area of over 5km. As can be seen from the ZTV the proposed Scheme appears to most likely be visible from within 1km of the footprint of the Scheme (visibility beyond this is largely restricted by intervening ridgelines of surrounding topography).

9.6.3. There is possible visibility from within 2km in areas of slightly higher ground such as at Coombe Hill to the north-west and then ZTV also indicates that there are potential views from over 4km away from hills at Apperley and Sandhurst in the west and from the Cotswolds Area of Outstanding Natural Beauty (AONB) to the east. However, early site visits during the scoping and Preliminary Environmental Information Report (PEIR) stages to these locations (including the AONB) confirmed that the Scheme would either not be visible or would be barely discernible due one or a combination of intervening vegetation, distance and context of view.

9.6.4. Based on the ZTV, topography of the area (generally flat), the scale and type of Scheme (largely existing road infrastructure and no major proposed alterations to topography or height of built elements) it is unlikely that effects on the landscape or visual receptors would be obvious (greater than a negligible effect) beyond 1km.

9.6.5. As set out in the Scoping Report and PEIR a general study area of 1km from the Scheme has therefore been considered appropriate and proportionate for the scale and type of Scheme. It should be noted that this study area has continually been reviewed during iterations of the Scheme to ensure any intervisibility with receptors beyond 1km would not incur any obvious change.

9.6.6. Similarly, despite the Cotswolds AONB being just over 4.5km from the nearest point of the Scheme, given its national status and location on higher ground with potential visual interaction, the AONB has also continually been considered. However, as set out in section 9.7 below, following site visits and consultation with the Cotswolds AONB Board (please refer to the Consultation report (TR010063 – APP 5.1 and TR010063 – APP 5.2), the AONB has been scoped out of a full assessment.

9.7. Baseline: landscape character

9.7.1. Landscape Character Assessments (LCAs) are a method of identifying and describing variations in the character of the landscape and help to identify and explain the unique combination of elements and features that make different landscapes distinctive. They can be carried out at several scales, from national, to regional and local.

9.7.2. Published LCAs have been used to help understand and assess the landscape within the study area.

National Character

9.7.3. Natural England has defined 159 National Character Areas (NCA) across England. The study area is wholly located within NCA No.106 – Seven and Avon Vales. The character is broadly defined as low lying agricultural vale.

County Character

Gloucestershire Landscape Character Assessment

9.7.4. The Gloucestershire Landscape Character Assessment (GLCA), undertaken by Landscape Design Associates in 2006, describes the county landscape character of Gloucestershire, describing 33 Landscape Character Types (LCT) across the County.

9.7.5. The Scheme is wholly located in the Landscape Character Type (LCT) 18 ‘Settled Unwooded Vale’, which extents up to and around LCT 33 ‘Urban’ area of Cheltenham in

the east, beyond LCT 33 'Urban' Gloucester in the south and merges around LCT 12 'Floodplain Farmland' over 3km in the west. Please refer to Figure 9-2 in Appendix 9.1 in application document TR010063 - APP 6.15).

9.7.6. LCT 18 Settled Unwooded Vale has the key characteristics of:

- *Soft, gently undulating to flat landscape, but with intermittent locally elevated areas that project above the otherwise flatter landform.*
- *Area drained by a series of east west aligned tributaries of the Severn, including the Cam, Frome and Chelt.*
- *Mixed arable and pastoral land use enclosed by hedgerow network, in places forming a strong landscape pattern.*
- *Limited woodland cover with mature hedgerow trees and occasional orchards.*
- *Rural areas bordered by large urban and suburban areas and interspersed with commercial and industrial premises.*
- *Varied mix of buildings materials including brick, timber and stone, and slate and thatch roofing.*
- *Proliferation of modern 'suburban' buildings styles and materials.*
- *Major transport corridors pass through the Vale, frequently aligned north south, beyond which is a network of local roads and lanes linking villages and hamlets.*
- *Widespread network of pylons and transmission lines*.

9.7.7. As set out and agreed at Scoping stage it is considered, given the nature of the effects likely to arise as a result of the Scheme and the large scale of the national and county character areas, that NCA 106 and LCT 18 are highly unlikely to be adversely affected to a significant level. As such they are not considered further in the assessment.

Local character

Gloucestershire Landscape Character Assessment

9.7.8. The GLCA further breaks down the landscape typologies into character areas.

9.7.9. The Scheme again lies wholly within the SV6B: Landscape Character Area 'Vale of Gloucester', which essentially covers a similar extent as LCT 18 except it stops at the edge of Gloucester.

9.7.10. The key characteristics of SV6B are described as follows, and have been confirmed as remaining relevant and valid during the site visits:

- "*to the east, the Vale is defined by the rising landform of the Cotswolds escarpment and Oxenton Hill. To the west of the Vale lies the Floodplain Farmland landscape character type;*
- *the intermittent small ridges, hillocks and undulations that rise above the general level of the Vale are important local features;*
- *undulating landform encloses views in some areas whilst in other areas there are distant views beyond the vale landscape towards the Cotswolds Escarpment and the Escarpment Outliers;*
- *woodland is not a characteristic feature of the Vale of Gloucester and is generally limited to few small copses;*
- *There are several notable heritage features…e.g. the Moat House in Uckington;*
- *the M5 forms a spine through the heart of the Vale and, although often screened by adjacent embankments and vegetation, there are frequent filtered views towards the motorway from the surrounding Vale landscape and the noise generated by motorway traffic is readily audible;*
- *there is a widespread network of pylons and transmission lines and views towards high voltage pylons are common in the more gently undulating and flatter areas of the vale;*
- *large watercourses including Hyde Brook, River Swilgate, River Chelt and*

Hatherley Brook generally flow east-west across this landscape before heading south to join the River Severn."

9.7.11. Given the rural/urban edge interface characteristics of SV6B, with agricultural areas punctuated by road and energy infrastructure and a scattering of landscape designations, it is considered that SV6B would have medium susceptibility to change and a medium value with an overall sensitivity of *Medium*.

Gloucester-Cheltenham-Tewkesbury Joint Core Strategy Landscape Characterisation

9.7.12. The Gloucester-Cheltenham-Tewkesbury Joint Core Strategy Landscape Characterisation and Sensitivity Analysis (JCSLCSA, 2013) sets out more focussed landscape character areas on the outskirt of each of these three towns, and further breaks down these areas into Landscape Sensitivity Areas (LSA), providing an analysis of their sensitivity to change.

9.7.13. The JCSLCSA defined the following LCAs within the Scheme extents (which have been verified on site):

9.7.14. LCA C West Cheltenham, Bamfurlong to Uckington (covering the area between Cheltenham, south of the A4019 and east of the M5). This area is characterised by large fields with small-scattered settlements and localised detractors such as pumping stations, pylons and the road infrastructure. Well vegetated water courses and generally well-maintained field hedges. The gentle ridge at Hayden Hill visually divides east from west and the M5 creates a visual boundary to the west, although the Cotswold AONB escarpment is prominent in most views.

9.7.15. Taking into account the above and on-site observations, it is considered that LCA C has a medium susceptibility to change and a medium value with an overall sensitivity of *Medium*.

9.7.16. LCA D West of M5, Knightsbridge to Down Hatherley (covering the area between Boddington, south of the A4019 and west of the M5). This area is characterised by well-maintained low hedgerows to medium-large fields. Mature trees regularly distributed along boundaries. Strong rural character but tranquillity reduced by drone of M5 and presence of electricity pylons.

9.7.17. Taking into account the above and on-site observations, it is considered that LCA D has a medium susceptibility to change and a medium value with an overall sensitivity of *Medium*.

9.7.18. LCA E Swindon Village to Stoke Orchard (covering the area between north of the A4019 and east of the M5). Physically and often visually bound by the M5 and A4019, south and west of Elmstone-Hardwicke the condition and quality of the vegetation declines compared to the areas to the east, and tranquillity declines in proximity to roads. Fields are large and intensively farmed.

9.7.19. Taking into account the above and on-site observations, it is considered that LCA E has a medium susceptibility to change and a medium value with an overall sensitivity of *Medium*.

9.7.20. The final "quarter" of the study area (that to the west of the M5 and north of the A4019) has not been characterised within the JCSLCSA. This area is therefore assessed with the site scale landscape character below.

Landscape designations

9.7.21. The majority of the Scheme lies within land defined as Green Belt. This is not a statutory landscape designation, but a planning policy to prevent urban sprawl by keeping land permanently open. Its presence is relevant here regarding the potential effect of the Scheme on the openness of the Green Belt. Commentary on the overall expected effect on openness is noted within the landscape effects summary. The Planning Statement and Schedule of Accordance with National Policy Statement (application document TR010063 – APP 7.1) that accompanies the application for a DCO provides more detail on the Scheme compliance with Green Belt policy.

9.7.22. The Cotswolds Area of Outstanding Natural Beauty (AONB) is a nationally designated area of importance, recognised for its distinctive landscape with wide open views, dry stone walls, intimate valleys, flower rich grasslands, ancient woodlands, dark skies, tranquillity, archaeology, historic and cultural heritage and distinctive Cotswold stone architecture. The AONB is located 4.5km from the closest extent of the works on the A4019 and over 6km from the M5 junction 10 itself. Although this is quite some distance, given the National status of this designation and the relevance to NPSNN, it is important to consider any visibility from the AONB of the Scheme that may detrimentally impact upon its unique and attractive qualities.

9.7.23. As set out in section 9.5, following statutory consultation with the Cotswold AONB Board, it has been agreed that there is not likely to be any significant impact on the special qualities or setting of this landscape designation. Similarly, site visits to higher ground within the AONB during production of the PEIR concluded that although there are views towards the Scheme, these are very long range and changes due to the Scheme are highly unlikely to be significantly noticeable within the context of the existing views. Therefore, the AONB and views from it are not assessed any further.

Scheme Scale Landscape Character

General description

9.7.24. For the purpose of this assessment, the Scheme scale landscape character focusses on the landscape features identified during site visits within the Site extents (and therefore directly affected) but also notes the visually inter-related extents beyond this (generally within 0.5-1km).

9.7.25. The landscape within the focussed study area is typical of the character described within the published LCAs, being a gently undulating vale landscape featuring a mixture of arable and pastoral fields. Arable fields tend to be more frequent in the west of the study area adjacent to the M5 corridor and larger in size than those of pasture. Smaller pastoral fields, often horse paddocks, are often located adjacent to the urban edges of Cheltenham in the east near Uckington, Swindon Village and Springbank.

9.7.26. The land rises up in the east and north-east beyond the wider study area creating the Cotswolds escarpment and outliners, such as Cleeve Hill and Oxenton Hill which form part of the Cotswold AONB. These are prominent features on the skyline, often visible from the low-lying open areas, although between 4.5km to 6km away from the Scheme.

9.7.27. Flat low-lying floodplain farmland exists to the south and west, where tributaries to the River Severn form a network of smaller rivers, streams, brooks and ditches. Views across this floodplain landscape are possible from the slightly higher ground in the far west of the wider study area at Coombe Hill, where a ridge line exists which the A38 follows, running parallel with the River Severn; views toward the Scheme itself are heavily restricted by intervening blocks of trees.

9.7.28. The M5 forms a major feature through the landscape, although this transport corridor is often well screened in places by vegetation lining the route. The carriageway, for most of the Scheme extent, is slightly raised above the surrounding flat landscape, with small, vegetated embankments to either side. At the northern end of the Scheme, the M5 is set within a slight cutting. The embankments/cuttings are at times heavily planted with tall trees and shrubs, while intermittently these break up into patchy scrub and individual trees enabling views out across the surrounding vale landscape. Overbridges and the existing raised Junction 10 tend to be well screened by vegetation. The M5 is unlit along this section.

9.7.29. The A4019 at the junction with the M5 rises approximately 9-10m above the surrounding landscape and although there is substantial vegetation to provide screening, some views to the west are possible. As the road runs east away from the junction, it falls down to the level of the surrounding landscape at the junction with Withybridge Lane. Most of the road is bordered by low field hedgerows, allowing open views across the landscape. East of Uckington the road becomes more enclosed by residential and community properties, and associated perimeter vegetation, becoming urban in character with retail and business

parks appearing on the approach to the junction with the B4634. To the west of Uckington the carriageway is unlit, but to the east it becomes lit on the approach to the outskirts of Cheltenham.

9.7.30. The River Chelt passes centrally through the focussed study area, meandering east to west through floodplain farmland. It runs from Kingsditch, then to the south of Uckington, through Withy Bridge before passing under the M5 to reach Boddington and Barrow in the west.

9.7.31. Pairs of high voltage pylons cross the southern section of this floodplain from Springbank in the east, heading west past Hayden, crossing the M5 west towards Prior's Norton. Further pylons branch off these, running north parallel with the M5, passing Boddington and heading off past Hardwicke. The pylons form prominent features in many views and along the skyline in the study area.

9.7.32. Settlements tend to be small clusters of properties generally focused on a farm, village hall or church, which are often well screened by property vegetation, although properties along the A4019 generally have more open views. The area around Sheldon and Stanboro in particular, is quite distinctive in character, heavily treed with large mature vegetation and attractive manor farm estate qualities, although the noise from and occasional views of the motorway and A4019 disturbs the sense of seclusion and tranquillity.

Tranquillity

9.7.33. Generally, the sense of tranquillity across the study area is disturbed by the noise from the M5 and the A4019, particularly when close by.

9.7.34. Although the presence of pylons and telegraph poles in many views also detracts from the sense of isolation, there are several locations on some PRoW away from the roads, where views are contained by woodland and which allow a greater sense of tranquillity.

Habitats and vegetation

9.7.35. As noted above, the area is dominated by arable fields, and improved grass lands, bordered by generally species poor hedges.

9.7.36. However, some areas of higher nature conservation value exist, including lowland meadow, species rich hedges, woodland, orchards and individual trees. Please refer to Chapter 7 - Biodiversity (application document TR010063 – APP 6.5) of this ES for further details.

9.7.37. The arboricultural survey (refer to Appendix 9.4 in application document TR010063 - APP 6.15) identified 11 category A trees and one veteran tree (G249C in arb survey), which is Category C.

9.7.38. A line of poplar trees (G003 in arb survey) adjacent to the A4019, is designated as a group TPO (TPO325 Northwest Cheltenham, Uckington) and is a distinctive feature in the landscape. A few other TPOs exist in the study area but these are outside of the Scheme footprint and would not be directly affected.

Lighting

9.7.39. The majority of the roads within the focussed and wider study area are not currently lit at night. There is one lighting column on Junction 10 at the entrance to the north-bound offslip and there are lighting columns on both sides of the A4019 adjacent to the West Cheltenham Fire Station, on the approach to Gallagher retail park and beyond this into Cheltenham. Elsewhere the roads are unlit.

9.7.40. Figure 9-1 below, illustrates the Countryside Charity's Dark Sky mapping for the whole study area. The colours indicate that the Scheme is largely within an area of a light level between 0.5 – 1 NanoWatts/cm^2/ar, which is typical of a rural area. The lighting intensity increases to a more urban intensity from Uckington towards Cheltenham.

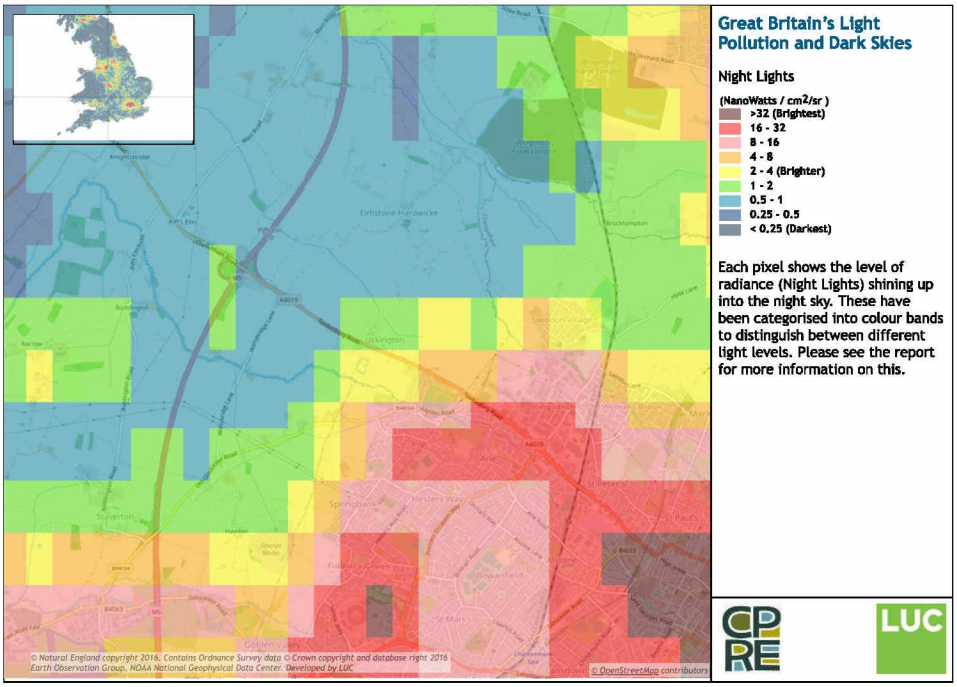

Figure 9-1 - Light Pollution and Dark Skies Map

Sensitivity

9.7.41. Given the rural/urban edge interface characteristics of the Scheme scale landscape, with agricultural areas punctuated by road and energy infrastructure, a scattering of landscape designations and generally low light pollution, it is considered that the Scheme scale landscape character can be considered to have medium susceptibility to change and a medium value with an overall sensitivity of *Medium*.

9.8. Baseline: visual amenity

9.8.1. Visual receptors are the people who live or work in or visit the landscape, and who potentially could be affected by the Scheme.

9.8.2. Potential visual receptors were identified by desktop study using OS and google maps during the scoping and PEIR stages and confirmed on site.

9.8.3. As noted earlier, a ZTV (refer to Figure 9-1 in Appendix 9.1 in application document TR010063 - APP 6.15) was produced to supplement this research and to further highlight areas that may potentially be impacted by the Scheme. It should be noted that the ZTV does not account for all intervening vegetation and therefore is indicative, with site visits identifying those receptors most likely to be affected.

9.8.4. Table 9-4 below lists the potential visual receptors identified in the Scoping Report and PEIR which have been scoped in or scoped out from further assessment in the LVIA.

9.8.5. It is considered that the visual receptors identified for the LVIA are proportionate and represent the most potentially affected areas and these have been agreed with the relevant statutory consultees in the Scoping Opinion and following the PEIR consultation.

Table 9-4 - Visual receptors scoped in and out for further assessment

Visual Receptor (VR)	IN / OUT	Comments /Justification	VR No for LVIA
The network of PRoWs within 500m of the Scheme.	IN	Views from PRoWs, particularly those used as leisure routes, are generally considered sensitive. PRoW within 500m are most likely to be directly affected by the Scheme. Note that visibility from the full length of PRoW within 500m have been considered – even where they extend beyond 500m.	7a, 7b, 9, 12, 14, 16
The network of PRoWs beyond 500m of the Scheme.	OUT	There are very few PRoW beyond 500m that do not also pass within 500m. Those that are purely beyond 500m of the Scheme are not assessed further as they are considered unlikely to have noticeable views of the Scheme due to topography, intervening buildings and/or vegetation, or distance.	N/A
PRoW within AONB particularly at Crickley Hill/Cleeve Common (closest, highest points at approx.7.7km 8.5km to the Link Road)	OUT	Although beyond 500m, due to the national status of the area, views from publicly accessible areas within the AONB at Crickley Hill and Cleeve Common were considered in the PEIR. Initial vegetation loss may potentially be discernible to a keen eye; however, it is considered that the Scheme is highly unlikely to result in significant effects given the viewing distance and existing context of view with the expanse of Cheltenham, therefore views from the AONB are not considered further in this LVIA.	N/A
Properties on Withybridge Gardens	IN	Based on current (DF3) design all properties would require demolition. This is noted within LVIA for clarity, but no further assessment made.	1
Properties Withybridge and Laburnum on the A4019	IN	Based on current (DF3) design all properties would require demolition. This is noted within LVIA for clarity, but no further assessment made.	2
Properties on Stanboro Lane, Sheldon including Sheldon Nurseries.	IN	Based on current (DF3) design all properties would require demolition. This is noted within LVIA for clarity, but no further assessment made.	3
Properties at Sheldon Cottages	IN	Previous iterations saw demolition of these properties, but changes to the design due to ecological mitigation requirements means these 2 properties would be retained.	3a
Properties at Piffs Elm including Stanboro Lane Nurseries, Stanboro Cottage B&B/ fishing lake and The Gloucester Old Spot public house, adjacent Main Road and A4019 junction.	IN	Views from these properties have potential to be affected by the Scheme.	15a, 15b
Barn Farm, Stanboro Lane.	IN	Visual impacts from vegetation removal to MW corridor immediately adjacent and over longer	4

Visual Receptor (VR)	IN / OUT	Comments /Justification	VR No for LVIA
		distance to improved junction roundabout and slip road.	
Informal Traveller site close to the eastern verge of the M5 near J10.	IN	Visual impact due to loss of screening vegetation in motorway verge that may be avoided/mitigated through detail design.	5
Residents and businesses of Hardwicke (850m-1.5km)	OUT	The flat topography and intervening hedgerow/woodland blocks and trees as well as outbuildings, already screen views towards the Scheme. The main works at the junction itself are over 1.5km away from the closest property. Although considered unlikely, it may possible that upper floor views from some receptors would be able to make out the initial loss of vegetation. However, given both the distance and intervening vegetation, this is anticipated to be barely noticeable, and these receptors are not considered further.	N/A
Properties at Colman's Farm and Elmstone Hardwicke on Lowdilow Lane and Church Lane.	IN	Visual impact due to loss of screening vegetation in motorway verge that may be avoided/mitigated through detail design.	17
Group of properties at Butlers Court, west of Withybridge Lane	IN	Some visual impact from proposed the Link Road. Existing vegetation provides some effective screening. Impacts due to Motorway verge works and new roundabout junction and attenuation basin.	6
Properties at Mill House Farm, east of Withybridge Lane.	IN	Visual impact from the Link Road. Existing vegetation provides some effective screening, but views are highly likely of the new River Chelt Bridge.	8
Group of properties at The House in the Tree public house and Elm Cottage, Orchard House and Hayden Farm, at the junction of Withybridge Lane and B4634.	IN	Visual impact from the Link Road, depending upon height of bridge, and junction works at B4634. Existing vegetation provides some screening, but views are likely.	9
Properties at Hayden Hill Fruit Farm, on the B4634.	IN	Visual impact from the Link Road and junction works at B4634.	10
Properties off the B4634 at Hayden Hill.	IN	Visual impact from the Link Road. Existing vegetation provides some effective screening.	11
Properties in Hayden and Hayden Green. (approx. 700m from Scheme)	OUT	Views towards the Scheme are quite heavily screened by intervening buildings and mature vegetation and trees along the roads, field boundaries and gardens. Buildings are also generally orientated away from the Scheme further restricting views. It is possible that upper floor views from some receptors would be able to	N/A

Visual Receptor (VR)	IN / OUT	Comments /Justification	VR No for LVIA
		make out the initial loss of vegetation. However, given the intervening vegetation, this is anticipated to not be overly noticeable, and these receptors are not considered further.	
Properties within Springbank (inc. Pilgrove Way, Hayden Road) approx. 600m away at closest point on A4019	OUT	Receptors are on edge of the study area. Views towards the Scheme are largely prevented by the topography with a ridgeline preventing long range views. In addition, views are heavily screened by intervening buildings and mature vegetation and trees along the roads, field boundaries and gardens These receptors are not considered further.	N/A
Hayden Allotments. Approx. 400m away form A4019 works	OUT	Views towards the Scheme are largely prevented by the topography with a ridgeline intervening long range views. In addition, views are heavily screened by intervening buildings and mature vegetation and trees along the roads, field boundaries and gardens. These receptors are not considered further.	N/A
Properties and businesses in Kingsditch.	IN	Views from the properties have potential to be affected by the Scheme, although effects are not expected to be significant, they are assessed further.	25
Properties, Allotments and playing fields in Swindon Village (900m at closet point to A4019 works)	OUT	Views towards the Scheme are heavily screened by topography, intervening mature vegetation and trees, especially along the River Swilgate. Neutral effect expected.	N/A
Properties in Uckington, south of the A4019	IN	Visual impact from the Link Road and some encroachment for A4019 properties. Existing vegetation provides some effective screening. Setting for scheduled monument needs careful mitigation.	19
Properties around The Green, Uckington.	IN	Some impacts from vegetation clearance along A4019 and encroachment of property on A4019.	18a, 18b, 18c
Properties along the A4019, east of Uckington, including residential, business and community facilities.	IN	Impacts from vegetation clearance, widening and occasional encroachment of land along A4019. Impacts likely to be minor to major depending upon detail design.	22, 23, 24,
Properties in Boddington	IN	Visual impact due to loss of screening vegetation in MW verge that may be avoided/mitigated through detail design.	13
Properties between Knightsbridge and Coombe Hill (1.4km at closest point)	OUT	Desktop appraisal noted it is highly likely that views from properties in this area have views towards the Scheme heavily screened by existing garden, road and field vegetation. It is possible that there may be glimpses of initial vegetation clearance, but it is unlikely to be overly noticeable, given both the distance and intervening vegetation. Receptors not considered further.	N/A

Visual Receptor (VR)	IN / OUT	Comments /Justification	VR No for LVIA
Users of local road network	-	Users of the local road network that would be directly affected by the Scheme have been considered, i.e. the M5, A4019, and B4634. Consideration has been given to drivers, cyclists and pedestrians separately – where relevant.	26

9.8.6. The visual receptors taken forward for consideration in this LVIA are indicated on Figure 9-2 in Appendix 9.1 (TR010063 - APP 6.15) and are detailed in the Visual Assessment Table in Appendix 9.2 (TR010063 - APP 6.15).

9.8.7. Site visits were undertaken in October 2020, April 2021 and November 2021.

9.8.8. Most of the visual receptors assessed are either residential properties or public rights of way (PRoW), which tend to have the highest sensitivity to change. Few other receptor types with potential views of the Scheme exist within the study area, except for occasional public houses, the fire station and supermarkets at Gallagher Junction. Consideration has also been given to road users, be they vehicle, cycle or pedestrians.

9.8.9. A brief description of generalised existing views for the visual receptors are noted below. However, to avoid repetitive text and for ease of reading, the detailed baseline view for each receptor is described more fully alongside the potential visual impacts in the Visual Assessment Table in Appendix 9.2 (TR010063 - APP 6.15). Contextual site photographs are also provided in Appendix 9.3 (TR010063 - APP 6.15) for most receptors.

Residential properties

9.8.10. There are several small clusters of properties dotted within the study area, such as at Uckington, Withybridge Gardens and Sheldon; whilst at the eastern end of the Scheme the density of properties increases on the approach to Cheltenham.

9.8.11. Views vary; sometimes enclosed by property vegetation or outbuildings, sometimes more open across quite a rural landscape, or, particularly toward the eastern end of the A4019, over a more urbanised landscape. Most views however are punctuated with detracting views of pylons or road infrastructure elements.

Public Rights of Way

9.8.12. The study area contains several footpaths and bridleways, including the Long-Distance Footpath of Cheltenham Circular.

9.8.13. The PRoWs assessed are generally within agricultural or pastoral fields, often running along hedged boundaries or the side of streams or rivers, occasionally crossing open areas within the fields. Mid-range views are limited by intervening hedge boundaries, buildings and the flat topography. Longer ranging views are possible of the raised land beyond the study area which includes the Cotswold escarpment and outliers.

9.9. Potential impacts

9.9.1. Full details of the Scheme proposals are set out in Chapter 2 – The Scheme (application document TR010063 – APP 6.2). Below is a summary of the general potential impacts on landscape and visual amenity that may be caused by the proposed Scheme.

9.9.2. The Scheme Landscape Design has been produced in line with National Highway's DMRB requirements and Good Road Design principles. Full consideration of these shall be undertaken at detail design to ensure compliance of the planting design taking account of longer-term maintenance, management and safety requirements.

Construction

9.9.3. Demolition and construction activities associated with this development would take place over a period of approximately 18 months.

9.9.4. During Construction, the general impacts of the Scheme that are likely to cause effects through changes to the landscape or visual amenity of the area are:

- the introduction of temporary construction compounds, storage areas and haul routes, temporary lighting and traffic management, presence of construction machinery including cranes and increased vehicular movement.
- diversions of roads with associated signage.
- vegetation removal activity.
- demolition of buildings and structures.
- construction of embankments and cuttings.
- construction of new motorway junction, slip roads and the Link Road.
- realignment of the A4019.
- temporary closure/diversion of PRoWs.
- construction of attenuation basins, flood storage area, flood compensation area and associated drainage features.

Operation

9.9.5. During Operation, the general impacts of the Scheme that are likely to cause effects through changes to the landscape or visual amenity of the area are:

- loss of existing buildings and structures.
- loss of vegetation – trees and hedges in particular would be obvious – please refer to application document TR010063 – APP 9.15 Appendix 9.4 for the Arboricultural Impact Assessment (AIA).
- increased visual prominence of infrastructure features including bridges, new roads, junctions and associated earthworks, particularly in the early years of operation as mitigation planting is maturing.
- new crossing features on existing PRoW, or permanently diverted PRoW routes.
- presence of new drainage features visible in the landscape, such as attenuation basins, culverts; ditches, and flood storage and flood compensation areas.
- new signage, lighting, and other road safety features.
- new areas of planting and seeding as part of the Scheme design.
- introduction of other environmental design measures, including noise barriers and protected species mitigation structures.

9.10. Mitigation measures

9.10.1. DMRB LA 107 sets out that the “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.”

9.10.2. As required in DMRB LA 104 and set out in Chapter 2 – The Scheme (application document TR010063 – APP 6.2) of this ES, the Scheme Landscape Design includes embedded and essential mitigation measures, which are assessed within this LVIA, these are outlined below.

Embedded mitigation

9.10.3. Embedded mitigation is defined by DMRB LA 104 as “project design principles adopted to avoid or prevent adverse environmental effects”.

9.10.4. Measures, such as, retention of vegetation, avoiding destruction of habitats and inclusion of SuDS, have been consistently considered throughout Scheme development, resulting in, for instance, realignment of the route and inclusion of special environmental structures to avoid adverse effects.

9.10.5. The embedded mitigation measures are set out in Chapter 2 – The Scheme (application document TR010063 – APP 6.2) and the EMP (application document TR010063 – APP 7.3).

Essential mitigation

9.10.6. Essential mitigation is defined by DMRB LA 104 as “measures required to reduce and if possible offset likely significant adverse environmental effects, in support of the reported significance of effects in the environmental assessment”.

9.10.7. The full mitigation measures encompassing mitigation requirements for ecology, noise and landscape assets are indicated on the Environmental Masterplan (Figures 1- 14, application document TR010063 - APP 2.13) and set out in the EMP (application document TR010063 – APP 7.3). They are briefly summarised below:

Construction mitigation

9.10.8. Mitigation measures to reduce disruption, visual intrusion and to assist in landscape integration during the construction period are summarised as:

- Construction programme to be kept to the minimum practicable time to reduce the duration of any landscape and visual effects.
- Construction plant and materials storage areas to be appropriately sited to minimise their landscape and visual effect.
- Work during hours of darkness to be avoided as far as practicable, and where necessary directed lighting would be used to minimise light pollution/glare.
- Protection of retained vegetation in accordance with the Arboricultural Impact Assessment (AIA) – please refer to Appendix 9.4 (application document TR010063 – APP 9.15).
- Removal of minimal extent of vegetation necessary for the works.

Operational mitigation

9.10.9. The proposed Landscape and Visual operational mitigation focuses on the following principles:

- Replacement of woodland and scrub along the M5 and around the new junction to reinstate screening effect and integrate back into the landscape.
- Replacement planting along the realigned sections of the A4019 to help embed this route back into the landscape and provide some buffer to the proposed site allocations north of the A4019, as well as ensuring visual amenity for receptors; typically, this includes roadside hedgerows with trees.
- Individual trees to central reserves and verges to integrate the realigned A4019 route and provide connectivity across the road for wildlife.
- Hedgerow along the Link Road with supplementary blocks of wood and individual trees particularly around the bridge to reflect local character of road infrastructure and provide some screening for visual receptors, whilst creating an attractive route for all users.
- Species rich grass on low nutrient soil to all embankments and verges, supplemented with bulb planting in some areas.

- Wetland grass and planting to attenuation basins, which themselves would be designed organically to sit more naturally within the landscape.
- Naturalistic earth contouring and appropriate planting to the flood storage area to embed into the landscape and provide attractive habitat area. (Note: it is anticipated to introduce some areas of planting/seeding but allow most of this area to naturally develop).
- Where in NH jurisdiction, planting is to be in accordance with NH requirements (NB. liaison with NH to be undertaken during detail design to agree planting proposals in NH jurisdiction).
- Where in GCC jurisdiction, planting to be in accordance with GCC Highways and Biodiversity Guidance for Gloucestershire May 2022.
- Where providing a screening function, replacement planting should include evergreen species to provide function during winter months.
- Replacing habitat losses and providing additional habitat to ensure a minimum 10% biodiversity net gain.
- Native or non-invasive species to be proposed.
- Locally source grass seeding for replacement and proposed species rich grass areas.
- Links to PRoWs and footpaths to be reinstated and created (where severance or diversion has resulted from the Scheme construction).
- The lighting design would seek to minimise obtrusive light pollution by using full cut off luminaires with louvres.
- Noise barriers would be designed in consultation with those directly affected to ensure they provide visual as well as noise amenity.
- Bat roost compensatory structures, are to reflect the requirements of the Bat Mitigation Strategy (application document TR010063 - APP 6.15) existing vernacular of buildings in size, form and materials, whilst accommodating the requirements of the species they are intended to support.

Enhancement recommendations

9.10.10. Enhancement is defined by DMRB LA 104 as “a measure that is over and above what is required to mitigate the adverse effects of a project”.

9.10.11. The Scheme design includes enhancement measures that are associated with ecological benefits such as improving existing hedgerows for dormice and bank reprofiling and in channel enhancement along watercourses; these are described in more detail within the Biodiversity Chapter 7 (TR010063 – APP 6.5).

9.10.12. Enhancement recommendations relevant to landscape and visual amenity would be considered at detail design/construction to provide further improvements to the Scheme and the existing retained features within, however, these measures are recommendations only at this stage and are therefore not assumed within the LVIA. The additional enhancement measures are set out in this chapter’s Summary and Recommendations section.

9.11. Residual effects – Landscape character

9.11.1. This section presents the assessment of likely significant effects on landscape character resulting from the construction and operation of the Scheme.

9.11.2. The assessment of effects takes into account the likely effects on the local and site scale landscape character accounting for the implementation of embedded and essential mitigation measures to determine the significance of the residual effects.

9.11.3. As set out in the baseline, national and regional landscape character has been scoped out along with landscape designations. The assessment therefore considers only local

character (as defined by the published GLCA - LCA SV6B Vale of Gloucester, the JCSLCSA LCA C, D and E) and the Scheme scale defined landscape character.

Construction effects

9.11.4. There is anticipated to be extensive vegetation clearance along the M5 corridor, within and around the junction itself, to enable construction of the new junction overbridges and slip roads to take place. The majority of this vegetation is woodland/scrub to the junction and slip roads and linear/scattered trees and shrubs and grass to the corridor. A small section of woodland/scrub vegetation within the existing north bound on-slip (south-west quarter of the junction) and a section of woodland just east of the south-bound carriageway (south-east quarter) can be retained.

9.11.5. The A4019 widening would result in the loss of verge hedgerow and trees to both sides between the M5J10 and Uckington, and to the east bound side from Uckington to Gallagher junction. Field hedges along the alignment of the Link Road would be severed along with some trees within them where the crossing of the River Chelt is proposed. Hedge to either side of the B4063 would also be lost where the Link Road junction is proposed.

9.11.6. The properties at Withybridge Gardens, Sheldon and along the east bound side of A4019 would be demolished along with associated garden vegetation.

9.11.7. Earthworks and construction activity would also be extensive, creating embankments for the new slip roads and Link Road as well as for the right to flood/drain areas, attenuation basins, the flood compensation area, and the flood storage area.

9.11.8. Soil storage areas would create temporary features within fields around the junction area and proposed Link Road route and there are two site compounds proposed either side of the A4019 just east of junction 10 which would also be uncharacteristic features in the landscape. Please refer to the Order limits and Land Take figure in Appendix 1.3 TR010063 - APP 6.15 for proposed locations of these features.

9.11.9. In terms of SV6B, given the very localised area affected compared to the overall extent of this character area, *Minor Adverse* effects are anticipated for SV6B as a whole. Therefore, with a sensitivity of *Medium* and magnitude of effect *Minor*, the significance of effect during construction is expected to be *Slight Adverse* and the overall characteristic features are not expected to be altered.

9.11.10. On the more focussed scale the localised vegetation clearance, building demolition activity and other construction activities noted above are likely to cause similar initial adverse effects on the JCSLCSA character areas (LCA C, D & E) and the Scheme scale characteristics. There would also be a reduction in tranquillity due to construction noise and the presence of construction vehicles, soil storage heaps and site compounds altering the sense of place.

9.11.11. For all of these character areas *Major Adverse* effects are anticipated during construction. Therefore, with a sensitivity of *Medium* and *Major* magnitude of effect, the significance of effect during construction is expected to be *Moderate Adverse*. Moderate rather than Large has been assessed given that the character and sense of place is likely to be diminished rather than fully destroyed. This is considered a significant but temporary effect for the duration of construction.

Operational effects year 1

9.11.12. Upon completion, the loss of the vegetation to the M5 and A4019 and the buildings on Withybridge Gardens, at Sheldon and along the A4019, would remain obvious locally.

9.11.13. The new M5J10 overbridges and slip roads would be a dramatic change but, although more visibly apparent due to lack of screening vegetation, they would remain characteristic of the area. The Link Road and bridge over the River Chelt would present a new raised feature in LCA C, however, the type and scale of this road is not atypical or incongruous to the existing landscape characteristics of this area.

9.11.14. Whilst not typical features of the area, the proposed "naturalistic" earthworks for the formation of the flood storage area and the attenuation basins would ensure they do not appear at odds with the landscape, although initially the fencing and access road surfacing would be obvious until grass and proposed planting began to establish.

9.11.15. The requirement for some lighting columns at the new junction 10, on sections of the A4019 and at the link road junctions would present slightly atypical characteristics in these very localised areas, during both day and night-time with visual 'street clutter' and some light pollution possible. The Link Road is not proposed to be lit, except at the junctions and there is a "dark section" proposed on the A4019 as required for bat mitigation. The proposed directional full cut-off LED luminaires and backlight control louvers would help to further limit light pollution. It is anticipated that the Scheme would alter the Countryside Charity's Dark Sky mapping increasing the extent of 1-2 NanoWatts/cm^2/ar over J10 and although adverse night-time effects are expected, the overall effect is not expected to be significant.

9.11.16. Replacement and mitigation planting, such as hedgerows to the new/realigned road boundaries, woodland blocks to junction verges, and trees to the central reserve on the A4019, would not be providing their intended function at year 1.

9.11.17. It is considered that, whilst mitigation planting is establishing and therefore not fulfilling its purpose, the magnitude of effect at year 1 for the whole SV6B character area, would be *Minor Adverse* resulting in a *Slight Adverse* significance of effect. There is not expected to be any noticeable difference between summer and winter effects.

9.11.18. For the more focused Scheme scale character areas, given the extensive loss of mature vegetation, the overall magnitude of effect at year 1 is considered to be *Moderate Adverse* resulting in a *Moderate Adverse* and significant effect. It should be noted, however, that this would be a temporary state as the mitigation planting begins to establish and provide a sense of integration into the landscape. There is not expected to be any noticeable difference between summer and winter effects, although summer may provide marginally more integration from existing vegetation.

Operational effects year 15

9.11.19. By operational year 15, the proposed mitigation planting, although not fully mature, would have begun to fulfil its screening and integration functions. Hedgerows along the roads and within fields beyond (where enhanced as ecological mitigation) would have strengthened in height and shape, trees within them would begin to provide visual screening and enclosure. Trees and species rich grass to verges and central reservations would also be functioning to create an attractive sense of place, whilst planting to the attenuation basins and flood storage area would also have established to embed these into the landscape, with the flood storage area potentially becoming an asset in the landscape as a new valued habitat area.

9.11.20. It is anticipated that the woodland and boundary planting to Junction 10 and the M5 and A4109 corridors would have been reinstated to begin to recreate, if not improve (due to dense planting and evergreen species), the existing screening effect to these areas. The planting to the Link Road would also work to embed this feature into the landscape and ecological measures to the River Chelt would be providing beneficial effects improving the habitat here.

9.11.21. The typical characteristics of the wider SV6B would therefore be retained and potentially enhanced with the M5 becoming more embedded in the landscape, hedgerows being infilled, new habitats created. It is expected that there would be a *Negligible* Beneficial effect on the landscape character SV6B, resulting in a *Neutral* significance of effect, with no noticeable difference between summer and winter effects given that views of infrastructure are typical of this LCA.

9.11.22. In some localised areas, such as at Sheldon, Withybridge Gardens and the eastern end of the A4019 where extensive demolition of properties is required, the character is likely to have changed; however, these changes need not necessarily be considered adverse. The flood storage area for instance would be a new habitat area; the planting to the widened A4019 is expected to enhance the character of the road with more varied plant

species and trees to the central reserve creating an avenue effect and enhancing the sense of place, and at Sheldon the proposed planting to the new junction embankment is expected to begin to recreate the secluded wooded manor farm character of this small area.

9.11.23. For the JCSLCSA character areas (LCA C, D & E) and the Scheme scale characteristics a *Negligible Beneficial* change is anticipated, which on balance is considered to potentially result in a Slight Beneficial significance of effect.

Summary – Landscape

9.11.24. Table 9-5 provides a summary of the predicted effects on landscape character.

Table 9-5 - Summary of Significance of Effect - Landscape

Landscape	Sensitivity	Construction Effects	Operation Effects Yr 1	Operation Effects Yr 15
SV6B	Medium	**Magnitude**: Minor Adverse **Significance**: Slight Adverse	**Magnitude**: Minor Adverse **Significance**: Slight Adverse	**Magnitude**: Negligible Beneficial **Significance**: Neutral
LCA C	Medium	**Magnitude**: Major Adverse **Significance**: Moderate Adverse	**Magnitude**: Moderate Adverse **Significance**: Moderate Adverse	**Magnitude**: Negligible Beneficial **Significance**: Slight Beneficial
LCA D	Medium	**Magnitude**: Major Adverse **Significance**: Moderate Adverse	**Magnitude**: Moderate Adverse **Significance**: Moderate Adverse	**Magnitude**: Negligible Beneficial **Significance**: Slight Beneficial
LCA E	Medium	**Magnitude**: Major Adverse **Significance**: Moderate Adverse	**Magnitude**: Moderate Adverse **Significance**: Moderate Adverse	**Magnitude**: Negligible Beneficial **Significance**: Slight Beneficial
Scheme Scale	Medium	**Magnitude**: Major Adverse **Significance**: Moderate Adverse	**Magnitude**: Moderate Adverse **Significance**: Moderate Adverse	**Magnitude**: Negligible Beneficial **Significance**: Slight Beneficial
OVERALL LANDSCAPE EFFECT	Medium	**Significance of Effect**: Moderate Adverse	**Significance of Effect**: Moderate Adverse	**Significance of Effect**: Slight Beneficial

9.11.25. Although there would be increased presence of roads and associated infrastructure, these would essentially be in keeping with the existing landscape character of the area and with replanting to roadsides and other embedded and essential mitigation, in the long term it

is considered that the Scheme would sit comfortably in the landscape and potentially provide an enhancement of the environment and sense of place.

9.11.26. Similarly, in regard to Green Belt and openness, the Link Road would be a new feature in the landscape, but it is not anticipated that it would significantly reduce the feeling of openness in this small area. The proposed roadside planting would help embed the road, whilst also allowing filtered views through and across the Link Road. The Scheme proposes to replace lost vegetation to existing road verges reinstating the filtered openness provided by these features.

9.11.27. In summary, there would be significant but temporary effects during construction and immediately upon completion. However, as the proposed landscape mitigation measures gradually fulfil their function, and certainly by year 15, it is anticipated that the Scheme could provide overall *Beneficial* effects on the landscape character.

9.12. Residual effects - Visual amenity

9.12.1. A detailed description of the baseline visual amenity for each of the VRs is described in the Visual Assessment Table in Appendix 9.2 (TR010063 - APP 6.15). This table also sets out the potential changes (effect) to the views, as a result of the Scheme, and the significance of that effect during construction, upon completion and at Year 15. The assessment rating includes consideration of seasonal changes and possible effects from day and night-time impacts of the Scheme.

9.12.2. Figure 9-2 in Appendix 9.1 (TR010063 - APP 6.15) indicates the location of the Visual Receptors (VR) groups. Photograph Sheets in Appendix 9.4 (TR010063 - APP 6.15) provide indicative photographs for most VR. Please note that photographs are not necessarily always taken from the VR location but are sometimes from locations along the Scheme alignment itself looking back towards the VR as this helps to understand the extent to which the Scheme would be visible to the VR.

9.12.3. A brief summary of the likely effects is described in the paragraphs below and Table 9-4 provides a colour coded summary of the significance of effects for all VRs. It is important that the reader consults the Visual Assessment Table in Appendix 9.2 (TR010063 - APP 6.15) for full assessment details:

Construction effects

9.12.4. The greatest effects for all receptors would occur during construction, with activities involved in vegetation removal, demolition and construction impacting on views, as well as the presence of site compounds and soil storage areas.

9.12.5. Five receptor groups would require demolition as they sit within the footprint of the Scheme. These are reported but not assessed any further.

9.12.6. As detailed in Visual Assessment Table in Appendix 9.2 (TR010063 - APP 6.15), the closest receptors would experience the most significant effects. VR3a Sheldon Cottages are expected to experience *Very Large Adverse* effects during construction given that extensive construction activities would be directly outside these properties. It should be noted that it is expected the residents would be relocated during the construction period and so would not experience these effects, however as a precaution the assessment has been made should the residents choose not to relocate.

9.12.7. VR4-6 (Barn Farm, informal Traveller site and Butlers Court adjacent to the M5) and VR8-12, 16, 18-20, 24 and 26 (receptors on Withybridge Lane, B4634 and the A4019 and users of the SRN) are all assessed as likely to be significantly affected during construction with *Large* or *Moderate Adverse* significance of effect being rated, mainly due to closeness to works and consequent intrusion on views.

9.12.8. VR13 and 17 (properties at Boddington and Elmstone Hardwicke) may experience only *Slight Adverse* effects, given their greater distance from the works and intervening vegetation and buildings filtering views of the construction activity.

9.12.9. All other receptors have been rated with *Moderate Adverse* effects during construction. Due to the temporary state of the effect (i.e. during construction period only), and also

due to transient nature of some of the receptors (e.g. PRoW not directly affected) or greater retained intervening vegetation, existing context of view or distance from Scheme, the effect for these receptors is not considered materially significant.

Operational effects year 1

9.12.10. Upon completion as the visual intrusion of the construction traffic and activity ceases, the effect on views would also generally reduce. The effect of the vegetation loss and buildings removed due to construction would remain and allow more open views for many receptors and the proposed replacement planting would not initially provide its intended screening function. Noise barriers, where installed, may provide additional benefit as a visual screen from traffic for some properties. The design of the noise barrier would of course need careful consideration to avoid being an eyesore. The REAC (TR010063 – APP 7.4) requires consultation of the final design of the noise barrier and this assessment assumes consultation with those affected would result in a visually acceptable barrier.

9.12.11. VR3a Sheldon Cottages are expected to experience *Large Adverse* effects at year 1 given that the M5J10 would be approximately 80 m closer to the property and all the intervening vegetation and buildings would have been removed (bar that within the property boundary), resulting in a dramatic change to their outlook.

9.12.12. VR6, 8, 9, 10 & 18a (Butler's Court, Elm Cottage group, Hayden Fruit Farm & The Green) are anticipated to experience *Moderate Adverse* and significant effects, mainly due to how close they are to the Scheme and loss of screening vegetation, but for VR9 and 18 also for lack of replacement/new screening features and new impact of lighting features.

9.12.13. VR7b, 10-12 & 26c (Withybridge, Hayden Hill & Cheltenham Circular, users of B4634) are expected to experience *Moderate Adverse* effects due in the main to the presence of a new feature (the Link Road) in their view. Although the change to view is judged moderate, given either the transient nature of the receptor (PRoW not directly affected) or greater retained intervening vegetation, existing overall context of view or greater distance from Scheme, as well as the expectation that replacement planting would soon begin to integrate the feature into the view; this effect is not considered materially significant.

9.12.14. All other receptors would experience *Slight Adverse* or Neutral effects due to more limited loss of existing vegetation, presence of new screening features (noise barriers) and/or removal of construction activities.

Operational effects year 15

9.12.15. By year 15 the replacement and mitigation planting would be beginning to provide its intended functions of visual screening and amenity, integrating the Scheme into the views; as well as providing benefit in terms of habitat creation. Noise barriers would continue to provide additional benefit as a visual screen from traffic.

9.12.16. VR3a Sheldon Cottages are expected to experience *Moderate Adverse* effects at year 15 given that the increased proximity of J10 cannot be fully mitigated. However, it is anticipated that the extensive replanting proposed would ensure that J10 would not dominate the view, hence a moderate but not significant effect is considered.

9.12.17. VR7b, 8, 9-12, 18-20 & 26c (Withybridge PRoW, Withybridge, Elm Cottage Group, Hayden Hill, Cheltenham Circular, properties around Uckington and users of B4634) have all been assessed as having a *Slight Adverse* effect on their views. The effect is largely due to the presence of new lighting or the Link Road as a new but embedded feature in the view.

9.12.18. All other receptors have been assessed as having either Neutral or *Beneficial* effects on their view. Beneficial effects being assessed where views are anticipated to be improved with greater extent of planting, inclusion of evergreen species for better screening during winter, presence of new attractive habitat feature in the view (e.g. the flood storage area) and/or enhanced visual screening due to secondary function of proposed noise barrier screening views of traffic.

Summary – Visual amenity

9.12.19. Table 9-6 below provides a summary of the predicted effects on visual amenity for the identified receptors.

9.12.20. The assessment has considered that there would be significant but temporary effects during construction for 19 VR groups, with 9 VR groups likely to experience *Moderate - Slight Adverse* - but not significant effects.

9.12.21. On completion it is anticipated that only 1 receptor (VR3a Sheldon Cottages) would experience *Large Adverse* effects; 4 VR groups (VR6 Butlers Court, VR9 Elm Cottage group, VR10 Hayden Fruit Farm & VR18a The Green) may experience *Moderate Adverse* significant effects; with 21 VR groups likely to experience *Moderate - Slight Adverse*, but not significant effects.

9.12.22. By year 15, no materially significant effects are anticipated, with VR3a being assessed as *Moderate Adverse* but not significant, 12 VR groups expected to have *Slight Adverse* significance of effects, 7 VR groups Neutral and 8 VR groups having *Moderate – Slight Beneficial* effects.

9.12.23. Although initially at year 1, many VRs would experience an increased presence of roads and associated infrastructure, these features are not entirely incongruous within the existing context of views. Replanting to roadsides and other embedded mitigation would ensure that, in the long term, the Scheme would sit comfortably in the views and potentially provide an enhancement of the environment to improve the experience for residents, pedestrians, cyclists and vehicles users.

9.12.24. Overall, it is considered that, with the designed in mitigation, the Scheme would not have any long-term significant adverse effects on visual amenity.

Table 9-6 - Summary of Significance of Effect – Visual Amenity

	KEY:	Very Large to Moderate - Significant	Moderate Adverse but not Significant	Slight to Negligible Adverse – Not Significant
		Not Applicable	Neutral	Very Large to Negligible Beneficial
Visual Receptor		**Construction Effects**	**Operational Effects Yr 1**	**Operational Effects Yr 15**
VR1 Withybridge Gardens		Demolished	N/A	N/A
VR2 Withy Bridge and Laburnum		Demolished	N/A	N/A
VR3 East Stanboro Lane and Sheldon Nurseries		Demolished	N/A	N/A
VR3a Sheldon Cottages	Effect	*Major Adverse*	*Major Adverse*	*Moderate Adverse*
	Sig	*Very Large Adverse*	*Large Adverse*	*Moderate Adverse*
VR4 Barn Farm, Stanboro Lane	Effect	*Moderate Adverse*	*Minor Adverse*	*Minor Beneficial*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Moderate Beneficial*
VR5 Informal Traveller site S/B M5	Effect	*Moderate Adverse*	*Minor Adverse*	*Negligible Beneficial*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Slight Beneficial*
VR6 Butler's Court complex	Effect	*Major Adverse*	*Moderate Adverse*	*Negligible Beneficial*
	Sig	*Large Adverse*	*Moderate Adverse*	*Slight Beneficial*
VR7a PRoWs between Boddington -Withybridge Lane crossing M5 FPAB013/FPAB015/FPAB016	Effect	*Moderate Adverse*	*Minor Adverse*	*Minor Beneficial*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Slight Beneficial*
VR7b PRoWs between Withybridge Lane/Hayden FPAB024/FPAUC11	Effect	*Moderate Adverse*	*Moderate Adverse*	*Minor Adverse*
	Sig	*Moderate Adverse*	*Moderate Adverse*	*Slight Adverse*

	KEY:	Very Large to Moderate - Significant	Moderate Adverse but not Significant	Slight to Negligible Adverse – Not Significant
		Not Applicable	Neutral	Very Large to Negligible Beneficial
Visual Receptor		**Construction Effects**	**Operational Effects Yr 1**	**Operational Effects Yr 15**
VR8 Withybridge	Effect	*Major Adverse*	*Moderate Adverse*	*Minor Adverse*
	Sig	*Large Adverse*	*Moderate Adverse*	*Slight Adverse*
VR9 The House in the Tree PH, Elm Cottage and Orchard House and PRoW FPAB026	Effect	*Major Adverse*	*Moderate Adverse*	*Minor Adverse*
	Sig	*Large Adverse*	*Moderate Adverse*	*Slight Adverse*
VR10 Hayden Hill Fruit Farm	Effect	*Moderate Adverse*	*Moderate Adverse*	*Minor Adverse*
	Sig	*Moderate Adverse*	*Moderate Adverse*	*Slight Adverse*
VR11 Properties at Hayden Hill and Pilgrove Farm	Effect	*Major Adverse*	*Minor Adverse*	*Minor Adverse*
	Sig	*Moderate Adverse*	*Moderate Adverse*	*Slight Adverse*
VR12 Cheltenham Circular PRoW	Effect	*Moderate Adverse*	*Moderate Adverse*	*Negligible Adverse*
	Sig	*Moderate Adverse*	*Moderate Adverse*	*Slight Adverse*
VR13 Properties at Boddington	Effect	*Negligible Adverse*	*No Change*	*No Change*
	Sig	*Slight Adverse*	*Neutral*	*Neutral*
VR14 PRoW FPAB012, FPAB013 & FPAB014 (Boddington to Stanboro)	Effect	*Moderate Adverse*	*Minor Adverse*	*Minor Beneficial*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Slight Beneficial*
VR15a Stanboro and Stanboro Lodge	Effect	*Moderate Adverse*	*Minor Adverse*	*No Change*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Neutral*
VR15b Stanboro Cottage and Grasmere	Effect	*Moderate Adverse*	*Negligible Adverse*	*No Change*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Neutral*
VR16	Effect	*Moderate Adverse*	*Minor Adverse*	*Minor Beneficial*

	KEY:	Very Large to Moderate - Significant	Moderate Adverse but not Significant	Slight to Negligible Adverse – Not Significant
		Not Applicable	Neutral	Very Large to Negligible Beneficial
Visual Receptor		**Construction Effects**	**Operational Effects Yr 1**	**Operational Effects Yr 15**
PRoW BWAUC1	Sig	*Large Adverse*	*Slight Adverse*	*Slight Beneficial*
VR17 Properties at Colman's Farm and Elmstone Hardwicke on Lowdilow Lane and Church Lane	Effect	*Moderate Adverse*	*Negligible Adverse*	*No Change*
	Sig	*Slight Adverse*	*Slight Adverse*	*Neutral*
VR18a Properties in north Uckington along The Green	Effect	*Moderate Adverse*	*Moderate Adverse*	*Minor Adverse*
	Sig	*Large Adverse*	*Moderate Adverse*	*Slight Adverse*
VR18b Properties on Holly Bank, Uckington	Effect	*Major Adverse*	*Minor Adverse*	*Negligible Adverse*
	Sig	*Large Adverse*	*Slight Adverse*	*Slight Adverse*
VR18c Properties to east of The Green on A4019, Uckington	Effect	*Major Adverse*	*Minor Adverse*	*Negligible Adverse*
	Sig	*Large Adverse*	*Slight Adverse*	*Slight Adverse*
VR19 Forge House and adjacent properties, Uckington	Effect	*Major Adverse*	*Minor Adverse*	*Negligible Adverse*
	Sig	*Large Adverse*	*Slight Adverse*	*Slight Adverse*
VR20 Properties along Moat Lane	Effect	*Major Adverse*	*Minor Adverse*	*Negligible Adverse*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Slight Adverse*
VR21 The Row		*Demolished*	*N/A*	*N/A*
VR22 Properties on north side of A4019 east of West Cheltenham Fire Station		*Demolished*	*N/A*	*N/A*

	KEY:	Very Large to Moderate - Significant	Moderate Adverse but not Significant	Slight to Negligible Adverse – Not Significant
		Not Applicable	Neutral	Very Large to Negligible Beneficial
Visual Receptor		**Construction Effects**	**Operational Effects Yr 1**	**Operational Effects Yr 15**
VR23 Properties on Homecroft Drive	Effect	*Major Adverse*	*Minor Adverse*	*Negligible Adverse*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Neutral*
VR24 Properties on south side of A4019 east of West Cheltenham Fire Station	Effect	*Major Adverse*	*Minor Adverse*	*Negligible Adverse*
	Sig	*Large Adverse*	*Slight Adverse*	*Slight Beneficial*
VR25 Properties in Kingsditch on Gallagher junction/B4634	Effect	*Moderate Adverse*	*Negligible Adverse*	*No Change*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Neutral*
VR26a Users of M5	Effect	*Major Adverse*	*Moderate Adverse*	*No Change*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Neutral*
VR26b Users of A4109	Effect	*Major Adverse*	*Minor Adverse*	*Minor Beneficial*
	Sig	*Moderate Adverse*	*Slight Adverse*	*Slight Beneficial*
VR26c Users of B4634	Effect	*Major Adverse*	*Moderate Adverse*	*Minor Adverse*
	Sig	*Moderate Adverse*	*Moderate Adverse*	*Slight Adverse*

9.13. Monitoring

9.13.1. The EMP (application document TR010063 – APP 7.3) and Register of Environmental Commitments (REAC application document TR010063 – APP 7.4) sets out the landscape and visual amenity mitigation measures required. Monitoring of the delivery, establishment, and effectiveness of these shall be undertaken in accordance with DMRB.

9.13.2. The EMP and REAC are iterative documents to be continually updated during the initial environmental and landscape establishment period (aftercare period) and to form the basis for the management requirements during the routine management period.

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

9.14. Cumulative effects

9.14.1. This section considers the cumulative effects of the Scheme and the Scheme interacting with other Reasonably Foreseeable Future Projects (RFFPs) within the landscape topic.

9.14.2. The further consideration of cross-topic intra-Scheme and inter-project cumulative effects is reported in Chapter 15 - Cumulative Effects Assessment (application document TR010063 – APP 6.13).

Intra-Scheme in-combination cumulative effects assessment (single project impacts) within topic

9.14.3. The focus of the intra-Scheme CEA is understanding how receptors may experience a number of different types of impacts from the Scheme at the same time. Within the topic assessments, the landscape assessment methodology inherently includes consideration of all the different types of Scheme impacts for each landscape resource or visual receptor. Therefore, this assessment inherently considers combined effects from different sources (within and cross-topic intra-Scheme effects). For example, the impact assessment considers effects of proposed noise barriers, attenuation basins, loss of habitats and the setting of heritage features as an integral part of an LVIA.

9.14.4. On the basis of the above, there are no additional intra-Scheme cumulative effects from the assessment of landscape to report in this section.

9.14.5. An assessment of cross-topic intra-Scheme effects on all receptors is provided in Chapter 15 – Cumulative Effects Assessment (application document TR010063 – APP 6.13).

Inter-project cumulative effects assessment (different project impacts) within topic

9.14.6. To complete the cumulative effects assessment inter-project ‘within topic’ element, the landscape assessment has been completed with reference to the list of RFFPs that has been developed for the Scheme. The list is based on a review of all developments known to the planning system using the methodology described in Chapter 4 – Environmental Assessment Methodology of the ES (application document TR010063 – APP 6.2).

9.14.7. The RFFP long-list has been screened to identify projects that are considered to have a realistic prospect of interacting with the Scheme from the perspective of landscape and visual amenity. The screening criteria used were as follows:

- The proximity of the RFFP to the Scheme.
- Potential for interactions, for example visibility between RFFP and Scheme or possible changes to landscape character.

9.14.8. The following RFFPs have been shortlisted in relation to landscape and visual amenity:

Application	Description	Nature of interaction
19/00907/PDAD A&B Buildings at Pilgrove Farm	Amendment to approval for conversion of barns to dwellings	Visual interaction. Development site already included as a receptor within LVIA (VR11). Additional cumulative effects not anticipated.
22/02172/FUL Pilgrove Cottage, Old Gloucester Road	Proposed development of 4 detached 5-bedroomed houses	Visual interactions. Development site adjacent to a receptor within LVIA (VR11). Additional cumulative effects not anticipated.
22/01272/FUL Pigeon House Farm, The Green, Uckington	Conversion of barn to 4 dwellings	Visual interaction. Development site already included as a receptor within LVIA (VR18a). Additional cumulative effects not anticipated.
22/01163/FUL Uckington Farm, The Green, Uckington	Demolition of agricultural buildings and erection of 16 dwellings	Visual interaction. Development site adjacent to a receptor within LVIA (VR18a). This development will introduce new urbanising features at the local level, replacing low density agricultural buildings with higher density dwellings to the rear of properties fronting The Green and the A4019. The Scheme anticipates some of the potential cumulative effects of urbanising the settlement of Uckington. Combined effects are anticipated; however these are not considered to be significant in relation to this RFFP and the Scheme.
16/02000/OUT (Elms Park) North West Cheltenham Development Area (Policy A4)	A large-scale housing development (>4000 homes) and associated employment areas, retail, educational, and recreational facilities.	This site is located to the east of Uckington stretching to Gallagher Retail Park and Swindon Farm. This development is most likely to have large-scale cumulative impacts on the landscape environment, with additional vegetation loss, loss of open fields and increased built elements impacting on both landscape character and visual amenity for visual receptors north-east of Uckington and east of the West Cheltenham Fire Station (inc VR18, 22, 23, 24) and the landscape character of this area. This Scheme anticipates some of the potential cumulative effects, and embedded mitigation allows for screen planting, along the A4019 for instance, to provide some buffering between the Scheme and this development. Significant combined effects are expected (particularly during construction and on opening, as the CEA assumes that there will be some overlap). However, the causes of these combined effects are likely to be dominated by the proposed development (the RFFP) rather than the Scheme.
20/00759/FUL Swindon Farm, Elms Park Tewkesbury Road	Demolition of a dwelling and the erection of 266 dwellings (Use Class C3), new vehicular and	This site is located to the north-east of Uckington, extending north-west from Gallagher Retail Park and accessed from Manor Road. This development is likely to have cumulative impacts on the landscape environment, with property demolition, additional vegetation loss, loss of

Application	Description	Nature of interaction
Relates to part of the land allocated as the North West Cheltenham Development Area (Policy A4)	pedestrian access off Manor Road, attenuation basin and ancillary infrastructure	open fields and increased built elements impacting on both landscape character and visual amenity for visual receptors north-east of Uckington and north of the A4019 (inc VR18 and 22) and the landscape character of this area. The RFFP is also part of the North West Cheltenham Development Area (Policy A4). This Scheme anticipates some of the potential cumulative effects, and embedded mitigation allows for screen planting, along the A4019 for instance, to provide some buffering between the Scheme and this development. Significant combined effects are expected (particularly during construction and on opening, as the CEA assumes that there will be some overlap). However, the causes of these combined effects are likely to be dominated by the proposed development (the RFFP) rather than the Scheme.
17/00827/FUL and 17/01459/FUL Gallagher Retail Park	Erection of a Class A1 retail unit and associated works to the west of Unit A Gallagher Retail Park.	This development proposes car parking within an existing grass area to the east of the Gallagher Retail Park entrance, and construction of a new retail unit further north. There is currently potential conflict with the development's proposed retained boundary vegetation and the Scheme's works to the footpath here, which would require resolving at detail design. However, the combined cumulative effects on landscape and visual amenity are not anticipated to be significant.
Safeguarded land to the north-west of Cheltenham (Policy SD5)	There is developer interest in this RFFP being promoted through Local Plan processes; however, no masterplan proposals have sufficient status for assessment at the time of writing. Anticipated to be a residential led mixed use development of medium to high density – the CEA assumes 2000 dwellings.	This site is located to the immediate north-east of Junction 10 between the M5 and Uckington. This development is most likely to have large-scale cumulative impacts on the landscape environment, with additional vegetation loss, loss of open fields and increased built elements impacting on both landscape character and visual amenity for properties in north-west Uckington (VR5, 16, 17). Significant combined effects are expected (particularly during construction and on opening, with the CEA assuming some overlap between Scheme construction and RFFP enabling works). However, the causes of these cumulative effects are likely to be dominated by the proposed development (the RFFP) rather than the Scheme.
22/01817/OUT and 22/01107/OUT West Cheltenham Development Area (Policy A7)	High-medium density housing led development of 1100 homes and a community hub (RFFP), with the allocation	This site is on the southern edge of the B4634 and stretches between the proposed Link Road junction and Springbank. Although most of the high-density design for the development is located to the south of the RFFP site near Government Communications Head Quarters (GCHQ), medium-density housing-led

Application	Description	Nature of interaction
	totalling 1500 homes and employment development related to the cyberpark.	development is proposed for the northern parcels, though largely buffered with landscape areas. Cumulative impacts on the landscape environment, with additional vegetation loss, loss of open fields, potential property demolition (due to the RFFP) and increased built elements impacting on both landscape character and visual amenity (inc VR 9, 10, 11 and 12) are expected. Significant combined effects are expected (particularly during construction and on opening, as the CEA assumes some overlap). However, the causes of these cumulative effects are likely to be dominated by the proposed development (the RFFP) rather than the Scheme.
22/00164/PIP Land Known as Evergreen Spiritual Pathways the Green Uckington	Permission in principle application for the erection of up to 3 dwellings on site of existing buildings	Visual interaction. Development site already included as a receptor within LVIA (VR18a). Additional cumulative effects not anticipated.
21/00872/REM Phase 1 Land at Old Gloucester Road, Cheltenham. Relates to part of the land allocated under Policy HD8 Cheltenham Local Plan	Proposed development of 85 dwellings on the south-western part of the allocated site (RFFP). Cheltenham Plan (adopted 2020) Allocation Site HD8 – Old Gloucester Road - Development land allocated for 175 homes (11.3ha.)	Land to the north of B4634 Old Gloucester Road, bounded by River Chelt to the north including Arle Nursery and Hayden Allotments. The RFFP relates to the land to the south-west of the allocation, west of the allotments and nursery. Cumulative impacts on the landscape environment, with additional vegetation loss, loss of open fields and increased built elements impacting on both landscape character and visual amenity (inc VR12 (in combination), VR21 (in combination), VR23 (additional, with the Scheme impacts to the north and the RFFP impacts to the south) are expected. Significant combined effects are expected. However, these cumulative effects are likely to be dominated by this development rather than the Scheme.

9.14.9. Potential for significant inter-project cumulative effects within the landscape topic has been ruled out for the majority of the shortlisted RFFPs.

9.14.10. The strategic development sites at North West Cheltenham Development Area (16/02000/OUT, 20/00759/FUL (part) and Policy A4), West Cheltenham Development Area (22/01817/OUT and 22/01107/OUT (same application to two authorities) and Policy A7), safeguarded land to the north-west of Cheltenham (Policy SD5) and 21/00872/REM relating to part of the land allocated under Policy HD8 (Cheltenham Local Plan), are the most likely to have large-scale cumulative impacts on the landscape environment, with additional vegetation loss, loss of open fields and increased built elements impacting on both landscape character and visual amenity. However, these cumulative effects are likely to be dominated by the proposed developments (RFFPs) rather than the Scheme.

9.14.11. The Scheme anticipates some of the potential landscape and visual effects from the RFFPs that form strategic development sites. Embedded mitigation allows for screen planting, along the A4019 for instance, to provide some buffering between the Scheme and the adjacent developments. On this basis, there are no significant residual inter-project cumulative effects on landscape anticipated from the RFFPs on the Scheme.

9.15. Assumptions and limitations

General

9.15.1. This LVIA is based on, and limited to, the baseline conditions observed at the time of the site surveys and additional desktop information available at the time of writing.

9.15.2. The visual receptors assessed are illustrative of the worst-case likely effects for a representative range of receptors. The LVIA does not necessarily identify all locations from where the proposed development would potentially be visible.

9.15.3. Site visits were undertaken during October 2020, April 2021 and November 2021. Unfortunately, the trees were still in leaf during the October and November visits, hence full Winter photographs have not been able to be taken. However, the assessor has taken this into consideration and used professional judgement to understand how views may be more open during the Winter.

9.15.4. Site photographs are meant to indicate the existing context only, with locations or impacts of the Scheme described where appropriate and, as per the guidelines set out in LI TGN 06/19 Visual Representation of Development Proposals, are fit for purpose and not intended to be misleading.

9.15.5. A 3D flythrough has been produced and presented at the public consultation. The flythrough was based on a slightly earlier iteration of the design but does provide a good visual representation of the Scheme. Stills from this flythrough can be found within the Consultation Report (application document TR010063 – APP 5.1) and should be referred to as it provides a good indication of the Scheme.

9.15.6. Landscape is formed by the interplay between the natural, physical and cultural components of the environment and as such the assessment of landscape and visual effects is a process closely linked with other topics, notably ecology and the historic environment. As such, the LVIA considers the contribution heritage and ecological feature make to the character and value of the landscape and visual receptors, along with an assessment of the likely effect of the Scheme on the landscape character and views associated with heritage features. The LVIA is carried out in landscape and visual terms only, as an assessment of effects on heritage assets and their wider cultural setting (e.g. impacts on cultural and historic associations) are considered in other chapters. The LVIA does not assess direct or any other indirect effects on heritage or ecological resources.

9.15.7. The proposed mitigation measures are indicative and encompass mitigation measures required for other environmental topics including noise and ecology. As required by the REAC, the measures presented, described and assessed within this ES would be implemented as a minimum and detail design would seek to enhance these measures where possible.

9.15.8. For this LVIA, it is assumed that annual tree and shrub height growth would be between approximately 0.3-0.5m per year, so that if a mix of standard and transplant tree and shrub planting was implemented with standard trees planted at 2-3m tall and whips or transplants at 0.6m – 0.8m high, by year 15 the planting height would be between 5 – 11m (assuming no pruning) and the canopies would be merging. It is assumed that the majority of hedges (excluding any trees) would be cut to around 1.2m as is typical of the character in this area.

9.15.9. The design of the noise barriers has assumed a 2m high non-specific material barrier. The precise design for these noise barriers would be determined at detailed design stage, in consultation with directly affected receptors and maintenance teams. The design may include simple timber boards, living woven planting, green wall systems or a painted design to provide as much additional amenity value as possible. The assessment assumes that the resulting design would be visually acceptable but allows for a beneficial effect in terms of screening traffic, but a neutral effect in terms of actual visual appearance of the barrier itself.

9.15.10. It is understood that the drainage ditches as presented on the GAs and Environmental Design Figures - Landscape Plan (Figures 1- 14, application document TR010063 - APP

2.13) are oversized. This is a worst-case scenario and at detail design they are likely to reduce in width, potentially reducing vegetation loss and thereby potentially reducing many of the adverse landscape and visual effects.

9.16. Chapter summary and recommendations

Summary

9.16.1. This chapter has considered the effect of the Scheme for Landscape and Visual receptors.

9.16.2. The Scheme sits within Greenbelt but does not sit within or immediately adjacent to any landscape specific designation. The Cotswolds AONB has been considered but given its distance at over 6km from Junction 10, and as agreed with the Cotswold AONB board, the effect on this area and views from within it are unlikely to be significantly affected and no further assessment has been undertaken.

9.16.3. The Scheme is within the SV6B Landscape Character Area 'Vale of Gloucester', with the very eastern end meeting the 'Urban' character of the edge of Cheltenham. The Scheme study area is a gently undulating vale landscape of agricultural fields and scattered clusters of settlements with the M5, A4019 and electricity pylons being the main 'detractors' in the landscape. Verge hedgerows, arable grasslands, field trees and small blocks of woodland are the major habitats of the area.

9.16.4. Key visual receptors are residential properties and PRoW criss-crossing the area. Views vary; sometimes enclosed by property or roadside vegetation, sometimes open across quite a rural landscape, occasionally punctuated with detracting views of pylons or road infrastructure and, particularly toward the eastern end of the A4019, over a more urbanised landscape.

9.16.5. As required in DMRB LA 104 and set out in Chapter 2 – The Scheme (application document TR010063 – APP 6.2), the Scheme Environmental Design includes embedded and essential mitigation measures to reduce the effects of the Scheme. Although there would be increased presence of roads and associated infrastructure, these would essentially be in keeping with the existing landscape character and context of views within the area. Replanting to roadsides and other embedded and essential mitigation measures would ensure that, in the long term, the Scheme would sit comfortably in the landscape and views and potentially provide an enhancement of the environment to improve the experience for residents, pedestrians, cyclists and vehicles users.

9.16.6. Overall, it is considered that, although significant adverse effects may be experienced during construction and initially upon completion, once the designed in mitigation had established and matured, the Scheme would not have any long-term significant adverse effects on landscape character or visual amenity, and in some cases may provide beneficial effects.

Recommendations

9.16.7. As set out in this Chapter and Chapter 2 – The Scheme (application document TR010063 – APP 6.2), the Scheme includes embedded and essential mitigation to avoid, reduce or replace lost or altered features. During detail design additional measures may be explored to further enhance the environment and embed the Scheme into the landscape.

9.16.8. Enhancement recommendations relevant to landscape and visual amenity include:

- Further minor tweaking of route alignment, where feasible, to avoid individual trees identified in the arboricultural survey (Note: the majority of trees/hedges have been accounted for in the current design, however the full arboricultural survey was not available for the final design fix and a few additional trees/hedges could potentially be saved with minor tweaking);
- Account for probable reduction in size of drainage ditches to allow retention of more existing vegetation/inclusion of more mitigation planting;
- Contractor to consider using reduced working areas and alternative construction

methods (such as no-dig and flexible edging) where possible, to retain and protect even more existing vegetation;

- Early planting and/or phased planting of proposed vegetation, where feasible, to allow planting to establish and provide mitigation earlier;
- Consider reducing the extent of lighting columns across the Scheme to reduce light pollution;
- Introduce green roofs to bus shelters;
- Planting to the south/east embankment at Junction 10. Currently planting here has been discounted due to the embankment providing dam functionality. Detail design of the embankment may allow planting to this area to further enhance screening to the junction.
- Where possible reuse of site won soil should be considered for woodland/hedge areas.
- All open grass areas are proposed with species rich wildflower mixes which are suitable for leaving to grow long or can be cut short whilst still maintaining diversity.
- All open grass areas to have no nutrient rich topsoil, minimal substrate or suitable low nutrient soil to be used for sowing into.

Appendices

Appendix 9.1 – Figures

Appendix 9.1 – Figures is provided as a separate document (application document TR010063 – APP 6.15).

Appendix 9.2 – Visual Assessment Table

Appendix 9.2 – Visual Assessment Table is provided as a separate document (application document TR010063 – APP 6.15).

Appendix 9.3 – Photo Sheets

Appendix 9.3 – Photo Sheets is provided as a separate document (application document TR010063 – APP 6.15).

Appendix 9.4 – AIA

Appendix 9.4 – Arboricultural Impact Assessment is provided as a separate document (application document TR010063 – APP 6.15).

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