A12 Chelmsford to A120 widening scheme TR010060

6.1 ENVIRONMENTAL STATEMENT CHAPTER 8 LANDSCAPE AND VISUAL

APFP Regulation 5(2)(a)

Planning Act 2008

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

Volume 6

August 2022

Infrastructure Planning

Planning Act 2008

A12 Chelmsford to A120 widening scheme

Development Consent Order 202[ ]

ENVIRONMENTAL STATEMENT
CHAPTER 8 LANDSCAPE AND VISUAL

Regulation Reference	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010060
Application Document Reference	TR010060/APP/6.1
Author	A12 Project Team & National Highways

Version	**Date**	**Status of Version**
Rev 1	August 2022	DCO Application

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8.1 Topic introduction

8.1.1 Landscape and visual effects that may arise because of the proposed scheme are considered within this chapter, which identifies and assesses likely significant effects of the proposed scheme as required by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (the EIA Regulations). The methodology followed is that presented within Design Manual for Roads and Bridges (DMRB) LA 107 Landscape and Visual Effects, Revision 2 (Highways England, 2020b). Landscape and visual impact assessment (LVIA) is defined in the Guidelines for Landscape and Visual Impact Assessment, Third Edition (GLVIA3) (Landscape Institute and Institute of Environmental Management and Assessment, 2013) and DMRB LA 107 as a tool to identify and assess the significance of change resulting from a proposed development. LVIA addresses two separate but related matters as defined by DMRB LA 107, namely:

- Landscape effects: effects on the landscape as a resource
- Visual effects: effects on views and visual amenity

8.1.2 This chapter provides a summary of the landscape-related stakeholder engagement carried out, legislative and policy framework relevant to landscape and the assessment methodology for the landscape and visual assessment within this LVIA. This chapter also presents baseline conditions relevant to landscape and visual effects; an outline of potential landscape and visual impacts; design, mitigation and enhancement measures; and an assessment of likely significant effects that would be caused by the proposed scheme.

8.1.3 This chapter is supported by the following figures [TR010060/APP/6.2]:

- Figure 8.1: Key Landscape Constraints
- Figure 8.2: Local Landscape Character Areas
- Figure 8.3: Zone of Theoretical Visibility and Viewpoints – Bare Earth
- Figure 8.4: Photosheets
- Figure 8.5: Photomontages

8.1.4 This chapter is supported by the following appendices [TR010060/APP/6.3]:

- Appendix 8.1: Published Sources of Landscape Character
- Appendix 8.2: Landscape Effects Schedule
- Appendix 8.3: Visual Effects Schedule
- Appendix 8.4: Arboricultural Impact Assessment
- Appendix 8.5: Technical Photomontage Methodology

- Appendix 8.6: Technical Zone of Theoretical Visibility Methodology

8.2 Competent expert evidence

8.2.1 The assessment has been undertaken and reported by a team of competent landscape and visual specialists. The competent expert responsible for the assessment is a Senior Landscape Consultant, a Chartered Member of the Landscape Institute, and holds a BA (Hons) in landscape architecture and a post-graduate Diploma (Hons) in landscape architecture. They have over 30 years' experience of undertaking LVIAs for major infrastructure and linear projects, including highways, for which the process of Environmental Impact Assessment (EIA) has been required.

8.3 Stakeholder engagement

8.3.1 Landscape planning officers at the following local planning authorities were consulted in October 2020 on the location of proposed representative viewpoints for the assessment of visual effects, and the location of proposed viewpoints for photomontages, for inclusion within the Environmental Statement:

- Braintree District Council
- Chelmsford City Council
- Colchester Borough Council
- Essex County Council
- Maldon District Council

8.3.2 The locations of viewpoints presented to the local authorities were consistent with those presented within the Environmental Scoping Report (ESR) (Highways England, 2020a).

8.3.3 The locations of viewpoints for inclusion within the Environmental Statement were reviewed following feedback received from local planning authorities, both as a direct result of the consultation carried out as well as responses included within the Scoping Opinion (Planning Inspectorate, 2021).

8.3.4 A revised set of viewpoints, taking account of the feedback received, was issued for consultation with the local planning authorities as well as with Historic England (as requested within the Scoping Opinion) in February 2021. Consultation included requests for feedback on the proposed study area and the proposed photomontage methodology to be applied to this LVIA within the Environmental Statement. No responses were received as a result of the consultation in February 2021 regarding the location of viewpoints, or that have affected the proposed scope and methodology of this LVIA. Feedback regarding the location of viewpoints was, however, provided by Braintree District Council in response to statutory consultation, as presented within Table 8.2.

8.3.5 Final consultation with the local planning authorities and Historic England was carried out following statutory consultation in September 2021 to confirm the location of representative and illustrative viewpoints for the assessment of visual effects and the location of proposed viewpoints for photomontages, for inclusion within the Environmental Statement. No requests for changes to the location of viewpoints were received, and Historic England confirmed that they were satisfied with the viewpoints on 1 October 2021. Subsequent to this, Historic England requested an additional photomontage be included to consider views from a newly designated scheduled monument, the medieval moat at Marks Tey Hall. An additional photomontage at representative viewpoint 24 has been prepared from this location in winter year 1 to represent the worst case, as agreed with Historic England on 2 February 2022.

8.3.6 Arboricultural consultation took place in September and October 2020 with the respective local planning authorities with responses received from Chelmsford City Council and Colchester Borough Council. The approach to undertaking the arboricultural surveys was discussed and it was agreed that tree data should be collected following the guidance of BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations (British Standards Institution, 2012) including recording those trees with ancient, veteran and notable tree features. At the time of consultation, Braintree District Council confirmed they had no tree officer in position, and Maldon District Council replied that no planning officer was available to comment. Effects on trees are considered in Section 8.11 of this chapter.

8.3.7 The key findings of the Preliminary Environmental Information Report (PEIR) (Highways England, 2021) were presented to local planning authorities in April 2021. A briefing session to present findings of the Environmental Statement to local planning authorities was carried out in March 2022.

8.3.8 Table 8.1 identifies the key feedback received from the Scoping Opinion (Planning Inspectorate, 2021), which this LVIA is based on.

Table 8.1 Key Scoping Opinion feedback for landscape and visual

Stakeholder	Comment	Applicant's response
Planning Inspectorate	The study area for the landscape assessment has a buffer of approximately 2km from the proposed scheme, and a minimum of 1km from the provisional Order Limits. The Planning Inspectorate considers that the study area should be informed by the type of visual receptors and the nature, extent and severity of likely impacts on them, rather than pre-determined distances. The Scoping Report lacks evidence to support the assumption that visual effects beyond 1km are unlikely to be significant. The Environmental Statement should provide further evidence to support this assumption and also take into account viewpoints from further afield that look onto the location of the scheme. The Applicant should make effort to agree the landscape assessment study area and viewpoints with the relevant statutory bodies.	The study area is considered an appropriate and proportionate extent to ascertain the wider landscape context surrounding the proposed scheme and to focus on the likely significant landscape and visual effects. Five additional longer distance illustrative viewpoints in excess of 1km from the Order Limits have been identified to demonstrate within this LVIA that visual effects beyond 1km are unlikely to be significant due to distance and intervening screening features. The location of these viewpoints was included within the landscape consultation with local planning authorities and Historic England in February and September 2021. The landscape consultation in February 2021 also included reference to the proposed study area for this LVIA for agreement.
Planning Inspectorate	The Environmental Statement should consider how veteran, ancient, and notable trees contribute to landscape character and setting.	The assessment of impacts on landscape components, such as trees and woodland, and perceptual and aesthetic aspects has been considered within the assessment of impacts on landscape character. A concise section has been included within Section 8.11 of this chapter to consider the loss of trees with Tree Preservation Orders (TPOs), veteran, ancient and notable trees as defined by the Woodland Trust, and further potential veteran and ancient trees identified from a scheme-specific arboricultural survey.

Stakeholder	Comment	Applicant's response
Essex County Council	EIA can help identify appropriate measures for avoiding or reducing significant adverse effects on the functionality of green infrastructure assets (trees, watercourses, public rights of way, hedges, open spaces etc) and for compensating/off-setting unavoidable significant adverse effects to protect the overall integrity of the surrounding wider landscape network. It is recommended that a detailed landscaping and ecology/green infrastructure strategy should be prepared as part of the LVIA, and where the assessment and the other supporting documents indicates potentially significant effects on landscape character (including existing trees), visual amenity, biodiversity net gain value and health and wellbeing of the community (i.e. access to open spaces, encouraging active travel and recreation and reduce air pollution etc.) that may require mitigation.	Design principles, which consider green infrastructure objectives to reduce significant effects on green infrastructure assets, are presented in the Design Principles document [TR010060/APP/7.10]. Mitigation for green infrastructure assets has been identified within this chapter and Chapter 9: Biodiversity, of the Environmental Statement [TR010060/APP/6.1]. Figure 2.1: Environmental Masterplan [TR010060/APP/6.2] illustrates how green infrastructure would be addressed in terms of landscape and biodiversity mitigation, and public rights of way (PRoWs) and access provision. The first iteration of the Environmental Management Plan (EMP) [TR010060/APP/6.5] presents how natural assets would be protected during construction and how environmental mitigation would be secured within the Register of Environmental Actions and Commitments (REAC). Appended to the first iteration EMP, the Landscape and Ecological Management Plan (LEMP) presents how the landscape and ecological features would be protected during construction, and how landscape and ecological mitigation would be implemented and maintained.
Essex County Council	Visualisation types should be in compliance with the Landscape Institute's Technical Guidance Note 06/19, i.e. viewpoint types agreed with the local planning authority.	Photography and photomontages are in accordance with the Visual Representation of Development Proposals Technical Guidance Note 06/19 (Landscape Institute, 2019). The proposed methodology for the production of photomontages was included within landscape consultation with local planning authorities and Historic England in February 2021.
Colchester Borough Council	Feedback on the location of proposed representative viewpoints as presented within the consultation with local planning authorities in October 2020 and within the ESR (Highways England, 2020a).	Viewpoints were reviewed in accordance with suggestions, including the addition of representative viewpoints 27, 28 and 29, and incorporated within further landscape consultation with local planning authorities and Historic England in February and September 2021.

Stakeholder	Comment	Applicant's response
Feering Parish Council	Concerned with any increase in light and/or noise pollution as a consequence of these proposals and would seek assurances that the scoping survey and subsequent proposals will include for landscape screening and acoustic measures to mitigate both noise and light pollution.	The effects of new lighting have been incorporated within the assessment of landscape and visual effects reported within this chapter during construction and operation. Two representative viewpoints (30 and 31) were added to consider visual effects from Feering. Landscape mitigation presented on Figure 2.1: Environmental Masterplan [TR010060/APP/6.2] seeks to reduce any lighting effects.

8.3.9 The full Scoping Opinion, as well as the Applicant's response regarding how and where comments have been addressed in the Environmental Statement and draft Development Consent Order (DCO), is included within Appendix 5.1 of the Environmental Statement [TR010060/APP/6.3].

8.3.10 Table 8.2 identifies the key feedback received from the statutory consultation that has influenced the scope of this LVIA. All comments raised during the statutory consultation, as well as the Applicant's responses, are included in the Consultation Report [TR010060/APP/5.1]. A summary of design changes, including changes to the landscape design and mitigation, resulting from statutory and supplementary consultations is included within Chapter 3: Assessment of alternatives [TR010060/APP/6.1].

Table 8.2 Key statutory consultation feedback for landscape and visual

Stakeholder	Comment	Applicant's response
Braintree District Council	Braintree District Council raised a request for two additional viewpoints. These were from the western edge of Wood End Farm, south-west of Witham, to consider views of borrow pit E and from the eastern edge of Land off Gleneagles Way, east of Hatfield Peverel, at the southern end of PRoW 90_40.	There is no public access to Wood End Farm, but representative viewpoint 33 was added to consider views east from PRoW 90_2 towards borrow pit E, which is the closest publicly accessible point to borrow pit E. Representative viewpoint 5, approximately 170m west of PRoW 90_40, was selected to consider views from future housing north-east of Gleneagles Way. The visual effects from PRoW 90_40 would likely be similar to the visual effects from representative viewpoint 5, and it was not therefore considered proportionate to incorporate an additional viewpoint in this location.
Essex County Council	Request for detailed local landscape analysis given that the published local landscape character assessments used to inform part of the baseline are dated 2005 – 2006.	The key characteristics of the published local landscape character areas (LCAs) have been reviewed, and additional key features identified through site appraisal have been noted within Tables 8.9 and 8.10 (in Section 8.8 of this chapter).

8.4 Legislative and policy framework

European and national objectives

8.4.1 The following European objectives are relevant to this LVIA:

- The European Landscape Convention (Council of Europe, 2000), which promotes '*the protection, management and planning of the landscapes*…'.

8.4.2 The following national objectives are relevant to this LVIA:

- Action for Roads: A network for the 21st century (Department for Transport, 2013). This includes objectives for highways management in England, such as maximising green gains and protecting the environment, integrating roads into the landscape and mitigating visual impacts associated with roads.

Legislation

8.4.3 The following statutory provisions are relevant to this LVIA:

- Town and Country Planning Act 1990. Section 202C – Tree preservation regulations: prohibited activities
- The Town and Country Planning (Tree Preservation) (England) Regulations 2012. Regulation 13 – Prohibited activities

8.4.4 These regulations set out prohibited activities in relation to protected trees.

8.4.5 For UK legislation relating to heritage assets and important hedgerows, refer to Chapter 7: Cultural heritage and Chapter 9: Biodiversity, of the Environmental Statement [TR010060/APP/6.1].

National policy

National Policy Statements

8.4.6 The National Networks National Policy Statement (NNNPS) (Department for Transport, 2014) sets out the Government's policies to deliver the development of Nationally Significant Infrastructure Projects on the national road and rail networks in England. The Secretary of State uses the NNNPS as the primary basis for making decisions on DCO applications.

8.4.7 Key policy from the NNNPS relevant to this aspect is set out in Table 8.3.

Table 8.3 NNNPS requirements for landscape and visual

NNNPS paragraph	NNNPS requirement	How this is addressed in this LVIA
5.144	'*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. A number of guides have been produced to assist in addressing landscape issues. The landscape and visual assessment should include reference to any landscape character assessment and associated studies, as a means of assessing landscape impacts relevant to the proposed project. The applicant's assessment should also take account of any relevant policies based on these assessments in local development documents in England.*'	This LVIA considers likely significant landscape and visual effects within Section 8.11 of this chapter. The assessment of landscape effects has been made on the local LCAs defined within published assessments. This LVIA takes account of local planning policies presented within Table 8.4, including LPP 71 which is based on the local published landscape character assessment.
5.145	'*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).*'	Section 8.11 of this chapter considers likely significant landscape effects during both construction and operation. In line with DMRB LA 107, the effect on the constituent landscape features and elements/components of the LCAs have been considered in combination as part of the effects on landscape character and not as individual receptors.
5.146	'*The assessment should include the 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 effects on local amenity, tranquillity and nature conservation*.'	Section 8.11 of this chapter considers likely significant visual effects during both construction and operation. In accordance with DMRB LA 107, aesthetic and perceptual qualities, including effects on dark skies and tranquillity, are included within the assessment of landscape effects. Both day and night-time changes for landscape and visual receptors are considered. Effects relating to noise are included within Chapter 12: Noise and vibration, of the Environmental Statement [TR010060/APP/6.1]. Effects relating to nature conservation are included within Chapter 9: Biodiversity [TR010060/APP/6.1].

NNNPS paragraph	NNNPS requirement	How this is addressed in this LVIA
5.149	'*Landscape effects depend on the nature of the existing landscape likely to be affected and the 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*.'	The nature of the existing landscape is considered within Section 8.8 of this chapter, and the nature of the landscape effects likely to occur has been considered within the assessment of likely significant effects in Section 8.11. To avoid or minimise harm to the landscape and views, embedded mitigation measures (defined within Section 5.5 of Chapter 5: Environmental assessment methodology [TR010060/APP/6.1]) for this aspect have been developed as presented within Section 8.10 of this chapter.
5.160	'*Adverse landscape and visual effects may be minimised through appropriate siting of infrastructure, design (including choice of materials), and landscaping schemes, depending on the size and type of proposed project. Materials and designs for infrastructure should always be given careful consideration*.'	To avoid or minimise harm to the landscape and views, embedded mitigation measures for this aspect have been developed as presented within Section 8.10 of this chapter. Further design considerations and landscape objectives have been defined as part of an overarching set of scheme-specific design principles presented within the Design Principles document [TR010060/APP/7.10], which have been used to inform development of the proposed scheme design, including both the highway alignment and the Environmental Masterplan on Figure 2.1 [TR010060/APP/6.2].
5.161	'*Depending on the topography of the surrounding terrain and areas of population it may be appropriate to undertake landscaping off-site, although if such landscaping was proposed to be consented by the development consent order, it would have to be included within the order limits for that application. For example, filling in gaps in existing tree and hedge lines would mitigate the impact when viewed from a more distant vista*.'	All landscape mitigation, presented within Section 8.10 of this chapter and illustrated on the Environmental Masterplan on Figure 2.1 [TR010060/APP/6.2], is incorporated within the extents of the Order Limits. Assessment of visual effects from five longer distance illustrative viewpoints (A – E) within this LVIA demonstrates that landscape and visual effects beyond 1km from the Order Limits would not be significant. For visual receptors at illustrative viewpoint A, the magnitude of effect would reduce from minor adverse in year 1 to negligible adverse in year 15 when mitigation planting would be established. There would be no change at any assessment timeframe for visual receptors at illustrative viewpoints B – E. Further, offsite, planting is not therefore considered necessary.

8.4.8 As set out in Chapter 1: Introduction, of the Environmental Statement [TR010060/APP/6.1], this LVIA has considered the Overarching National Policy Statement for Energy (EN-1) and National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4) (Department of Energy and Climate Change, 2011a; 2011b) in relation to the diversion of an existing high pressure gas main (the 'gas main diversion') owned and operated by Cadent Gas Limited (Cadent). Draft versions of the updated EN-1 and EN-4 have also been considered (Department for Business, Energy and Industrial Strategy, 2021a; 2021b).

8.4.9 A review of the relevant requirements of EN-1 and EN-4 (including the draft updated versions), relating to the EIA of the gas main diversion, identified that the requirements are not materially different to those set out in the NNNPS. As such, it is considered that by meeting the NNNPS requirements set out in Table 8.3, the requirements of EN-1 and EN-4 are also met.

National Planning Policy Framework

8.4.10 The National Planning Policy Framework (Ministry of Housing, Communities and Local Government, 2021) (NPPF) includes the following chapters relevant to the LVIA:

- Chapter 12 – Achieving well-designed places
- Chapter 15 – Conserving and enhancing the natural environment

8.4.11 The requirements of the NPPF for this aspect are not materially different from the NNNPS, with a focus on encouraging good design, protecting and enhancing valued landscapes, and recognising the character of the countryside.

Local policy

8.4.12 In addition to the national policy set out in the NNNPS, the proposed scheme has also had regard to relevant local plans and policy. A summary of the policy framework is provided in Appendix 1.1 of the Environmental Statement [TR010060/APP/6.3].

8.4.13 Local planning policies relevant to landscape encourage good design and seek to protect and enhance green infrastructure, landscape character and the intrinsic character and beauty of the countryside. They also seek to conserve landscape features that contribute to landscape character, such as ancient woodland, hedgerows and veteran trees. Designations defined by planning policy are presented in Section 8.8 of this chapter.

8.4.14 Table 8.4 presents key local planning policy for landscape within the main policy 'themes' relevant to landscape. There are also other environmental policies relevant to landscape, including those relating primarily to cultural heritage (considered within Chapter 7: Cultural heritage [TR010060/APP/6.1]) and biodiversity (considered within Chapter 9: Biodiversity [TR010060/APP/6.1]). Policy on protected lanes, which are primarily a non-designated heritage asset but are also relevant to landscape and biodiversity, is not listed within the Environmental Statement because they would not be affected.

Table 8.4 Key local landscape policy for landscape and visual

Policy theme	Policy document	Policy
Respecting landscape character and protecting the natural environment	Braintree Publication Draft Local Plan Section 2 (Braintree District Council, 2017) (Emerging)	Policy LPP 71 – Landscape Character and Features Policy LPP 72 – Green Buffers
	Local Plan Review (Braintree District Council, 2005)	Policy RLP 80 – Landscape Features and Habitats Policy RLP 81 – Trees, Woodlands, Grasslands and Hedgerows Policy RLP 86 – River Corridors
	Braintree District Core Strategy 2011 – 2026 (Braintree District Council, 2011)	Policy CS 5 The Countryside Policy CS 8 Natural Environment and Biodiversity
	Chelmsford Local Plan 2013–2036 (Chelmsford City Council, 2020)	Strategic Policy S4 – Conserving and Enhancing the Natural Environment Strategic Policy S11 – The Role of the Countryside Policy DM17 – Trees, Woodland and Landscape Features
	Local Development Framework Development Core Strategy (Colchester Borough Council, 2014b)	Policy ENV1 - Environment
	Publication Draft Colchester Borough Local Plan 2017 – 2033 Section 2 (Colchester Borough Council, 2017) (Emerging)	Policy ENV1 - Environment Policy OV2 – Countryside
	Maldon District Local Development Plan (Maldon District Council, 2017)	Policy S8 Settlement Boundaries and the Countryside
Promoting good quality design	Local Plan Review (Braintree District Council, 2005)	Policy RLP 65 – External Lighting Policy RLP 90 Layout and Design of Development
	North Essex Authorities' Shared Strategic Section 1 Plan (Braintree District Council, Colchester Borough Council, Tendring District Council, 2021)	Policy SP 7 Place Shaping Principles

Policy theme	Policy document	Policy
	Braintree Publication Draft Local Plan Section 2 (Braintree District Council, 2017) (Emerging)	Policy LPP 55 Layout and Design of Development Policy LPP 81 – External Lighting
	Chelmsford Local Plan 2013–2036 (Chelmsford City Council, 2020)	Policy DM8 – New Buildings and Structures in the Rural Area Policy DM23 – High Quality and Inclusive Design Policy DM24 – Design and Place Shaping Principles in Major Developments
	Local Development Framework Development Policies (Colchester Borough Council, 2014a)	Policy DP1: Design and Amenity
	Publication Draft Colchester Borough Local Plan 2017 – 2033 Section 2 (Colchester Borough Council, 2017) (Emerging)	Policy DM15: Design and Amenity
	Maldon District Local Development Plan (Maldon District Council, 2017)	Policy D1 – Design Quality and Built Environment
Conservation and enhancement of green infrastructure	Braintree Publication Draft Local Plan Section 2 (Braintree District Council, 2017) (Emerging)	Policy LPP 67 – Natural Environment and Green Infrastructure
	Chelmsford Local Plan 2013–2036 (Chelmsford City Council, 2020)	Strategic Policy S4 – Conserving and Enhancing the Natural Environment
	Local Development Framework Development Core Strategy (Colchester Borough Council, 2014b)	Policy ENV1 - Environment
	Publication Draft Colchester Borough Local Plan 2017 – 2033 Section 2 (Colchester Borough Council, 2017) (Emerging)	Policy ENV3 – Green Infrastructure
	Maldon District Local Development Plan (Maldon District Council 2017)	Policy N1 – Green Infrastructure Network

8.4.15 Local planning policies are addressed within this chapter as follows. To avoid or minimise harm to the landscape and views, mitigation measures have been developed as presented within Section 8.10 of this chapter. Design principles, which consider conserving and reinforcing landscape character and features, design considerations and green infrastructure objectives, are presented in the

Design Principles document [TR010060/APP/7.10]. These have been used to inform development of the proposed scheme design, including both the highway alignment and the Environmental Masterplan on Figure 2.1 [TR010060/APP/6.2]. The first iteration of the EMP [TR010060/APP/6.5] presents how natural assets would be protected during construction and how environmental mitigation would be secured within the REAC. Appended to the first iteration EMP [TR010060/APP/6.5], the LEMP presents how landscape and ecological features would be protected during construction, and how landscape and ecological mitigation would be implemented and maintained.

8.5 Assessment methodology

Assessment scope

8.5.1 The scope of this LVIA is consistent with the scope defined in the ESR (Highways England, 2020a), as presented within Table 8.5, taking into consideration feedback received within the Scoping Opinion (Planning Inspectorate, 2021) as set out in Table 8.1. This LVIA is therefore in line with the Scoping Opinion.

Table 8.5 Summary of LVIA scope

Matter	Scoped in – construction	Scoped in – operation
Effects on local landscape character that would potentially be directly or indirectly affected	✓	✓
Visual effects	✓	✓

General approach

8.5.2 The methodology used to assess landscape and visual effects within this LVIA is based on the requirements of DMRB LA 107, DMRB LA 104 Environmental Assessment and Monitoring (Highways England, 2020c) and guidance within GLVIA3 (which has influenced the development of DMRB LA 107). Photographs have been taken and photomontages have been prepared in accordance with Visual Representation of Development Proposals Technical Guidance Note 06/19 (Landscape Institute, 2019). The technical methodology which details how the photomontages were generated is included in Appendix 8.5 of the Environmental Statement [TR010060/APP/6.3].

8.5.3 Arboricultural surveys have been carried out to inform the design and assessment, and an Arboricultural Impact Assessment and associated figures have been produced (refer to Appendix 8.4 of the Environmental Statement [TR010060/APP/6.3]). Tree data has been collected following the guidance of BS 5837:2012 (British Standards Institution, 2012), including recording those trees with ancient, veteran and notable tree features. This approach reflects the status of ancient and veteran trees afforded by the NNNPS.

8.5.4 To inform the assessment of landscape and visual effects, winter site visits were carried out in March 2021 and summer site visits were carried out in July 2021. Arboricultural assessments were carried out in November 2020 and November 2021.

8.5.5 Landscape and visual effects have been assessed at the following timeframes, in accordance with DMRB LA 107:

- Construction phase: Considers construction activities, temporary works (including compounds and haul roads) and construction traffic during the construction of the proposed scheme. Assessments for each landscape and visual receptor during the construction phase have been made at a time during construction when impacts are likely to be most significant for the individual receptor.

- Operation year 1 (opening year): Considers a winter and summer scenario during year 1 following completion of all construction, when planted mitigation would not yet have taken effect. Both the completed scheme and the traffic using it have been considered.

- Operation year 15 (design year): Considers a winter and summer scenario in the fifteenth year after opening, when planted mitigation would have taken effect. Both the completed scheme and the traffic using it have been considered.

8.5.6 The assessment of effects during construction has assumed the worst case during winter, when existing vegetation is not in leaf. Both day and night-time changes for landscape and visual receptors are considered.

Landscape assessment

8.5.7 The assessment of landscape effects has been made on the local LCAs, within the extent of the study area (see Section 8.7 of this chapter), defined within the Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Assessment (Chris Blandford Associates, 2006) and Colchester Borough Landscape Character Assessment (Chris Blandford Associates, 2005). These published landscape character assessments are informed by the Essex Historic Landscape Characterisation Study (Essex County Council and Southend-on-Sea Borough Council, 2002).

8.5.8 The local LCAs assessed are presented within Table 8.9 and Table 8.10 (in Section 8.8 of this chapter) and illustrated on Figure 8.2 [TR010060/APP/6.2]. Figure 8.2 illustrates all local LCAs within the study area for context. However, while local LCA A10 Brain River Valley falls within the study area, it is unlikely that it would be directly or indirectly affected because the urban extent of Witham would limit intervisibility between this low-lying valley landscape and the proposed scheme. Effects on A10 Brain River Valley are not therefore assessed within this LVIA. Urban areas G2 Tiptree Urban Landscape and G4 Colchester Urban Landscape are not assessed within the Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Assessment (Chris Blandford Associates, 2006) and Colchester Borough Landscape Character Assessment (Chris Blandford Associates, 2005). While the full extent of urban

areas is not included within this LVIA, the urban areas of Kelvedon and Feering and the urban edges of Chelmsford and Witham where they are adjacent to the proposed scheme are relevant, and these are therefore considered within this LVIA.

8.5.9 In line with DMRB LA 107, the assessment of impacts on landscape components such as trees and woodland, and perceptual and aesthetic aspects, is considered within the overall assessment of impacts on landscape character. Section 8.11 of this chapter presents the loss of trees with TPOs; veteran, ancient and notable trees as defined by the Woodland Trust; and further potential veteran and ancient trees identified within the scheme-specific arboricultural survey.

8.5.10 The assessment of impacts on historic environment assets in the study area, such as registered parks and gardens and conservation areas, as well as historic landscape character, is addressed in Chapter 7: Cultural heritage, of the Environmental Statement [TR010060/APP/6.1].

Visual assessment

8.5.11 In accordance with DMRB LA 107 and GLVIA3, this LVIA provides a proportionate assessment, and the assessment of visual effects is based on a selection of representative viewpoints for different receptor groups within the study area. To demonstrate that landscape and visual effects beyond 1km from the Order Limits are unlikely to be significant, five longer distance 'illustrative viewpoints' have also been included for assessment. Viewpoints have been selected within a digitally generated 'bare earth' zone of theoretical visibility (ZTV) based on the proposed scheme. The number of viewpoints is considered appropriate based on the presence of the existing A12, other infrastructure and existing lighting; the nature of the proposed scheme which partly comprises online widening; the range and location of visual receptors; and the potential impacts and the likely significant effects. The number and location of viewpoints have been agreed through consultation with local planning authorities and Historic England.

8.5.12 The viewpoints considered within this LVIA are presented in Table 8.11 (in Section 8.8 of this chapter), along with viewpoint descriptions and reasons for selection, and the viewpoints are illustrated on Figure 8.3 [TR010060/APP/6.2] in the context of the ZTV.

Assessing the significance of effects

8.5.13 The general approach to assessing the significance of effects is set out in Chapter 5: Environmental assessment methodology [TR010060/APP/6.1], based on DMRB LA 104.

8.5.14 Landscape and visual sensitivity are established by assessing the value attached to a receptor and its susceptibility to the particular form of change likely to result from the proposed scheme. The determination of sensitivity of landscape and visual receptors has been based on the methodology set out within DMRB LA 107, as presented in Table 8.6.

8.5.15 Guidance within GLVIA3 has also been used to help inform judgements on landscape and visual value and susceptibility. Guidance within Assessing Landscape Value Outside National Designations Technical Guidance Note 02/21 (Landscape Institute, 2021), has been used to help inform judgements on landscape value.

Table 8.6 Sensitivity (susceptibility and value) and typical descriptions of landscape and visual receptors (as set out in DMRB LA 107)

Sensitivity (susceptibility and value) of receptor	Typical descriptions of landscape receptors (from DMRB LA 107 Table 3.22)	Typical descriptions of visual receptors (from DMRB LA 107 Table 3.41)
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). 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 and 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 dense residential areas, longer transient views from designated public open space, recreational areas. 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 less populated residential areas, 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. Views from and of landscapes of regional importance.

Sensitivity (susceptibility and value) of receptor	Typical descriptions of landscape receptors (from DMRB LA 107 Table 3.22)	Typical descriptions of visual receptors (from DMRB LA 107 Table 3.41)
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 where the landscape is secondary to enjoyment of the sport. 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 areas, land awaiting re-development. Views from landscapes of no importance with no variety or distinctiveness.

*Minor amendment in DMRB LA 107 terminology so that both landscape and visual sensitivity use 'medium'. DMRB LA 107 applies 'medium' for landscape sensitivity and 'moderate' for visual sensitivity.

8.5.16 As defined in DMRB LA 107 and in accordance with GLVIA3, the magnitude of effects '*combines judgements about size and scale of effect, extent of area it occurs over, whether reversible or irreversible and whether short or long term in duration*'. The assessment takes proposed mitigation as illustrated on Figure 2.1: Environmental Masterplan [TR010060/APP/6.2] into account. The typical descriptions set out in Tables 3.24 and 3.43 of DMRB LA 107 have been used for determining the magnitude of landscape and visual effects respectively, as presented in Table 8.7 and Table 8.8.

Table 8.7 Magnitude and nature of effect on the landscape and typical descriptions (as set out in DMRB LA 107 Table 3.24)

Magnitude of landscape effect (change)		Typical descriptions
Major	Adverse	Total loss or large scale damage to existing landscape character or distinctive features or elements; and/or addition of new uncharacteristic, conspicuous features or elements (i.e. road infrastructure).
	Beneficial	Large scale improvement of landscape character to features and elements; and/or addition of new distinctive features or elements, or removal of conspicuous road infrastructure elements.

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

Table 8.8 Magnitude (change) of visual effect and typical descriptions (as set out in DMRB LA 107 Table 3.43)

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

8.5.17 The significance of a potential effect on landscape and visual receptors is determined by combining the sensitivity of a receptor (Table 8.6) and the magnitude of an effect (Tables 8.7 and 8.8), in accordance with the significance matrix presented in Chapter 5: Environmental assessment methodology (Table 5.3) [TR010060/APP/6.1].

8.5.18 The matrix for the assessment of significant effects with professional judgement in Chapter 5: Environmental assessment methodology (Plate 5.1) [TR010060/APP/6.1], has been used to assist professional judgement when determining the significance of landscape and visual effects. The matrix suggests a range of conclusions for consideration because the assessment of significance is not formulaic and professional judgement is used to ascertain the level of significance of effect. This is in line with GLVIA3 which advises that, '*Professional judgement is a very important part of LVIA. While there is some scope for quantitative measurement of some relatively objective matters … much of the assessment must rely on qualitative judgements*…'. Evidence is provided within the description of effect columns of Appendix 8.2: Landscape effects schedule and Appendix 8.3: Visual effects schedule [TR010060/APP/6.3] to support the reporting of a single significance category where there is a choice.

8.5.19 Significance of effect categories (replicated from DMRB LA 104), and the definition of what constitutes a significant effect, are included within Chapter 5: Environmental assessment methodology, of the Environmental Statement [TR010060/APP/6.1]. For LVIA, DMRB LA 107 notes that '*significant effects comprise of effects that are/remain within the moderate, large or very large categories once design development has identified the necessary mitigation to be taken into account.*'

8.6 Assessment assumptions and limitations

8.6.1 For simplicity, the term 'landscape' has been used throughout this LVIA to describe areas of landscape and townscape, in line with DMRB LA 107 (Highways England, 2020b), which states that the '*LVIA process does not differentiate between 'landscape' and 'townscape', as it is applicable to any landscape - urban, rural or a combination of both*'. Therefore, the assessment methodology for impacts on landscape and townscape does not differ.

8.6.2 This LVIA has accounted for a variation of +/-1m within the vertical alignment (the vertical limits of deviation), except for junction 24, where a +/-1.5m variation applies. The worst case scenario of the vertical limits of deviation being higher than the proposed vertical alignment has been assessed. This LVIA has accounted for a variation within the horizontal alignment in relation to the lateral limits of deviation as illustrated on the Works Plans [TR010060/APP/2.2]. However, vegetation would be retained in accordance with, as a minimum, the Retained and Removed Vegetation Plans [TR010060/APP/2.14].

8.6.3 Figure 8.3 and Figure 8.5 [TR010060/APP/6.2] do not account for any variation of the vertical or horizontal alignment and have been produced on set vertical and horizontal alignment data available.

8.6.4 This LVIA incorporates assumptions for construction and operation based on the information presented within Chapter 2: The proposed scheme, of the Environmental Statement [TR010060/APP/6.1]. In addition, the following assumptions have been made for the construction phase:

- There would be chain-link fencing (or similar) around the compounds, stockpiles and laydown areas and where required for safety and security, approximately 2m high.
- Structures within compounds would be double storey. Concrete/asphalt batching plants within junction 20b and junction 22 main compounds would be approximately 15m high.
- Aggregate processing facilities within borrow pits would be approximately 15m high.
- The maximum height of materials and soils within stockpiles and laydown areas would be 6m.
- This LVIA assumes construction lighting would apply to all areas within the Order Limits.

8.6.5 This LVIA assumes that proposed permanent lighting and gantries would be 12m above the level of the proposed carriageway.

8.6.6 The local LCAs illustrated on Figure 8.2 [TR010060/APP/6.2] have been digitised, based on published data presented within Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Assessment (Chris Blandford Associates, 2006) and Colchester Borough Landscape Character Assessment (Chris Blandford Associates, 2005). While every effort has been made to ensure the boundaries illustrated on Figure 8.2 are as accurate as possible, it is possible that that there are some minor differences.

8.6.7 The majority of the viewpoints identified for the assessment of visual effects are outside the construction area. However, design development, including decisions relating to the horizontal limits of deviation, continued beyond initial viewpoint selection/consultation, which meant some viewpoints that were originally outside the construction area ended up within the construction area within this LVIA. There was also a lack of publicly accessible alternatives for some viewpoints outside the construction area where viewpoints were selected to illustrate the visual effects of key parts of the proposed scheme, or where viewpoints were requested by local planning authorities. Appendix 8.3 [TR010060/APP/6.3] notes where access would not be possible to the viewpoint during construction and/or operation.

8.6.8 The horizontal field of view is 90 degrees for the viewpoints illustrated on the photographs and photomontages presented in Figures 8.4 and 8.5 [TR010060/APP/6.2]. To assess the worst case, the assessment of visual effects takes into consideration the full extent of the proposed scheme visible from the viewpoint within the general direction of view described within the viewpoint descriptions presented within Table 8.11.

8.6.9 This LVIA considers the significance of effect of both day and night-time changes for landscape and visual receptors in line with the requirements of DMRB LA 107. The assessment considers effects of construction lighting, highway lighting and vehicle lights. While there would potentially be fewer visual receptors using PRoWs and with open views from within residential properties (due to the use of curtains and blinds) during the hours of darkness, all receptor

types are considered applicable to the assessment of night-time effects to assess the worst case.

8.6.10 It is not considered that assessment of effects on the night skies in their own right is required due to the surrounding landscape context. This is because the skies are affected by existing light pollution, with none of the night skies within the study area falling within the darkest night-time light pollution category identified on England's Light Pollution and Dark Skies mapping (Campaign to Protect Rural England (CPRE), 2019). There are also no international dark sky reserves with policy controls to protect darkness, as designated by the International Dark-Sky Association, or Areas of Outstanding Natural Beauty within the study area. An environmental lighting impact assessment to support this LVIA would not therefore be proportionate to the landscape context and nature of the proposed scheme.

8.6.11 Proposed developments surrounding the proposed scheme are considered in Chapter 16: Cumulative effects assessment, of the Environmental Statement [TR010060/APP/6.1]. Developments included for consideration within Chapter 16: Cumulative effects assessment, that fall outside, as well as within, this LVIA study area were considered during the process of identifying cumulative landscape and visual effects. However, only developments that would lead to cumulative effects are presented within Chapter 16: Cumulative effects assessment.

8.6.12 The future baseline of this LVIA does not include all proposed developments. This is because proposed developments are not guaranteed to be built and the date at which potential future development would be completed is often unknown. Details are often in outline so that the design, form and layout of future development is unknown, which makes it difficult to accurately incorporate within the assessment of landscape and visual effects. Major committed developments are considered as part of the future baseline within this LVIA. Major committed developments that have been considered within this LVIA are presented within Section 8.8 of this chapter.

8.6.13 Vegetation loss and retention is based on the information presented on the Retained and Removed Vegetation Plans [TR010060/APP/2.14]. To assume a worst case, all trees at risk of removal have been assumed lost within this LVIA, except in relation to the gas main diversion. While the Retained and Removed Vegetation Plans [TR010060/APP/2.14] illustrate trees at risk within the full extent of the lateral limits of deviation (for the gas main diversion), this LVIA assumes vegetation loss would be restricted to a 30m corridor.

8.6.14 It may be feasible to retain some of the trees identified as trees at risk on the Retained and Removed Vegetation Plans [TR010060/APP/2.14], including some of the TPO, potential veteran trees and trees within the Chelmer and Blackwater Navigation Conservation Area that are identified as being lost in Section 8.11 of this chapter. This would be determined at the detailed design stage. Areas of special measures to protect and retain features that would be subject to encroachment would be detailed within an Arboricultural Method Statement and Tree Protection Plan. These would be based on the special measure areas, construction exclusion zones and outline tree protection

measures presented within Appendix 8.4: Arboricultural Impact Assessment [TR010060/APP/6.3] and appended to the EMP.

8.6.15 The extent of proposed planting has been based on the information illustrated on Figure 2.1: Environmental Masterplan [TR010060/APP/6.2], including the indicative extent of proposed planting illustrated within the restored borrow pits.

8.6.16 Advanced planting within ecological mitigation areas has been identified for ecological purposes and would be implemented where programme constraints allow it to be undertaken in advance of the main works. Therefore, there is no certainty over when it would be planted and how much it would have grown in assessment year 1. While any advanced planting would be establishing during construction and in year 1, planting is not considered to be established and effective in mitigating landscape and visual effects until 15 years after planting. Therefore, advanced planting is primarily taken into account in the assessment of landscape and visual effects in year 15 along with all other planting mitigation.

8.6.17 However, the presence of features for reptiles (such as grass and hibernacula) would need to be ready in advance to clear the proposed scheme footprint ahead of site clearance. Therefore, these features have been noted where applicable within the assessment of landscape and visual effects at year 1 detailed within Appendix 8.2 and 8.3 [TR010060/APP/6.3].

8.6.18 The screening or filtering effect of existing retained vegetation has been taken into account within the assessment in its current condition. Growth or other changes to this vegetation would potentially affect impacts caused by the proposed scheme, but the management and retention of such vegetation is outside the control of National Highways.

8.6.19 It has been assumed that a 30m wide corridor of vegetation removal would be required along the centreline of the gas main diversion. As presented within the REAC, which is appended to the first iteration EMP [TR010060/APP/6.5], replanting along the easement of the gas main diversion would be carried out in accordance with the utility company's guidance and best practice standards.

8.6.20 Only summer photography was captured for representative viewpoints 34 and 35 as presented on Figure 8.4 [TR010060/APP/6.2] because the alignment of the gas main diversion was not available at the time the winter surveys were carried out. Professional judgement has been used to consider the landscape and visual effects that would be caused by the gas main diversion where it would not run alongside the A12 corridor during winter.

8.6.21 Visual effects have been assessed from viewer height from the viewpoints, which are all publicly accessible. The viewer and camera height, for photos presented on Figure 8.4 [TR010060/APP/6.2], was 1.6m above ground level in accordance with Visual Representation of Development Proposals Technical Guidance Note 06/19 (Landscape Institute, 2019) which notes that camera height should be set comfortably for the photographer. Professional judgement has been applied to consider potential visual effects from visual receptors such as residents within private properties and vehicle travellers.

8.6.22 The significant effects concluded within this LVIA differ slightly to the significant effects concluded within the PEIR (Highways England, 2021). This is because the proposed scheme design has developed as a result of consultation and environmental assessment, and the design assessed at PEIR was different to the final proposed scheme assessed within the Environmental Statement.

8.6.23 The arboricultural survey presented within Appendix 8.4 [TR010060/APP/6.3] covers trees within the Order Limits plus a 15m buffer (extending to 30m where ancient and/or veteran trees were present), but it does not cover the full extent of the study area. It is therefore possible that further potential veteran and potential ancient trees are located within the wider study area, although there would be no direct effects on these trees which would be outside the Order Limits plus 15m/30m.

8.6.24 Where utility diversion works would run along public highways, they would consist of temporary street works only. Temporary impacts during the diversion works would be managed through standard mitigation and good site practice. As such, no loss of protected trees, including trees with TPOs, would occur as a result of the utility diversion works along public highways.

8.7 Study area

8.7.1 Desktop study, ZTV modelling and site visits have been used to determine the study area for this LVIA.

8.7.2 The ZTV shown on Figure 8.3 [TR010060/APP/6.2] illustrates the extent of theoretical visibility, which extends in some areas to several kilometres from the proposed scheme. However, the ZTV is based upon a bare earth ground model, and therefore only takes account of the visual screening provided by existing topography. The ZTV does not take account of surface features, such as buildings and vegetation, which could also provide screening and reduce the extent of theoretical visibility. A ZTV incorporating screening elements (woodland and built form) was trialled, but because it is theoretical and non-accurate, it conflicted with the assessment findings. Therefore, it was considered more appropriate to illustrate the worst case bare earth ZTV while illustrating key screening features on the same plan. The bare earth ZTV was verified through site survey, including through the identification of viewpoints and the assessment of visual effects from representative and illustrative viewpoints which consider the screening effect of intervening features. The technical methodology, which details how the ZTV was generated, is included in Appendix 8.6 of the Environmental Statement [TR010060/APP/6.3].

8.7.3 The study area incorporates a buffer of approximately 2km from the proposed scheme centreline, and a minimum of 1km from the Order Limits (illustrated on Figure 8.1 [TR010060/APP/6.2]), as this is the area within which significant landscape and visual effects are considered likely. The 1km and 2km buffers described are illustrated on Figures 8.1, 8.2, 8.3 and 8.4 [TR010060/APP/6.2]. Landscape and visual effects beyond 1km distance are unlikely to be significant due to distance and intervening screening features such as built development, trees and woodland. Illustrative viewpoints A – E have been selected to assess more distant views beyond 1km of the Order Limits. Generally, as demonstrated through the assessment of illustrative viewpoints A – E presented within

Appendix 8.3 [TR010060/APP/6.3], distant views would be filtered or glimpsed above intervening vegetation, with the proposed scheme unlikely to alter the overall balance of features and elements in the wider view.

8.7.4 The full extent of adjacent or affected receptors of special value relevant to landscape (i.e. those defined for reasons partly relating to landscape value) are largely incorporated within the study area, for example Boreham House, Boreham and Hatfield Priory Registered Parks and Gardens, and Kelvedon Conservation Area. The extent of the following receptors of special value relevant to landscape are not included in full within the study area for the reasons explained:

- Green Wedge within Chelmsford: The Green Wedge lies west of the existing A12, following the course of the River Chelmer and the River Can through Chelmsford's urban area. Near the Green Wedge, the proposed scheme largely comprises work on the eastern side of the A12, and there would be no direct effects on the Green Wedge. The landform within the Green Wedge is relatively flat and low lying, which means that longer distance views from within the Green Wedge towards the proposed scheme would be restricted by the urban extent of Chelmsford and intervening vegetation, and the character of the Green Wedge beyond the study area would not be affected by the proposed scheme. The extent of the Green Wedge covered by the study area is considered proportionate to the nature of the proposed scheme in this location, because the proposed scheme would largely be east of, and set within the context of, the A12 and because of the indirect nature of effects on the Green Wedge.

- Chelmer and Blackwater Navigation Conservation Area: The conservation area extends approximately 22km from High Bridge Road within the urban area of Chelmsford eastwards, following the line of the navigation and the extent of the valley floor to Paper Mill Lock, then beyond to Heybridge Sea Basin. The proposed scheme would directly affect a localised part of the conservation area within the context of the existing A12. Illustrative viewpoint A within the Chelmer and Blackwater Navigation Conservation Area demonstrates that there would not be significant visual effects caused by the proposed scheme in excess of 1km from the Order Limits, largely due to the distance and the context of the existing A12. The landform within the Chelmer and Blackwater Navigation Conservation Area is relatively flat and low lying, which would mean that longer distance views towards the proposed scheme would be restricted by intervening vegetation, and the character of the wider Chelmer and Blackwater Navigation Conservation Area would not be affected by the proposed scheme. The extent of the Chelmer and Blackwater Navigation Conservation Area covered by the study area is therefore considered appropriate and proportionate because landscape and visual effects within the conservation area beyond the study area would not be significant. Assessment of cultural heritage assets is included within Chapter 7: Cultural heritage [TR010060/APP/6.1].

- Braxted Park Registered Park and Garden: Braxted Park is situated over 600m east of the Order Limits and contains mature vegetation including trees and woodland. Closest to the proposed scheme, the western edge of Braxted Park along Braxted Road is lined by a brick wall and contains a belt of mature woodland. Combined, these features restrict open views out towards the proposed scheme from within Braxted Park. There would be no significant visual effects from representative viewpoint 12 and no change in view from illustrative viewpoint C because of the distance between the viewpoints and the proposed scheme and the extent of intervening vegetation. Both of these viewpoints are from PRoW 246_18 adjacent to Braxted Park Registered Park and Garden. Therefore, there would be no significant landscape and visual effects on Braxted Park as a result of the proposed scheme, and it was not considered proportionate to incorporate the full extent of the park within the study area. Assessment of cultural heritage assets is included within Chapter 7: Cultural heritage [TR010060/APP/6.1].

8.7.5 The study area incorporates the full extent of the Order Limits and the wider landscape setting within which the proposed scheme could cause significant landscape and visual effects. The study area does not include the full extent of the bare earth ZTV and every landscape or visual receptor from which there would be visibility of the proposed scheme. However, the study area is considered to be proportionate to the nature and scale of the proposed scheme and encompass the likely significant landscape and visual effects, as well as effects unlikely to be significant. This is in accordance with the NNNPS, which states the landscape and visual assessment will focus on those receptors '*significantly affected by the project*'.

8.7.6 Consultation with local planning authorities and Historic England in February 2021 included requests for feedback on the proposed study area, and there were no responses that disagreed with the extent proposed.

8.8 Baseline conditions

Baseline sources

8.8.1 The baseline conditions have been established through a review of existing desktop studies. The following sources have been used to inform the baseline:

- Ancient Tree Inventory (Woodland Trust, 2021)
- Appendix 8.4: Arboricultural Impact Assessment [TR010060/APP/6.3]
- Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Assessments (Chris Blandford Associates, 2006)
- Braintree District Council Local Development Framework Core Strategy (Braintree District Council, 2011)
- Local Plan Review (Braintree District Council, 2005)

- Braintree Publication Draft Local Plan Section 2 (Braintree District Council, 2017)
- Chelmsford Local Plan 2013–2036 and Adopted Policies Map (Chelmsford City Council, 2020)
- Local Development Framework Development Policies and Core Strategy, (Colchester Borough Council, 2014a; 2014b)
- Publication Draft Colchester Borough Local Plan 2017 – 2033 Section 2 (Colchester Borough Council, 2017)
- Colchester Borough Landscape Character Assessment (Chris Blandford Associates, 2005)
- England's Light Pollution and Dark Skies (CPRE, 2019)
- Essex Green Infrastructure Strategy (Essex County Council, 2020)
- MAGIC Map application (Department for Environment, Food and Rural Affairs, 2021)
- Maldon District Local Development Plan (Maldon District Council, 2017)
- North Essex Authorities' Local Plan Shared Strategic Section 1 Plan (Braintree District Council, Colchester Borough Council, Tendring District Council, 2021)
- OS Open Greenspace and OS Open Greenspace Technical Specification (Ordnance Survey, 2021)
- Tranquillity Map: England (CPRE, 2007)

Baseline information

Landscape constraints

8.8.2 The key baseline constraints relevant to landscape are illustrated on Figure 8.1 [TR010060/APP/6.2].

8.8.3 There are no Areas of Outstanding Natural Beauty or National Parks within the study area or within the wider extent of the ZTV.

8.8.4 A local landscape designation, that is an area of landscape predominantly defined by landscape distinctiveness, is identified within the Chelmsford Local Plan 2013–2036 (Chelmsford City Council, 2020) as the 'Green Wedge' under Strategic Policy S11 The Role of the Countryside. The policy states that *'The Green Wedge has an identified intrinsic character and beauty and is a multi-faceted distinctive landscape providing important open green networks, which have been instrumental in shaping the City's growth, character and appearance… Development which materially harms the role, function and intrinsic character and beauty of the Green Wedge will not be approved*'. The Green Wedge falls within a localised part of the study area, to the east of Chelmsford and west of the A12.

8.8.5 The study area includes open greenspace, identified by the Ordnance Survey, which illustrates open space such as parks, allotments, churchyards, golf courses and other sports facilities that are likely to be open to the public. Similarly, local plans identify areas of open space, which are incorporated within the Essex Green Infrastructure Strategy (Essex County Council, 2020).

8.8.6 Braintree District Council also identifies green buffers in the emerging Braintree Publication Draft Local Plan Section 2 (Braintree District Council, 2017), including between Witham, Rivenhall and Rivenhall End, to prevent coalescence of built-up areas. While identified areas of open space and green buffers are not landscape designations, open space is relevant in terms of informing landscape value, impacts on 'openness' and effects on visual receptors.

8.8.7 The Blackwater Rail Trail Country Park runs south from Witham, passing beneath the existing A12. A network of PRoWs, including national and regional cycle routes, runs throughout the landscape, crossing the existing A12 in places. Pockets of registered common land are also distributed within the study area, although there is no registered common land within the Order Limits.

8.8.8 Blocks of ancient woodland located within the study area include Toppinghoehall Wood, north-east of Boreham; Sparkey, Mope and Chantry Woods, east of Witham; and Kelvedon Hall Wood, south of Kelvedon. Perry's Wood abuts the Order Limits west of Inworth Road. However, there are no areas of ancient woodland within the Order Limits.

8.8.9 Trees with TPO status within the study area include some of the trees within the grounds of Boreham House, north of Boreham House and the B1137 Main Road; some of the trees within Hatfield Peverel, Witham and Kelvedon; and scattered specimens within rural areas.

8.8.10 There are veteran, ancient and notable trees (as defined by the Woodland Trust) within the study area. Within the Order Limits, there are three veteran elms: one located south-west of Witham along the B1389, one south of Easthorpe Road and another along the A12 south of Marks Tey. These veteran trees are set within the context of existing highway infrastructure. Arboricultural surveys carried out and presented within Appendix 8.4 [TR010060/APP/6.3] have identified potential veteran and potential ancient trees within the Order Limits that have not been defined by the Woodland Trust.

8.8.11 Heritage features help inform the sensitivity of the landscape and are relevant to the assessment of landscape and visual effects. As such, a brief summary of key cultural heritage assets relevant to the landscape assessment is described in this section. For a full description of the cultural heritage baseline, refer to Chapter 7: Cultural heritage, of the Environmental Statement [TR010060/APP/6.1].

8.8.12 Four registered parks and gardens are located within the study area. Boreham House and New Hall Boreham (both grade II listed) are both close to the existing A12 at the western extent of the study area and within 100m of the Order Limits. A localised part of the northern periphery of Boreham House Registered Park and Garden south of the B1137 Main Road falls within the Order Limits. Hatfield Priory (grade II), south of Hatfield Peverel, is over 700m

south of the Order Limits, and Braxted Park (grade II*) is located east of Rivenhall End and over 600m east of the Order Limits. The southern extent of Terling Place Registered Park and Garden (grade II) just clips the study area, north-west of Hatfield Peverel and over 1km from the Order Limits.

8.8.13 There are numerous conservation areas within the study area, including the Chelmer and Blackwater Navigation, and parts of Boreham, Witham, Kelvedon and Feering. There are several scheduled monuments within the study area, including the Rivenhall End Long Mortuary Enclosure (which is not publicly accessible and is not visible at ground level).

8.8.14 Listed buildings are particularly concentrated within the historic core of settlements such as Boreham, Hatfield Peverel, Witham, Little Braxted, Kelvedon, Inworth and Feering. Several isolated listed buildings lie throughout the rural landscape surrounding the existing A12. Some of these, such as Prested Hall (grade II listed) and Marks Tey Hall (grade II listed with an associated grade II* listed barn) to the south of the existing A12 at the eastern extent of the study area, lie within large associated grounds and are accessed by long and distinctive driveways. Protected lanes, identified within local plans as non-designated heritage assets, are located within the study area.

Landscape character

8.8.15 The majority of the study area falls within national character area (NCA) 86 South Suffolk and North Essex Clayland (Natural England, 2014). The landscape contains a complex network of ancient woods and parklands, species-rich hedgerows, and meadows with streams and rivers. The wooded arable countryside provides a distinct sense of enclosure within the NCA. To the east, part of the study area falls within NCA 111 Northern Thames Basin (Natural England, 2013). This consists of an ancient, wooded, arable landscape that also gives a distinct sense of enclosure. Further key characteristics for these NCAs are presented in Appendix 8.1 of the Environmental Statement [TR010060/APP/6.3].

8.8.16 At a regional scale, landscape character has been assessed within the Essex Landscape Character Assessment (Chris Blandford Associates, 2003). The study area falls within seven regional LCAs, presented within Appendix 8.1 [TR010060/APP/6.3] along with the key characteristics and published sensitivity to major transportation developments and improvements.

8.8.17 The NCAs and regional LCAs have not been separately assessed within this LVIA due to their broad geographical coverage. Effects on the landscape character of the NCAs and regional LCAs have instead been considered as part of the assessment of the local LCAs described below, which are more related to the scale and extent of the landscape character within the study area.

8.8.18 At a local scale, the landscape within Chelmsford, Braintree and Maldon districts has been assessed within the Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Assessment (Chris Blandford Associates, 2006). At the eastern extent of the study area, around Marks Tey, the local landscape is assessed within the Colchester Borough Landscape Character Assessment (Chris Blandford Associates, 2005). These published

landscape character assessments are informed by historic landscape characterisation.

8.8.19 The local LCAs assessed are presented along with their key characteristics (minor typos within original documents corrected) in Table 8.9 and Table 8.10 and are illustrated on Figure 8.2 [TR010060/APP/6.2]. Figure 8.2 illustrates all local LCAs within the study area for context.

8.8.20 As the published assessments date to 2005 and 2006, any additional key features identified through site appraisal have also been noted.

Table 8.9 Local LCAs (Chelmsford, Braintree, Maldon)

LCA	Key characteristics
A7 Lower Chelmer River Valley (directly affected)	• Shallow valley • Predominantly arable farmland on the valley slopes • The Lower Chelmer where it meets the River Blackwater has gentle valley sides • Overall strong sense of place and tranquillity away from Maldon and the A12 and the railway line While not assessed within the publication, the adjoining urban edge of Chelmsford is relevant to the proposed scheme. Key characteristics of the urban edge character were defined within the ESR (Highways England, 2020a) as follows: • Commercial and industrial area west of the A12 on the eastern periphery of Chelmsford, with large-scale buildings and areas of car parking • Strong vegetation belt between the A12 and eastern edge of Chelmsford restricts intervisibility Other notable features identified through site appraisal include the following: • A number of water bodies close to the River Chelmer • Scattered trees along fragmented fields boundaries • Small pockets of wet woodland/plantation • Open views occasionally framed by field boundary vegetation • A number of pylons, traffic along the A12, large farm buildings and buildings at the adjacent Springfield Business Park, are detracting features within the landscape • The river valley floor is generally sparsely populated, adding to its open character **Published sensitivity to change: high**
A9 Blackwater River Valley (directly affected)	• Shallow valley • The valley sides slope gently up from the valley floor • Predominantly arable farmland on the valley slopes • The Lower Blackwater near the confluence with the River Chelmer has gentle valley slopes • Overall strong sense of place and tranquillity away from the settlements of Braintree, Witham and Maldon and the A120, A12 and the railway line

LCA	Key characteristics
	While not assessed within the publication, the adjoining urban edge of Witham is relevant to the proposed scheme. Key characteristics of the urban edge character were defined within the ESR (Highways England, 2020a) as follows: • Commercial and industrial area west of the A12 on the eastern periphery of Witham (north of Blackwater Lane and the River Brain), with large-scale buildings and areas of car parking • Southern residential edge of Witham (south of Blackwater Lane and the River Brain), comprising typical 20th century housing • Strong vegetation belt between the A12 and eastern and southern edges of Witham restricts intervisibility While not assessed within the publication, the urban areas of Kelvedon and Feering are relevant to the proposed scheme. Key characteristics of the urban area are defined as follows: • Kelvedon Conservation Area incorporates numerous historic listed buildings along High Street and part of Feering Hill • The streetscape within Kelvedon Conservation Area is varied, comprising medieval buildings, small Victorian terraces and nineteenth and twentieth century buildings • Well treed course of the River Blackwater passes beneath Feering Hill, marking the divide between Kelvedon and Feering Other notable features identified through site appraisal include the following: • Fragmentation of the landscape caused by the A12, Great Eastern Main Line (GEML) railway corridor, transversal secondary roads and Colemans Farm Quarry (active) east of J22 • Sense of tranquillity is eroded by movement of heavy goods vehicles at Colemans Farm Quarry, the A12 and major junctions, and the urban areas of Witham and Kelvedon • Large golf course at Benton Hall Golf and Country Club **Sensitivity to change not published**
Landscape sub-area A9A (directly affected)	• Mixture of arable and pastoral land use on the valley floor • The Blackwater River Valley floor north of the A120 is narrow • The River Blackwater near the confluence with the River Chelmer has a wide flat valley floor • Extensive linear poplar and willow plantations are a distinctive features especially along the river banks While not assessed within the publication, the adjoining urban edge of Witham is relevant to the proposed scheme. Key characteristics of the urban edge character were defined within the ESR (Highways England, 2020a) as above, under A9. Other notable features identified through site appraisal include the following: • Strong sense of tranquillity perceived along parts of the Blackwater River Valley • Extensive locally distinctive willow plantations along the Blackwater River Valley

LCA	Key characteristics
	• Large golf course at Benton Hall Golf and Country Club **Sensitivity to change not published**
B17 Terling Farmland Plateau (indirectly affected)	• Rolling arable farmland • Irregular pattern of medium to large-scale fields • Scattered settlement pattern, with frequent small hamlets, typically with greens and ponds • Network of narrow winding lanes • Mostly tranquil away from the A12 and A131 Other notable features identified through site appraisal include the following: • Large woodland blocks • Woodlands and belts of trees along the meandering River Ter **Published sensitivity to change: moderate**
B18 Silver End Farmland Plateau (indirectly affected)	• Gently undulating farmland • Irregular, predominantly large arable fields marked by sinuous hedgerows • Many small woods and copses provide structure and edges in the landscape • Scattered settlement pattern, with frequent small villages • Network of narrow winding lanes • Mostly tranquil character away from the major roads Other notable features identified through site appraisal include the following: • Open landscape allowing long-distance views • Golf course at Rivenhall Oaks Golf Centre **Published sensitivity to change: moderate to high**
B19 Langley Green Farmland Plateau (directly affected)	• Flat to gently sloping landform • Dominated by large arable fields • Generally gappy and fragmented field boundaries, especially adjacent to roads • Settlement pattern consists of small villages with scattered farmsteads among predominantly arable land • The houses are predominantly modern, constructed from brick • Overall strong sense of place and tranquillity away from the A120, A12 and the railway line Other notable features identified through site appraisal include the following: • Distinctive treed driveway/avenue to Prested Hall • Open landscape with occasional panoramic views where they are not contained by hedges with hedgerow trees. • Pylons are detracting features within the landscape

LCA	Key characteristics
	Published sensitivity to change: low to moderate
B21 Boreham Farmland Plateau (directly affected)	• Irregular field pattern of mainly medium size arable and pastoral fields, marked by hedgerows, banks and ditches • Small woods and copses provide structure and edges in the landscape • Scattered settlement pattern, with frequent small villages • A concentration of isolated farmsteads • Network of narrow winding lanes Other notable features identified through site appraisal include the following: • Housing development on the north-eastern periphery of Chelmsford, including Beaulieu Park • Active Hanson Quarry north-east of J19, which is altering the landform and introducing large lagoons into the landscape • Sense of tranquillity is eroded by house developments and quarrying • A number of water bodies scattered in the landscape among mixed farmland **Published sensitivity to change: low to moderate**
F3 Totham Wooded Farmland (directly affected)	• Wooded ridges and hillsides to the east of the River Blackwater • Predominantly agricultural fields enclosed by woodland patches or hedgerows with mature trees • Field boundaries vary – some are thickly enclosed, as at Beacon Hill, and others are more open with gappy hedges • Interest created by colour washed buildings both in villages and scattered in the landscape Other notable features identified through site appraisal include the following: • Gently rolling landscape • High level of tranquillity perceived at Braxted Park • Generally intimate and enclosed landscape except in the northern part close to the A12 corridor, where the landscape is more open with larger arable fields and disturbed by perception of traffic along the A12 **Published sensitivity to change: high**

Table 8.10 Local LCAs (Colchester)

LCA	Key characteristics (sensitivity to change not published)
A2 Wooded Roman River Valley (indirectly affected)	• Relatively steep and wooded slopes of narrow V-shaped Roman River valley (tributary of the Colne River) • Large areas of deciduous and coniferous (mixed) woodland on the valley slopes (e.g. Donyland Wood, Friday Wood and Chest Wood) • Small patches of ancient woodland on the valley sides

LCA	Key characteristics (sensitivity to change not published)
	• Large regular fields on northern valley slopes with a concentration of smaller irregular fields at High Park Corner • Several areas of historic parkland, often associated with halls, overlooking the valley floor • Views across and within the valley restricted by large woodland areas Other notable features identified through site appraisal include the following: • The wooded nature of the landscape contributes to the intimate character of the valley west of the Roman River
A5 Colne River Valley Slopes (indirectly affected)	• Relatively steep V-shaped valley slopes facilitate attractive and open views across and along the river corridor • Principal road network consisting of narrow tree-lined (sometimes sunken) lanes traversing the valley sides to the north and south • A mosaic of medium to large-sized irregular and regular, predominantly arable fields with medium hedgerows containing semi-mature/mature hedgerow trees • Some larger semi-enclosed arable fields to the west of Wakes Colne; and concentrations of smaller fields with intact hedge boundaries adjacent to settlements • Settlement pattern consists of small linear village settlements such as Wakes Colne and Eight Ash Green, adjacent to the north-south roads, which cross the River Valley; and small hamlets and farmsteads Other notable features identified through site appraisal include the following: • Low levels of tranquillity and high levels of light pollution given the proximity to A12 J26
B2 Easthorpe Farmland Plateau (directly affected)	• Raised farmland plateau, dissected by the wooded Roman River valley in the east • A mixture of small, medium and large, irregular, predominantly arable fields • Small patches of deciduous woodland and several ponds/reservoirs • Area crossed by a network of narrow, sometimes winding lanes • Airfield, surrounded by large open fields, has a dominant influence on the landscape character in the south of the character area • Settlement pattern consists of small villages and hamlets with scattered farmsteads among predominantly arable agricultural land Other notable features identified through site appraisal include the following: • Arable fields have generally gappy field boundaries. South of J25 and close to Copford, hedgerows are more intact offering a greater sense of enclosure • Views across the farmland plateau from roads and PRoWs are shortened by field boundaries and small patches of woodland • Low levels of tranquillity and high levels of light pollution perceived close to A12 J25

LCA	Key characteristics (sensitivity to change not published)
Landscape sub-area B2A (directly affected)	• Linear settlement corridor extending from the western edge of Colchester urban area, including the western edges of Stanway, Copford village and Marks Tey in the west • Northern boundary delineated by main A12 and railway corridor which is a dominant visual feature within the character area • Visually dominant major road junctions/roundabouts within the character area • Landscape character is disturbed by the visual movement and noise intrusion of cars on the A12 and also by frequent trains on the main railway line Other notable features identified through site appraisal include the following: • Low levels of tranquillity and high levels of light pollution perceived close to A12 J25
B3 Southern Colchester Farmland Plateau (indirectly affected)	• An area of sloping farmland plateau (with a mixture of small, medium and large predominantly arable fields) bordered by Colchester settlement fringes to the north and the wooded Roman River valley to the south • Influence of the military (East Donyland military training area and Middlewick Rifle Ranges) – disturbs tranquillity while firing practice is taking place • Several large patches of woodland extend from the northern slopes of the Roman River valley onto the plateau • Several small lakes and ponds within disused sand and gravel works • Character area provides physical and visual separation between Colchester urban area and the Roman River valley • Fragmented and sometimes chaotic landscape structure with numerous unrelated land uses Other notable features identified through site appraisal include the following: • Active Bell House Quarry which is altering the landform north-west of Colchester Zoo • Housing development along Stanway Western Bypass is eroding the countryside south of the B1408
B4 Great Tey Farmland Plateau (indirectly affected)	• Gently sloping farmland plateau consisting of a mixture of medium to large-scale enclosed, predominantly arable fields • Linear belts and small patches of predominantly deciduous woodland • Small, nucleated settlements and scattered farmsteads • Comprehensive network of footpaths and winding lanes • Peaceful and tranquil atmosphere Other notable features identified through site appraisal include the following: • Arable fields enclosed by hedgerows with frequent hedgerow trees contribute to the intimate character of the landscape

LCA	Key characteristics (sensitivity to change not published)
F1 Messing Wooded Farmland (directly affected)	• Sparse settlement pattern consisting of the small village of Messing, and a number of small, isolated farmsteads • Elevated plateau landform which is situated on a broad ridge and dissected by small streams, providing undulations in topography • Large areas of mixed woodland (for example Layer Wood and Pods Wood) • Number of small ponds and lakes • Single mature trees at field boundaries or standing within fields Other notable features identified through site appraisal include the following: • Smaller regular patches of woodland are interspersed within the arable landscape • West of Inworth Road, a large solar park, Perrywood Nurseries and Tower Business Park are uncharacteristic and detracting features • A general sense of tranquillity except in the northern part close to the A12 corridor, where the landscape is more open with larger arable fields and is disturbed by traffic along the A12 • Hedgerows (not all intact) along Inworth Road (B1023) contribute to the rural character of the road
F2 Tiptree Wooded Farmland (indirectly affected)	• Located at the eastern end of a broad ridge that extends west into Braintree District • Many small patches of woodland • Character area influenced by nucleated Tiptree settlement within the centre of the area • Mosaic of small to medium-sized, predominantly arable fields, with a predominantly small-scale field pattern • Tiptree Heath as an important landscape feature of nature conservation importance • Linear settlement pattern, consisting of Tiptree Heath and the northern extent of Tolleshunt Knights, which extends outside the character area to the south-east Other notable features identified through site appraisal include the following: • Fragmented landscape pattern affected by development and sand and gravel extraction south of Windmill Hill • Reduced tranquillity close to Tiptree

8.8.21 Landscape planning and land management guidelines for each of the local LCAs identified within Table 8.9 and Table 8.10 are presented in Appendix 8.1 of the Environmental Statement [TR010060/APP/6.3], and include:

- ensuring new built development is in keeping with landscape character
- conserving the mostly rural character

- conserving and enhancing the landscape setting of settlements
- enhancing the screening of the A12 and the railway line
- conserving and restoring the existing hedgerow pattern
- conserving, managing and enhancing areas of woodland

Perceptual qualities

8.8.22 CPRE has undertaken a study of tranquillity in England and has mapped and published the results. CPRE highlights new roads as one of the greatest threats to remaining levels of tranquillity. The Tranquillity Map: England (CPRE, 2007) identifies tranquillity zones based on sources of noise and visual intrusion and the zones over which intrusion may be felt. Within the study area, Chelmsford urban area is indicated to be one of the least tranquil areas, while the rural parts of the study area are indicated to be more tranquil.

8.8.23 England's Light Pollution and Dark Skies (CPRE, 2019) mapping illustrates the influence of light pollution on the night skies within the study area. The study area is affected by night-time light pollution, especially associated with the urban areas of Chelmsford and Witham, as well as the A12 corridor. The night skies within more rural parts of the study area between key settlements are generally darker. However, there are no dark skies located within the study area, quantified as night skies with lighting levels of less than a quarter pixel.

Visibility and potential visual receptors

8.8.24 The landscape within the study area is generally low-lying and relatively flat, with very gentle undulations. While there are open views across agricultural fields, hedgerows, tree belts and woodlands restrict the distance of such views. Built development also limits the distance of views from within settlements. As such, the range of available views is generally local or middle-distance. There are limited longer distance views due to the relatively flat nature of the landform and intervening vegetation and settlement, as demonstrated through the assessment of illustrative viewpoints A – E within Appendix 8.3 [TR010060/APP/6.3].

8.8.25 Potential visual receptors within the study area, which were identified in the PEIR and used to inform the selection of viewpoints, include:

- residents within residential properties on the peripheries of settlements including Boreham, Hatfield Peverel, Witham, Inworth, Rivenhall End, Kelvedon, Feering, Messing, Easthorpe, Marks Tey, Copford Green and Copford
- residents within residential properties scattered throughout the rural landscape
- users of PRoWs including long-distance paths, Sustrans National Cycle Routes 1 and 16 and Regional Cycle Route 50
- users of public open space, such as the Blackwater Rail Trail Country Park in Witham, Whetmead Local Nature Reserve (east of Whitham) and Brockwell Meadows Local Nature Reserve (Kelvedon)

- users of private open space, such as registered parks and gardens and golf courses
- people at their places of work, such as on the peripheries of Chelmsford and Witham
- users of the road network, including the A12

8.8.26 The representative and illustrative viewpoints included within this LVIA are presented in Table 8.11 and illustrated on Figure 8.3 [TR010060/APP/6.2].

8.8.27 There have been minor changes to the assessment viewpoints as a result of feedback from consultation and refinement during field surveys carried out since the PEIR. Viewpoints have been refined onsite to assess the worst case, while remaining representative of views from the receptors identified within the viewpoint descriptions in Table 8.11. Changes to the viewpoints since the PEIR were communicated in the final viewpoint consultation with local planning authorities and Historic England carried out in September 2021, and were as follows:

- Representative viewpoint 5: Slight adjustment north to the footway adjacent to A12, north-east of original viewpoint, because the original viewpoint location is not publicly accessible.
- Representative viewpoint 6: Woodend Bridge (original viewpoint location) would be demolished. Therefore, representative viewpoint 6 has been moved to a PRoW to the south-east of Woodend Bridge to assess a similar view across borrow pit F.
- Representative viewpoint 11: Relocated photomontage location to additional representative viewpoint 11a. Photomontage would not be possible from viewpoint 11 because the scheme proposals show road design over the viewpoint. The ground level would be subject to change, and it was not possible to take a photograph and produce an accurate photomontage from the proposed future ground level.
- Representative viewpoint 11a: Additional representative viewpoint and relocated photomontage location from representative viewpoint 11.
- Representative viewpoint 13: Minor site refinement to a gap in the vegetation along the road directly west of properties for convenience in photography location, and to assess more open views towards the proposed scheme.
- Representative viewpoint 17: Near the original viewpoint location, Inworth Road is hedged and land rises to west, restricting views towards the proposed scheme. Therefore, representative viewpoint 17 was relocated north along Inworth Road to assess views of junction 24 (Kelvedon North interchange).
- Representative viewpoint 20: Slight adjustment to the north of the original viewpoint, north of intervening vegetation, to assess more open views towards the proposed scheme.

- Representative viewpoint 21: Slight adjustment to the north of the original viewpoint, north of intervening vegetation and built development, to assess more open views towards the proposed scheme.
- Representative viewpoint 22: Slight adjustment to the south of the original viewpoint, south of intervening vegetation, to assess more open views towards the proposed scheme.
- Representative viewpoint 25: Intervening built development would restrict views from original viewpoint. Adjustment near original viewpoint was made to assess more open view west towards the proposed scheme from London Road.
- Representative viewpoint 26: Intervening built development would restrict views from the original viewpoint. Adjustment was made near the original viewpoint to assess more open views towards the proposed scheme from the western edge of the new housing development.
- Representative viewpoint 32: Original viewpoint location did not incorporate Prested Hall Overbridge, which would be elevated above the bypass. Adjustment was made near the original viewpoint to assess impacts of Prested Hall Overbridge.
- Representative viewpoint 33: Added in response to feedback from Braintree District Council during statutory consultation as described within Table 8.2.
- Illustrative viewpoint C: Slight adjustment to north-west of the original viewpoint, north-west of intervening landform immediately in the foreground of the original viewpoint location.
- Illustrative viewpoint D: Slight difference in location of winter and summer viewpoints – introduction of a fence prevented access to exactly the same location in summer.
- Illustrative viewpoint E: Slight adjustment to the north-east of original viewpoint, north-east of intervening built development within Copford Green.
- Additional representative viewpoints 34 and 35 have been incorporated since the PEIR to assess the gas main diversion where it would not run alongside the A12 corridor.

8.8.28 Table 8.11 presents the receptor types relevant to each representative viewpoint, the viewpoint description and reason for selection. Photomontage locations 2, 7, 11a, 22, 24 and 32 are identified in Table 8.11 and also illustrated on Figure 8.3 [TR010060/APP/6.2]. Photography from the representative and illustrative viewpoints is provided in Figure 8.4 [TR010060/APP/6.2] and photomontages are presented on Figure 8.5 [TR010060/APP/6.2].

Table 8.11 Viewpoints for assessment

Viewpoint	Receptor type	Viewpoint description and reason for selection
Representative viewpoints		
1	Users of PRoW (public bridleway)	Representative view south-east from Centenary Circle long distance path (PRoW 213_22), adjacent to New Hall Registered Park and Garden Viewpoint selected to assess views towards J19 from visual receptors to the north. Location selected because it considers open views towards J19 as well being on a promoted PRoW and adjacent to New Hall Registered Park and Garden.
2	Users of PRoW (public bridleway) and residents within private properties Vehicle travellers on Paynes Lane	Representative view west from PRoW 213_45 on Paynes Lane, Boreham Viewpoint selected to assess views towards J19 from visual receptors to the east. Location selected because it considers views across the entrance to Boreham House Registered Park and Garden. **Photomontage location**
3	Users of PRoW (public footpath)	Representative view north from the Centenary Circle long distance path (PRoW 234_17) where it meets PRoW 234_18, within the Chelmer and Blackwater Navigation Conservation Area Viewpoint selected to assess views towards J19 from within the Chelmer and Blackwater Navigation Conservation Area. Location selected because it considers open views towards J19 from a promoted PRoW towards the wider setting of Boreham House Registered Park and Garden, and because it is a panoramic view identified within Chelmer and Blackwater Navigation Conservation Area: Conservation area character appraisal (Chelmsford Borough Council, 2009).
4	Residents within private properties Vehicle travellers on The Street, Hatfield Peverel	Representative view north-west along Station Road from residential properties along The Street, Hatfield Peverel Viewpoint selected to assess views towards the proposed scheme from the northern periphery of housing, adjacent to the existing A12, within Hatfield Peverel. Public access to open views of the proposed scheme is limited by built development and dense existing highway vegetation south of the A12. Location selected to consider open views towards Station Road Overbridge Replacement.
5	Users of footway/cycleway Residents within private properties Vehicle travellers on the A12	Representative view north-east from footpath/cycleway south of A12, east of Hatfield Peverel Viewpoint selected to assess views towards J21 from the periphery of Hatfield Peverel. Location considers views from future housing north-east of Gleneagles Way, as requested by Braintree District Council.

Viewpoint	Receptor type	Viewpoint description and reason for selection
6	Users of PRoW (public footpath)	Representative view east from PRoW 90_29, east of Hatfield Peverel Viewpoint selected to assess views of borrow pit F. There are few visual receptors and publicly accessible locations close to borrow pit F, although PRoW 90_29 runs immediately adjacent. Location along PRoW 90_29 selected at a gap within field boundary vegetation so that the worst case could be assessed.
7	Residents within private properties Vehicle travellers on Maldon Road	Representative view north from residential properties along Maldon Road, Witham Viewpoint selected to assess views towards the proposed scheme from the southern periphery of housing, adjacent to the existing A12, within Witham. Public access to open views of the proposed scheme is limited by built development and dense existing highway vegetation north and south of the A12. Location selected to consider open views towards Olivers Bridge. **Photomontage location**
8	Users of Blackwater Rail Trail Country Park public open space	Representative view north-east along Blackwater Rail Trail Country Park Viewpoint selected to assess views towards the proposed scheme from within Blackwater Rail Trail Country Park. Blackwater Rail Trail Country Park is well vegetated which restricts views of the existing A12, therefore location close to the A12 on Benton Bridge was selected to assess the worst case.
9	Users of Whetmead Local Nature Reserve public open space	Representative view west from Whetmead Local Nature Reserve Viewpoint selected to assess views towards the proposed scheme from Whetmead Local Nature Reserve. Location selected because it considers open views towards the proposed scheme from within the promoted public open space.
10	Users of national cycle route Vehicle travellers on Little Braxted Lane	Representative view south-west from Little Braxted Lane/National Cycle Route 16 Viewpoint selected to assess views towards the proposed offline bypass between J22 and J23. Location selected at a gap within vegetation along Braxted Lane so that the worst case could be assessed.
11	Users of national cycle route Vehicle travellers on Little Braxted Lane	Representative view north-east from Little Braxted Lane/National Cycle Route 16 Viewpoint selected to assess views towards the proposed offline bypass between J22 and J23, and J22. Location selected at a gap within vegetation along Braxted Lane so that the worst case could be assessed.

Viewpoint	Receptor type	Viewpoint description and reason for selection
11a	Users of PRoW (public bridleway) and residents within private properties	Representative view north from PRoW 105_29, east of Little Braxted Lane Viewpoint selected to assess views towards the proposed offline bypass between J22 and J23, and J22. Viewpoint selected because photomontage towards J22 would not be possible from viewpoint 11, because the scheme proposals show road design over the viewpoint. Alternative location is from a publicly accessible viewpoint close to the original photomontage location. Location selected at a gap within vegetation along the bridleway so that the worst case could be assessed. **Photomontage location**
12	Users of PRoW (public footpath) Vehicle travellers on Braxted Lane (protected lane)	Representative view north-west across the Blackwater River Valley from PRoW 246_18, adjacent to Braxted Park Registered Park and Garden Viewpoint selected to assess views towards the proposed scheme from Braxted Park Registered Park and Garden. Location close to Braxted Lane selected to encompass both the registered park and garden and Braxted Lane which is a protected lane.
13	Residents within private properties Vehicle travellers on Braxted Road	Representative view west from residential properties along Braxted Road, Rivenhall End Viewpoint selected to assess views towards Braxted Road Overbridge. There are relatively few visual receptors close to Braxted Road Overbridge. Location selected as close to nearby visual receptors of high sensitivity as possible to assess the worst case.
14	Residents within private properties Vehicle travellers on Cranes Lane	Representative view south-west from residential properties along Cranes Lane, Kelvedon Viewpoint selected to assess offline bypass between J22 and J23 where it re-joins the A12. Location selected as close to nearby visual receptors of high sensitivity as possible to assess the worst case.
15	Residents within private properties and users of PRoW (public footpath) Vehicle travellers on Ewell Hall Chase	Representative view south-east from residential properties along Ewell Hall Chase within Kelvedon Conservation Area Viewpoint selected to assess views towards the proposed scheme from within Kelvedon Conservation Area. Location selected as close to nearby visual receptors of high sensitivity as possible to assess the worst case.

Viewpoint	Receptor type	Viewpoint description and reason for selection
16	Users of PRoW (public footpath)	Representative view south-east from PRoW 92_15, east of Brockwell Meadows Local Nature Reserve, Kelvedon Viewpoint selected to assess views towards J24 from the eastern edge of Kelvedon. Brockwell Meadows Local Nature Reserve was chosen because it comprises a promoted public open space. Location selected because it considers open views towards the proposed scheme.
17	Residents within private properties Vehicle travellers on B1023 Inworth Road	Representative view west from residential properties along B1023 Inworth Road Viewpoint selected to assess views towards J24. Location selected as close to nearby visual receptors of high sensitivity as possible to assess the worst case.
18	Users of PRoW (public footpath) and residents within private properties	Representative view north-west from PRoW 78_12, east of the driveway to Prested Hall (grade II listed) Viewpoint selected to assess views towards the proposed offline bypass between J24 and J25. Location selected because it considers open views along the distinctive driveway to Prested Hall.
19	Users of PRoW (public footpath) Vehicle travellers on Easthorpe Road	Representative view west from PRoW 128_23, south of Easthorpe Road Viewpoint selected to assess views towards the proposed offline bypass between J24 and J25. Location selected because it considers open views close to the proposed scheme to assess the worst case.
20	Users of PRoW (public footpath) and residents within private properties	Representative view north of PRoW 128_22 and Easthorpe Green Farmhouse (grade II listed) Viewpoint selected to assess views towards the proposed offline bypass between J24 and J25. Location selected because it considers more open views close to the proposed scheme to assess the worst case compared with views from PRoW to the south which are more restricted by intervening vegetation.
21	Users of PRoW (public bridleway)	Representative view north from PRoW 128_28, Easthorpe Viewpoint selected to assess views towards the proposed scheme from Easthorpe. Location selected because it considers open views from the northern edge of Easthorpe, closest to the proposed scheme while still being representative of views from Easthorpe.

Viewpoint	Receptor type	Viewpoint description and reason for selection
22	Users of PRoW (public footpath) and residents within private properties	Representative view south-east from PRoW 144_19 near Doggets Hammer Farm (grade II listed), Potts Green Viewpoint selected to assess views towards the proposed offline bypass between J24 and J25, including an acoustic bund and Potts Green Bridge. Location selected because it considers open views close to the proposed scheme to assess the worst case. **Photomontage location**
23	Users of PRoW (public footpath) and Marks Tey recreation ground/public open space	Representative view south-east from PRoW 144_16 at Marks Tey recreation ground Viewpoint selected to assess views towards J25 from the edge of Marks Tey. Location selected within public open space, as close to the proposed scheme as possible to assess the worst case, while remaining representative of the view within the recreation ground.
24	Users of PRoW (public footpath)	Representative view west from PRoW 144_17 next to Marks Tey Hall (grade II listed) Viewpoint selected to assess views towards J25 from Marks Tey Hall and PRoW to the east of the proposed scheme. Location selected to be representative of views from Marks Tey as well as the newly designated scheduled monument, the medieval moat at Marks Tey Hall. Further north-west of viewpoint 24 along the PRoW, to the north-west of an intervening tree belt, there are clearer views towards the proposed scheme, but these views are further from the scheduled monument and not representative of the existing context and setting of the monument which is well contained by vegetation. **Photomontage location**
25	Residents within private properties Vehicle travellers along London Road	Representative view north-west from residential properties along London Road, Marks Tey Viewpoint selected to assess views towards J25 from Marks Tey. Location selected because it considers more open views close to the proposed scheme to assess the worst case compared with views from the urban area to the south which are more restricted by intervening built development.
26	Residents within private properties Vehicle travellers along Rhino Drive	Representative view west from residential properties along Rhino Drive, Stanway Viewpoint selected to assess views towards J25 from recent development at Stanway. Location selected because it considers open views from the western edge of Easthorpe, closest to the proposed scheme while still being representative of views from Stanway.

Viewpoint	Receptor type	Viewpoint description and reason for selection
27	Users of PRoW (public footpath)	Representative view north from PRoW 145_5, near Inworth Hall (grade II listed) Viewpoint added in response to request from Colchester Borough Council, who requested this specific location.
28	Users of PRoW (public footpath) and residents within private properties Vehicle travellers along Easthorpe Road	Representative view west from PRoW 128_22, north of Easthorpe Road Viewpoint added in response to request from Colchester Borough Council, who requested this specific location.
29	Users of PRoW (public footpath)	Representative view north from PRoW, 144_18 south of London Road Viewpoint added in response to request from Colchester Borough Council, who requested this specific location.
30	Users of PRoW (public footpath)	Representative view east along PRoW 78_18, Feering Viewpoint added in response to request from Feering Parish Council. Location selected along PRoW on the outskirts of Feering closest to the proposed scheme to assess the worst case.
31	Users of PRoW (public footpath) and residents within private properties	Representative view south-east along PRoW 78_13, Feering Viewpoint added in response to request from Feering Parish Council. Location selected along PRoW close to the main residential edge of Feering to assess impacts on Feering as requested.
32	Users of PRoW (public footpath) and residents within private properties	Representative view north-west from PRoW 78_18 on periphery of Prested Hall (grade II listed) grounds Viewpoint selected to assess views towards Prested Hall Overbridge and part of the offline bypass between J24 and J25. Location selected to assess open view on the edge of Prested Hall closest to the proposed scheme to assess the worst case. **Photomontage location**
33	Users of PRoW (public footpath)	Representative view east from PRoW 90_2, Hatfield Peverel Viewpoint selected to assess views towards J20b main compound and borrow pit E. Braintree District Council also requested assessment of borrow pit E, and this location was the nearest publicly accessible location. Location selected because it considers open views towards J20b main compound and borrow pit E.

Viewpoint	Receptor type	Viewpoint description and reason for selection
34	Users of PRoW (public footpath)	Representative view north-west from PRoW 121_102 Viewpoint selected to consider the gas main diversion. Location selected because it considers open views towards the gas main diversion.
35	Users of PRoW (public footpath) and residents within private properties	Representative view north-west from PRoW 268_23 Viewpoint selected to consider the gas main diversion, particularly where it would affect the wider Blackwater Valley away from the existing A12. Location selected because it is adjacent to gardens at Glen Chantry which were previously open to visitors, and because it considers more open views across the Blackwater Valley compared with other PRoWs nearby that are more enclosed by woodland.
Illustrative viewpoints: Longer distance illustrative viewpoint in excess of 1km from the Order Limits identified to demonstrate that visual effects beyond 1km are unlikely to be significant.		
A	Users of PRoWs (public footpaths)	Illustrative view north-west from PRoW 213_30, within the Chelmer and Blackwater Navigation Conservation Area Location selected to consider longer distance views from within the Chelmer and Blackwater Navigation Conservation Area.
B	Users of PRoW (public footpath)	Illustrative view north from PRoW 90_20, adjacent to Hatfield Priory Registered Park and Garden Location selected to consider longer distance views from PRoW adjacent to Hatfield Priory Registered Park and Garden.
C	Users of PRoW (public footpath)	Illustrative view north-west from PRoW 246_18, adjacent to Braxted Park Registered Park and Garden Location selected to consider longer distance views from PRoW adjacent to Braxted Park Registered Park and Garden.
D	Users of PRoW (public footpath)	Winter – Illustrative view south-east from PRoW 90_48, south of Terling Place Registered Park and Garden Summer – Illustrative view south-east from Terling Hall Road, at the junction with the access drive to Maddox Hall Location selected to consider longer distance views from PRoW close to Terling Place Registered Park and Garden.
E	Users of PRoW (public footpath) and residents within private properties	Illustrative view north-west from PRoW 128_7, north of Copford Green Conservation Area Location selected to consider longer distance views from Copford Green Conservation Area.

Future baseline

8.8.29 Major committed developments are considered as part of the future baseline within this LVIA. Where development has been approved, it has largely been assumed that the development would be *in situ* at all assessment timeframes. Where it is likely that construction would coincide with the construction and operation of the proposed scheme, assumptions have been made on the status of development at each of the assessment timeframes.

8.8.30 Relevant to B21 Boreham Farmland Plateau, it has been assumed that the proposed country park at Hanson's Bulls Lodge Quarry, north-east of Chelmsford would be *in situ* at all assessment timeframes. While not a major committed development, the proposed country park has been taken into consideration in terms of assessing landscape value and sensitivity.

8.8.31 Also relevant to B21 Boreham Farmland Plateau, part of the construction period for Chelmsford North East Bypass, north-east of New Hall Boreham Registered Park and Garden, would coincide with part of the construction phase for the proposed scheme. However, it has been assumed that Chelmsford North East Bypass would be *in situ* during operation of the proposed scheme.

8.8.32 Beaulieu Park Development is relevant to representative viewpoints 1 and 2 and B21 Boreham Farmland Plateau. The Beaulieu Development Phasing Document (David Jarvis Associates, 2020) has been reviewed and it has been assumed that most elements of the Beaulieu Park Development would likely be completed prior to construction of the proposed scheme. The following elements of the Beaulieu Park Development have therefore been considered as part of the future baseline for all assessment timeframes of this LVIA:

- Residential Development Phase 1, 2 and 3, situated north and west of New Hall School
- Primary School, north of New Hall School
- Boreham Interchange, at junction 19
- Beaulieu Park Radial Distributor Road, which runs north of junction 19 (Boreham interchange)
- Landscape compensation measures including estate parkland, east and west of Carriage Drive access to New Hall School and north-west of junction 19

8.8.33 It has been assumed that construction of the following elements of the Beaulieu Park Development would likely coincide with construction of the proposed scheme and operation of the proposed scheme in year 1:

- Railway Station, multi-storey car park and business park (Beaulieu exchange 1 and 2), located north of junction 19 and north of the GEML
- Residential Development Phase 4, situated north-east and south-east of New Hall School

8.8.34 It has been assumed that the Beaulieu Park Development would be fully complete by year 15; that is, 15 years after opening of the proposed scheme.

8.8.35 Relevant to representative viewpoint 5 and B21 Boreham Farmland Plateau, it has been assumed that approved residential development on the eastern edge of Hatfield Peverel, north-east of Gleneagles Way, would be *in situ* at all assessment timeframes.

8.8.36 Relevant to representative viewpoints 11, 11a and 13 and A9 Blackwater River Valley, it has been assumed that some excavation would be in operation within Colemans Farm Quarry during construction (and year 1) but that the quarry would be restored in year 15 in accordance with the approved restoration plan. Information relating to phasing at Colemans Farm Quarry has been obtained from the Biodiversity Enhancement Plan Land at Colemans Farm (Southern Ecological Solutions, 2019).

8.8.37 Proposed developments surrounding the proposed scheme are considered in Chapter 16: Cumulative effects assessment, of the Environmental Statement [TR010060/APP/6.1].

8.8.38 Potential climate effects are considered within Chapter 15: Climate, of the Environmental Statement [TR010060/APP/6.1]. Future assessment of landscape and visual effects is based on years 1 (opening year) and 15 (design year) during operation, and it is not anticipated that climate change would substantially affect the baseline landscape or the establishment of mitigation planting within this timeframe. However, rising temperatures could potentially affect future vegetation in the longer term both directly, through drought or flooding, and indirectly, through resilience and susceptibility to pests and disease. Consideration is given to the use of appropriate species in the event of extreme conditions caused by climate change, such as flooding or drought, within the indicative species lists presented within the LEMP, appended to the first iteration EMP [TR010060/APP/6.5].

Value and sensitivity of receptors

8.8.39 DMRB LA 107 (Highways England, 2020b) considers landscape and visual ‘sensitivity’ which incorporates judgements on ‘value’ and ‘susceptibility’. Landscape and visual sensitivity are established by assessing the value attached to a receptor and its susceptibility to the particular form of change likely to result from the individual development.

8.8.40 Local LCAs and representative viewpoints identified for assessment within this LVIA have been assigned a sensitivity based on the typical descriptions in DMRB LA 107, guidance within GLVIA3 and within Assessing Landscape Value Outside National Designations Technical Guidance Note 02/21 (Landscape Institute, 2021) and using professional judgement.

Landscape

8.8.41 Landscape components identified within the baseline have been used to inform the value and therefore the overall landscape sensitivity of each local LCA within the extent of the study area in accordance with DMRB LA 107.

8.8.42 The sensitivity of the local LCAs identified within the published landscape character assessments has been considered. However, the landscape sensitivity assessed within this LVIA differs to the sensitivity defined within the published landscape character assessments, as presented within Table 8.9. This is because sensitivity within this LVIA considers the sensitivity of each local LCA within the extent of the study area only, and because this LVIA considers the susceptibility of each local LCA specifically to the proposed scheme in accordance with DMRB LA 107.

8.8.43 Table 8.12 presents the value, susceptibility and sensitivity of the local LCAs within the extent of the study area. Listed buildings are present within, and contribute to, the value of all local LCAs. However, to avoid repetition, they have not been referred to consistently within every local LCA. The overall sensitivity score applied to each local LCA, considering judgements on both the value and susceptibility presented within Table 8.12 along with the typical descriptions in Table 8.6, is explained in the paragraphs that follow Table 8.12.

Table 8.12 Value, susceptibility and sensitivity of landscape receptors

Local LCA	Value, susceptibility and sensitivity
A7 Lower Chelmer River Valley	**Value:** Medium – The Chelmer and Blackwater Navigation Conservation Area follows the course of the River Chelmer through the LCA. West of the A12 and south and east of the urban edge of Chelmsford, the landscape forms part of the locally designated Green Wedge. Features of importance also include TPOs, veteran and potential veteran trees, and protected lanes south of Boreham. PRoWs, including the Centenary Circle and Saffron Trail long distance paths, and open space such as sports facilities on the eastern edge of Chelmsford, are likely to be valued by the local community. While there is a strong sense of place and tranquillity away from the A12, the sense of tranquillity and intactness of the landscape diminishes to the west of the character area due to the proximity of the A12, Springfield Business Park and the urban edge of Chelmsford. Light pollution is also associated with Springfield Business Park, the urban edge of Chelmsford, traffic on the A12 and lighting at A12 J19. Although designated areas and features of importance are of value, the reduced sense of tranquillity close to the existing A12 and the influence of existing lighting mean that the value of the landscape is medium overall. **Susceptibility:** Low – As the landscape is already influenced by the A12 and the urban edge of Chelmsford, including Springfield Business Park, the landscape has some ability to accommodate the nature of the direct change proposed. **Sensitivity:** Medium

Local LCA	Value, susceptibility and sensitivity
A9 Blackwater River Valley	**Value:** Medium – The western edge of Braxted Park Registered Park and Garden (grade II*) and associated listed buildings fall within the area, as well as protected lanes (such as Braxted Road), conservation areas within Kelvedon and Feering and scattered scheduled monuments. Other features of importance include pockets of ancient woodland and scattered TPO trees. There are also veteran, ancient and notable trees, particularly within Braxted Park, and a number of potential ancient and veteran trees along field boundaries west of Maldon Road, between Witham and Kelvedon and along the A12. PRoWs, including National Cycle Route 16, and open space, including the golf course at Benton Hall and Brockwell Meadows Local Nature Reserve, are likely to be valued by the local community. While there is a strong sense of place and tranquillity away from urban influences, the sense of tranquillity is eroded by movement of heavy goods vehicles at Colemans Farm Quarry, the A12 and major junctions, and the urban areas of Witham and Kelvedon. Light pollution is associated with these urban areas, traffic and lighting on the A12 at major junctions. Although designated areas and features of importance are of value, the reduced sense of tranquillity close to Colemans Farm Quarry, the existing A12 and major junctions, the urban areas of Witham and Kelvedon and the influence of existing lighting mean that the value of the landscape is medium overall. **Susceptibility:** Low – While there are a number of valued features within the wider landscape, the landscape is already influenced and fragmented by the A12, and there is some ability to accommodate the nature of the direct change proposed. **Sensitivity:** Medium
Landscape sub-area A9A	**Value:** Medium – Landscape features of importance include scattered TPO trees, a potential veteran tree along the A12 south-east of Witham and a potential veteran tree group along the A12 south of Kelvedon. Distinctive willow plantations contribute to the sense of place, are locally distinctive and likely to be valued locally. PRoWs (including National Cycle Route 16), Whetmead Local Nature Reserve, Blackwater Rail Trail Country Park and the golf course at Benton Hall are also likely to be valued by the local community. While there is a strong sense of tranquillity along parts of the Blackwater River Valley, tranquillity diminishes close to the A12 and the urban areas of Witham and Kelvedon. Light pollution is associated with these urban areas and traffic on the A12. Although designated areas and features of importance are of value, the reduced sense of tranquillity and light pollution close to the existing A12 and urban areas mean that the value of the landscape is medium overall. **Susceptibility:** Medium – While there are a number of valued features within the wider landscape, the landscape is already influenced and fragmented by the A12 albeit in a localised area, and there is some ability to accommodate the nature of the direct change proposed. **Sensitivity:** Medium

Local LCA	Value, susceptibility and sensitivity
B17 Terling Farmland Plateau	**Value:** Medium – The landscape contains a number of features of importance such as veteran trees, potential veteran and ancient trees, trees with TPOs and ancient woodlands and registered common land west of Terling Road. A historic network of narrow lanes, some of which are defined as protected lanes, and traditional farmsteads are present. However, the intactness of the landscape has been affected by the intensification of agriculture, which has resulted in field amalgamation and loss or degradation of hedgerow boundaries. PRoWs, including National Cycle Route 16 and Regional Cycle Route 50, are likely to be locally valued. This is a largely rural and reasonably tranquil landscape, although the sense of tranquillity reduces slightly within the southern part of the area close to Hatfield Peverel and the A12 and to the east, close to Witham. Light pollution is associated with these urban areas, traffic and lighting on the A12 at major junctions. Although features of importance are of value, the loss of field pattern, the reduced sense of tranquillity close to the existing A12 and urban areas, and the influence of existing lighting mean that the value of the landscape is medium overall. **Susceptibility:** Low – As the GEML railway corridor north of the A12 and Hatfield Peverel would physically separate B17 Terling Farmland Plateau and the proposed scheme, and vegetation combined with built development at Hatfield Peverel would restrict intervisibility, the landscape has the ability to accommodate the nature of indirect change proposed within the adjacent LCA. **Sensitivity:** Medium
B18 Silver End Farmland Plateau	**Value:** Medium – Features of importance include ancient trees, trees with TPOs, ancient woodlands, part of a scheduled monument north of Rivenhall and protected lanes. PRoWs and the golf course at Rivenhall Oaks Golf Centre are likely to be locally valued. This is a largely rural and reasonably tranquil landscape, although the sense of tranquillity reduces slightly within the southern part of the area close to Witham. Light pollution is also associated with Witham. Although features of importance are of value, the reduced sense of tranquillity and the influence of existing lighting close to Witham mean that the value of the landscape is medium overall. **Susceptibility:** Low – As the GEML railway corridor north of the A12 would physically separate B18 Silver End Farmland Plateau and the proposed scheme, and intervening vegetation would restrict intervisibility, the landscape has the ability to accommodate the nature of indirect change proposed within the adjacent LCA. **Sensitivity:** Medium

Local LCA	Value, susceptibility and sensitivity
B19 Langley Green Farmland Plateau	**Value:** Medium – Veteran and potential veteran and ancient trees comprise features of importance, and PRoWs are likely to be locally valued. Trees along the distinctive driveway/avenue to Prested Hall contribute to the setting of Prested Hall (grade II listed). However, the intactness of the landscape has been affected by the intensification of agriculture, which has resulted in field amalgamation and loss or degradation of hedgerow boundaries, and fragmentation caused by infrastructure corridors including the A12 and GEML. Tranquillity diminishes close to the A12, and light pollution is associated with traffic on the A12 and the urban edge of Feering in the adjacent landscape. Although features of importance are of value, the fragmentation of the landscape caused by infrastructure corridors, the reduced sense of tranquillity close to the existing A12 and the influence of existing lighting mean that the value of the landscape is medium overall. **Susceptibility:** Low – As existing detracting features including the existing A12 corridor and GEML railway corridor are already present, the landscape has some ability to accommodate the nature of the direct change proposed. **Sensitivity:** Medium
B21 Boreham Farmland Plateau	**Value:** Medium – The landscape contains a number of features of importance including New Hall and Boreham House Registered Parks and Gardens (both grade II) and their related grade I listed buildings, conservation areas at Boreham and protected lanes such as Terling Hall Road west of Hatfield Peverel (north of the A12). Other important features include veteran, ancient and notable trees, potential veteran trees and trees with TPOs, including some associated with New Hall and Boreham House. PRoWs, including Centenary Circle long distance path and Regional Cycle Route 50, and areas of open space, such as allotments and playing fields and the proposed country park at Hanson's Bulls Lodge Quarry, are likely to be valued by the local community. However, the intactness of the landscape is affected by the intensification of agriculture, which has resulted in field amalgamation and loss or degradation of hedgerow boundaries, along with urban areas and infrastructure corridors, including the A12, which fragment the landscape. Extraction activities at Hanson Quarry, expansion of urban development on the north-eastern edge of Chelmsford, urban areas including Boreham and Hatfield Peverel, the A12 and major junctions erode the rural character of the landscape and the levels of tranquillity. There are greater levels of light pollution associated with the urban areas of Chelmsford, Boreham, Hatfield Peverel and Witham compared with the more rural areas away from the urban edge. Light pollution is also associated with traffic on the A12 and lighting at major junctions. Although designated areas and features of importance are of value, the loss of field pattern, extraction activity, expansion of urban development, the presence of the existing A12 and the subsequent effects on tranquillity and night skies mean that the value of the landscape is medium overall. **Susceptibility:** Low – As valued features are localised and the landscape is already influenced by the A12, new development at Beaulieu Park, and ongoing earth movements at Hanson Quarry, the landscape has some ability to accommodate the nature of the direct change proposed. **Sensitivity:** Medium

Local LCA	Value, susceptibility and sensitivity
F3 Totham Wooded Farmland	**Value:** Medium – The landscape contains a number of features of importance including areas of ancient woodland, a large area of TPO trees north of Wickham Bishops and potential veteran trees. Part of Braxted Park Registered Park and Garden (grade II*) and associated listed buildings falls within the area. PRoWs (including National Cycle Route 16) are likely to be valued by the local community. While generally an intimate and enclosed landscape, the intactness of the landscape is affected to the north by the intensification of agriculture, which has resulted in field amalgamation and loss or degradation of hedgerow boundaries. This is a largely rural and relatively tranquil landscape, although tranquillity diminishes to the north close to the A12. The levels of light pollution are generally low. Although designated areas and features of importance are of value, the loss of field pattern and reduced sense of tranquillity close to the existing A12 mean that the value of the landscape is medium overall. **Susceptibility:** Medium – The nature of the landscape is largely undeveloped, and the landscape has limited ability to accommodate the nature of the direct change proposed. **Sensitivity:** Medium
A2 Wooded Roman River Valley	**Value:** Medium – There are few features of importance given the limited extent of the LCA within the study area. The area incorporates protected lanes, and PRoWs and a playing field west of Copford Hall are likely to be valued by the local community. The wooded, intimate character and narrow lanes provide a sense of place. This is a largely rural and relatively tranquil landscape, although tranquillity diminishes to the north close to Copford. The levels of light pollution are generally low. Although features of importance are of value, the reduced sense of tranquillity close to Copford mean that the value of the landscape is medium overall. **Susceptibility:** Low – As the settlement of Copford would physically separate A2 Wooded Roman River Valley and the proposed scheme and restrict intervisibility, the landscape has the ability to accommodate the nature of indirect change proposed within the adjacent LCA. **Sensitivity:** Medium
A5 Colne River Valley Slopes	**Value:** Medium – There are few features of importance given the limited extent of the LCA within the study area, including TPO trees and registered common land east of Spring Lane. PRoWs and areas of open space, such as a playing field north of Eight Ash Green, are likely to be valued by the local community. Development within Eight Ash Green and on the northern edge of Colchester, Halstead Road and J26 of the A12 erode the rural character, affect tranquillity and cause light pollution. Although features of importance are of value, the reduced sense of tranquillity and increased light pollution close to urban areas and the existing A12 mean that the value of the landscape is medium overall. **Susceptibility:** Low – As the distance, combined with intervening vegetation and built development within Eight Ash Green, would restrict intervisibility between A5 Colne River Valley Slopes and the proposed scheme, the landscape has the ability to accommodate the nature of indirect change proposed within the adjacent LCA. **Sensitivity:** Medium

Local LCA	Value, susceptibility and sensitivity
B2 Easthorpe Farmland Plateau	**Value:** Medium – The landscape contains some features of importance such as ancient woodlands, veteran and potential veteran trees generally along field boundaries, and some TPO trees at Easthorpe. Part of Copford Green is a conservation area, there are scheduled monuments north of Marks Tey and a protected lane south of Easthorpe. PRoWs and areas of open space, such as religious grounds and playing fields, are likely to be valued by the local community. However, major infrastructure corridors, including the A12 and GEML, fragment the landscape. The intensification of agriculture has resulted in field amalgamation and loss or degradation of hedgerow boundaries, although south of J25 and close to Copford hedgerows and field pattern are more intact offering a greater sense of enclosure. There are higher levels of tranquillity within more rural areas, but the A12, A120 and urban areas including Marks Tey and Copford reduce tranquillity, erode the rural character and create light pollution locally. Although designated areas and features of importance are of value, the loss of field pattern, fragmentation to the landscape caused by major infrastructure corridors including the existing A12, the reduced sense of tranquillity and increased light pollution close to urban areas and highway infrastructure mean that the value of the landscape is medium overall. **Susceptibility:** Low – As valued features are localised and existing detractors, including the A12 and other busy infrastructure routes, are already present, the landscape has some ability to accommodate the nature of the direct change proposed. **Sensitivity:** Medium
Landscape sub-area B2A	**Value:** Low – The landscape contains some features of importance such as TPO, notable and veteran trees. PRoWs and areas of open space, such as religious grounds in Copford and playing fields in Marks Tey, are likely to be valued by the local community. However, the landscape is dominated by major infrastructure, especially the A12 and GEML corridor, and urban development at Marks Tey and Copford. There are low levels of tranquillity and high levels of light pollution due to the presence of the A12, major junctions and settlements including Copford, Marks Tey and the western periphery of Colchester. Although features of importance are of value, the dominating nature of existing major infrastructure, the low levels of tranquillity and high levels of light pollution associated with major infrastructure and urban areas mean that the value of the landscape is low overall. **Susceptibility:** Low – As valued features are localised in nature and existing detractors, including the A12 and major junctions, are already present, the landscape has the ability to accommodate the nature of the direct change proposed. **Sensitivity:** Low

Local LCA	Value, susceptibility and sensitivity
B3 Southern Colchester Farmland Plateau	**Value:** Medium – Features of importance are restricted to trees with TPOs given the limited extent of the LCA within the study area. PRoWs and areas of open space, such as public parks within Stanway, are likely to be valued by the local community. However, expansion of housing development and quarrying fragment the landscape and detract from the rural character of the countryside. Tranquillity is reduced by development on the edge of Stanway and within Copford and by quarrying activity to the south. The settlements also contribute towards light pollution. Although features of importance are of value, the fragmentation of the landscape caused by quarrying and housing development, and the reduced sense of tranquillity and increased light pollution close to urban areas, mean that the value of the landscape is medium overall. **Susceptibility:** Low – As the settlement of Copford would physically separate B3 Southern Colchester Farmland Plateau and the proposed scheme and restrict intervisibility, the landscape has the ability to accommodate the nature of the indirect change proposed within the adjacent LCA. **Sensitivity:** Medium
B4 Great Tey Farmland Plateau	**Value:** Medium – The landscape contains some features of importance such as pockets of ancient woodland, TPO trees and protected lanes south of Halstead Road. PRoWs and areas of open space such as playing fields at Aldham are likely to be valued by the local community. This is a relatively rural landscape, where field pattern is generally intact. However, settlement at Aldham and Fordham Heath and traffic on the A1124 affect tranquillity and levels of light pollution locally. Although features of importance are of value, the reduced sense of tranquillity and increased light pollution close to urban areas and existing highways mean that the value of the landscape is medium overall. **Susceptibility:** Low – As the GEML railway corridor, which is well vegetated in this location, physically separates B4 Great Tey Farmland Plateau and the proposed scheme, and other intervening vegetation restricts intervisibility, the landscape has the ability to accommodate the nature of the indirect change proposed within the adjacent LCA. **Sensitivity:** Medium

Local LCA	Value, susceptibility and sensitivity
F1 Messing Wooded Farmland	**Value:** Medium – The landscape contains some features of importance such as ancient woodlands (including Perry's Wood west of Inworth Road), trees with TPOs and potential veteran trees, and registered common land north of Tiptree. Listed buildings are concentrated within Messing, part of which is a conservation area, and along Inworth Road (B1023). PRoWs and publicly accessible open space, such as religious grounds at Inworth and Messing, are likely to be valued by the local community. The intactness of the landscape is affected by the intensification of agriculture, which has resulted in field amalgamation and loss or degradation of hedgerow boundaries (especially close to the A12). The solar park, Perrywood Nurseries and Tower Business Park west of Inworth Road erode the rural character of the landscape. There are higher levels of tranquillity away from the A12 but, in near the A12, the influence of existing traffic along the road reduces tranquillity and erodes the rural character. Sources of light pollution include traffic on the A12, Tower Business Park and the northern edge of Tiptree and settlement within Messing and along Inworth Road. Although designated areas and features of importance are of value, the loss of field pattern, fragmentation of the landscape caused by developments along Inworth Road, and the reduced sense of tranquillity and increased light pollution close to the existing A12 and Inworth Road mean that the value of the landscape is medium overall. **Susceptibility:** Low – As valued features are localised and existing detractors, including the A12, are already present, the landscape has some ability to accommodate the nature of the direct change proposed. **Sensitivity:** Medium
F2 Tiptree Wooded Farmland	**Value:** Medium – Features of importance are restricted to trees with TPOs, listed buildings and registered common land west of Tiptree given the limited extent of the LCA within the study area. PRoWs, including National Cycle Route 1, and areas of public open space, such as Windmill Green, are likely to be valued by the local community. Settlement at Tiptree affects tranquillity and levels of light pollution locally. Although features of importance are of value, the reduced sense of tranquillity and increased light pollution close to Tiptree mean that the value of the landscape is medium overall. **Susceptibility:** Low – Development within Tiptree and at Tower Business Park, along with intervening vegetation, would restrict intervisibility between F2 Tiptree Wooded Farmland and the proposed scheme. Therefore, the landscape has the ability to accommodate the nature of the indirect change proposed within the adjacent LCA. **Sensitivity:** Medium

8.8.44 Based on the consideration of value and susceptibility included within Table 8.12, the following local LCAs have been assessed as meeting the typical descriptions presented in Table 8.6 for landscapes which are of medium sensitivity:

- A2 Wooded Roman River Valley
- A5 Colne River Valley Slopes
- A7 Lower Chelmer River Valley

- A9 Blackwater River Valley
- Landscape sub-area A9A
- B3 Southern Colchester Farmland
- B2 Easthorpe Farmland Plateau
- B4 Great Tey Farmland Plateau
- B17 Terling Farmland Plateau
- B18 Silver End Farmland Plateau
- B19 Langley Green Farmland Plateau
- B21 Boreham Farmland Plateau
- F1 Messing Wooded Farmland
- F2 Tiptree Wooded Farmland
- F3 Totham Wooded Farmland

8.8.45 Medium sensitivity reflects that there is no national recognition of these landscapes, with the exception of localised heritage assets (including registered parks and gardens and listed buildings) and country parks. Local recognition is evidenced through designation of the Green Wedge and other locally sensitive landscapes such as the Blackwater Valley and conservation areas. Medium sensitivity reflects the overall ability of the landscape to accommodate the nature of the proposed scheme to some extent due to presence of the existing A12 and other existing development within the landscape.

8.8.46 Based on the consideration of value and susceptibility included within Table 8.12, landscape sub-area B2A has been assessed as meeting the typical descriptions presented in Table 8.6 for landscapes which are of low sensitivity. Low sensitivity reflects that there is no national or local recognition of this landscape, with the exception of heritage assets (listed buildings), and the ability to accommodate the nature of the proposed scheme in the context of the existing A12 and other existing development within the landscape including Marks Tey, Copford and the railway line.

8.8.47 It is recognised that localised areas of landscape are of high value, including registered parks and gardens, the Blackwater Rail Trail Country Park and the proposed country park at Hanson's Bulls Lodge Quarry, north-east of Chelmsford. The localised nature of areas of high value within the wider landscape and the ability of areas of high value to accommodate the nature of the proposed scheme in the context of existing detracting features, such as major infrastructure including the existing A12, has been considered when reaching conclusions on the overall sensitivity of the local LCAs.

Visual

8.8.48 Table 8.13 presents the value, susceptibility and sensitivity of the visual receptors at the representative and illustrative viewpoints. Where the scores for value and susceptibility differ, the overall sensitivity score is explained.

Table 8.13 Value, susceptibility and sensitivity of visual receptors

Viewpoint	Receptor type	Viewpoint description
Representative viewpoint		
1	Users of PRoW (public bridleway)	Representative view south-east from Centenary Circle long distance path (PRoW 213_22), adjacent to New Hall Registered Park and Garden **Value:** High – viewpoint is located along a promoted long distance path on the southern periphery of New Hall School Registered Park and Garden. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High
2	Users of PRoW (public bridleway) and residents within private properties	Representative view west from PRoW 213_45 on Paynes Lane, Boreham **Value:** Medium – although the entrance to Boreham House Registered Park and Garden is present within the view, visual detractors include existing highway infrastructure and buildings at Premier Inn Chelmsford (Boreham), and there are no other known indicators of value. **Susceptibility:** High – users of PRoW and residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall due to the presence of Boreham House Registered Park and Garden within the view and the high susceptibility of users of PRoW.
	Vehicle travellers on Paynes Lane	**Value:** Medium – although the entrance to Boreham House Registered Park and Garden is present within the view, visual detractors include existing highway infrastructure and buildings at Premier Inn Chelmsford (Boreham), and there are no other known indicators of value. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.

Viewpoint	Receptor type	Viewpoint description
3	Users of PRoW (public footpath)	Representative view north from the Centenary Circle long distance path (PRoW 234_17) where it meets PRoW 234_18, within the Chelmer and Blackwater Navigation Conservation Area **Value:** High – viewpoint is located along a promoted long distance path within the Chelmer and Blackwater Navigation Conservation Area. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High
4	Residents within private properties	Representative view north-west along Station Road from residential properties along The Street, Hatfield Peverel **Value:** Medium – view along Station Road, where passing vehicles and Station Road Bridge present visual detractors, and where there are no known indicators of value. **Susceptibility:** High – residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because Station Road Bridge forms a small part of the view and passing vehicles are not permanent features within the view, and because of the high susceptibility of residents.
	Vehicle travellers on The Street, Hatfield Peverel	**Value:** Medium – view along Station Road, where passing vehicles and Station Road Bridge present visual detractors, and where there are no known indicators of value. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.
5	Users of footway/cycleway	Representative view north-east from footpath/cycleway south of A12, east of Hatfield Peverel **Value:** Low – view along existing A12, where passing vehicles and highway infrastructure present visual detractors, and where there are no known indicators of value. **Susceptibility:** Medium – pedestrians or cyclists on a footway/cycleway (rather than a formal PRoW) whose attention is likely to be focused on the view to a limited extent because of the location along the A12. **Sensitivity:** Medium overall because, although the existing A12 and associated traffic present dominant visual detractors, the attention of users of the footway/cycleway may be partly focused on the view.

Viewpoint	Receptor type	Viewpoint description
	Residents within private properties	**Value:** Medium – likely filtered views across arable farmland towards existing A12, where the presence of highway infrastructure presents a visual detractor, and where there are no known indicators of value. **Susceptibility:** High – residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because this is a largely rural view where the existing A12 and associated traffic is partially screened by highway vegetation, and because the susceptibility of residents is high.
	Vehicle travellers on the A12	**Value:** Low – view along existing A12, where passing vehicles and highway infrastructure present visual detractors, and where there are no known indicators of value. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Negligible overall because views from vehicle travellers within fast moving vehicles on the existing A12 would be transient.
6	Users of PRoW (public footpath)	Representative view east from PRoW 90_29, east of Hatfield Peverel **Value:** Medium – rural view with no known formal indicators of value but with few visual detractors. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view with few visual detractors and the high susceptibility of users of PRoW.
7	Residents within private properties	Representative view north from residential properties along Maldon Road, Witham **Value:** Medium – view along Maldon Road, where passing vehicles and Olivers Bridge present visual detractors, and where there are no known indicators of value. **Susceptibility:** High – residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because Olivers Bridge forms a small part of the view and passing vehicles are not permanent features within the view, and because the susceptibility of residents is high.
	Vehicle travellers on Maldon Road	**Value:** Medium – view along Maldon Road, where passing vehicles and Olivers Bridge present visual detractors, and where there are no known indicators of value. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.

Viewpoint	Receptor type	Viewpoint description
8	Users of Blackwater Rail Trail Country Park public open space	Representative view north-east along Blackwater Rail Trail Country Park **Value:** High – viewpoint is within the Blackwater Rail Trail Country Park, subject of online information relevant to visitors, and the existing A12 is generally well screened by intervening vegetation. **Susceptibility:** High – users of public open space, whose attention is likely to be focused on the view. **Sensitivity:** High
9	Users of Whetmead Local Nature Reserve public open space	Representative view west from Whetmead Local Nature Reserve **Value:** High – viewpoint is within Whetmead Local Nature Reserve, subject of online information relevant to visitors and identified on Ordnance Survey mapping, and the existing A12 is generally well screened by intervening vegetation. **Susceptibility:** High – users of public open space, whose attention is likely to be focused on the view. **Sensitivity:** High
10	Users of national cycle route	Representative view south-west from Little Braxted Lane/National Cycle Route 16 **Value:** Medium – viewpoint is located along a promoted national cycle route, although there are glimpses of traffic on the existing A12. **Susceptibility:** High – users of cycle route, whose attention is likely to be focused on the view. **Sensitivity:** High overall because, although the presence of traffic on the A12 lowers the value slightly, views of the existing A12 are largely well screened by intervening vegetation and the susceptibility of users of the national cycle route is high.
	Vehicle travellers on Little Braxted Lane	**Value:** Medium – viewpoint is located along a promoted national cycle route, although there are glimpses of traffic on the existing A12. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.

Viewpoint	Receptor type	Viewpoint description
11	Users of national cycle route	Representative view north-east from Little Braxted Lane/National Cycle Route 16 **Value during construction and in Year 1:** Medium – viewpoint is located along a promoted national cycle route, although the entrance to Colemans Farm Quarry is a visual detractor. **Value in year 15:** High – Colemans Farm Quarry would be fully restored and the entrance to the quarry would no longer present a visual detractor located along a promoted national cycle route. **Susceptibility:** High – users of cycle route, whose attention is likely to be focused on the view. **Sensitivity during construction and in Year 1:** Medium overall because, although the susceptibility of users of the national cycle route is high, the entrance to Colemans Farm Quarry dominates the view. **Sensitivity in Year 15:** High because the susceptibility of users of the national cycle route is high, and Colemans Farm Quarry would be fully restored and the entrance to the quarry would no longer present a visual detractor.
	Vehicle travellers on Little Braxted Lane	**Value:** Medium – viewpoint is located along a promoted national cycle route, although the entrance to Colemans Farm Quarry is a visual detractor. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.
11a	Users of PRoW (public bridleway) and residents within private properties	Representative view north from PRoW 105_29, east of Little Braxted Lane **Value:** Medium – rural view with no known formal indicators of value. **Susceptibility:** High – users of PRoW and residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view with few visual detractors, and the high susceptibility of users of PRoW.
12	Users of PRoW (public footpath)	Representative view north-west across the Blackwater River Valley from PRoW 246_18, adjacent to Braxted Park Registered Park and Garden **Value:** High – viewpoint is located immediately adjacent to Braxted Park Registered Park and Garden and on a protected lane. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High

Viewpoint	Receptor type	Viewpoint description
	Vehicle travellers on Braxted Lane (protected lane)	**Value:** High – viewpoint is located immediately adjacent to Braxted Park Registered Park and Garden and on a protected lane. **Susceptibility:** Medium – users of vehicle travellers on a protected lane, whose attention is likely to be partly focused on the view. **Sensitivity:** High overall because of the status afforded by Braxted Park Registered Park and Garden and the protected lane and the scenic value associated.
13	Residents within private properties	Representative view west from residential properties along Braxted Road, Rivenhall End **Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** High – residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view with few visual detractors, and the high susceptibility of residents.
	Vehicle travellers on Braxted Road	**Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.
14	Residents within private properties	Representative view south-west from residential properties along Cranes Lane, Kelvedon **Value:** Medium – semi rural view across arable farmland to parts of the existing A12, with no known formal indicators of value. **Susceptibility:** High – residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the semi-rural nature of the view and the high susceptibility of residents.
	Vehicle travellers on Cranes Lane	**Value:** Medium – semi rural view across arable farmland to the existing A12, with no known formal indicators of value. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.

Viewpoint	Receptor type	Viewpoint description
15	Residents within private properties and users of PRoW (public footpath)	Representative view south-east from residential properties along Ewell Hall Chase within Kelvedon Conservation Area **Value:** High – viewpoint is located on the periphery of Kelvedon Conservation Area. **Susceptibility:** High – residents and users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High
	Vehicle travellers on Ewell Hall Chase	**Value:** High – viewpoint is located on the periphery of Kelvedon Conservation Area. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.
16	Users of PRoW (public footpath)	Representative view south-east from PRoW 92_15, east of Brockwell Meadows Local Nature Reserve, Kelvedon **Value:** High – viewpoint is adjacent to Brockwell Meadows Local Nature Reserve, subject of online information relevant to visitors and identified on Ordnance Survey mapping. **Susceptibility:** High – users of PRoW whose attention is likely to be focused on the view. **Sensitivity:** High
17	Residents within private properties	Representative view west from residential properties along B1023 Inworth Road **Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** High – residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of residents.
	Vehicle travellers on B1023 Inworth Road	**Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.
18	Users of PRoW (public footpath) and residents within private properties	Representative view north-west from PRoW 78_12, east of the driveway to Prested Hall (grade II listed) **Value:** High – view along distinctive avenue to/from Prested Hall (grade II listed). **Susceptibility:** High – users of PRoW and residents, whose attention is likely to be focused on the view. **Sensitivity:** High

Viewpoint	Receptor type	Viewpoint description
19	Users of PRoW (public footpath)	Representative view west from PRoW 128_23, south of Easthorpe Road **Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** High – users of PRoW whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of residents.
	Vehicle travellers on Easthorpe Road	**Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.
20	Users of PRoW (public footpath) and residents within private properties	Representative view north of PRoW 128_22 and Easthorpe Green Farmhouse (grade II listed) **Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** High – users of PRoW whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of users of PRoW.
21	Users of PRoW (public bridleway)	Representative view north from PRoW 128_28, Easthorpe **Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** High – users of PRoW whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of users of PRoW.
22	Users of PRoW (public footpath) and residents within private properties	Representative view south-east from PRoW 144_19 near Doggets Hammer Farm (grade II listed), Potts Green **Value:** High – rural view, including from Doggets Hammer Farm (grade II listed). **Susceptibility:** High – users of PRoW and residents, whose attention is likely to be focused on the view. **Sensitivity:** High
23	Users of PRoW (public footpath) and Marks Tey recreation ground/public open space	Representative view south-east from PRoW 144_16 at Marks Tey recreation ground **Value:** Medium – viewpoint within public recreation ground with provision of facilities for visitor enjoyment, although car parking and skate park are visual detractors. **Susceptibility:** High – users of PRoW and public park, whose attention is likely to be focused on the view. **Sensitivity:** High overall because this comprises public outdoor space and users are of high susceptibility.

Viewpoint	Receptor type	Viewpoint description
24	Users of PRoW (public footpath)	Representative view west from PRoW 144_17 next to Marks Tey Hall (grade II listed) **Value:** High – rural view, from landscape adjacent to Marks Tey Hall (grade II listed) and new scheduled monument. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High
25	Residents within private properties	Representative view north-west from residential properties along London Road, Marks Tey **Value:** Medium – view along London Road, where there are no indicators of value and where passing vehicles and highway infrastructure present visual detractors. **Susceptibility:** High – residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because passing vehicles are not permanent features within the view and because of the high susceptibility of residents.
	Vehicle travellers along London Road	**Value:** Medium – view along London Road, where there are no indicators of value and where passing vehicles and highway infrastructure present visual detractors. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.
26	Residents within private properties	Representative view west from residential properties along Rhino Drive, Stanway **Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** High – residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of residents.
	Vehicle travellers along Rhino Drive	**Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.
27	Users of PRoW (public footpath)	Representative view north from PRoW 145_5, near Inworth Hall (grade II listed) **Value:** High – rural view, from landscape adjacent to Inworth Hall (grade II listed). **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High

Viewpoint	Receptor type	Viewpoint description
28	Users of PRoW (public footpath) and residents within private properties	Representative view west from PRoW 128_22, north of Easthorpe Road **Value:** Medium – rural view across arable farmland to parts of the existing A12, with no known formal indicators of value. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of residents.
	Vehicle travellers along Easthorpe Road	**Value:** Medium – rural view across arable farmland to parts of the existing A12, with no known formal indicators of value. **Susceptibility:** Low – vehicle travellers, whose attention is likely to be focused on driving and not on the view. **Sensitivity:** Low overall because views from vehicle travellers would be transient.
29	Users of PRoW (public footpath)	Representative view north from PRoW, 144_18 south of London Road **Value:** Medium – rural view across arable farmland to parts of the existing A12, with no known formal indicators of value. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of residents.
30	Users of PRoW (public footpath)	Representative view east along PRoW 78_18, Feering **Value:** Medium – rural view across arable farmland to parts of the existing A12, with no known formal indicators of value. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of residents.
31	Users of PRoW (public footpath) and residents within private properties	Representative view south-east along PRoW 78_13, Feering **Value:** Medium – rural view with no known formal indicators of value, but with few visual detractors. **Susceptibility:** High – users of PRoW and residents, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of residents.
32	Users of PRoW (public footpath) and residents within private properties	Representative view north-west from PRoW 78_18 on periphery of Prested Hall (grade II listed) grounds **Value:** High – view from periphery of grounds belonging to Prested Hall (grade II listed). **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High

Viewpoint	Receptor type	Viewpoint description
33	Users of PRoW (public footpath)	Representative view east from PRoW 90_2, Hatfield Peverel **Value:** Medium – rural view across arable farmland to parts of the existing A12, with no known formal indicators of value. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of users of PRoW.
34	Users of PRoW (public footpath)	Representative view north-west from PRoW 121_102 **Value:** Medium – rural view across arable farmland to parts of the existing A12, with no known formal indicators of value. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High overall because of the rural nature of the view and the high susceptibility of users of PRoW.
35	Users of PRoW (public footpath) and residents within private properties	Representative view north-west from PRoW 268_23 **Value:** High – rural view with few visual detractors, close to gardens at Glen Chantry which were previously open to visitors. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High
Illustrative viewpoint		
A	Users of PRoW	Illustrative view north-west from PRoW 213_30, within the Chelmer and Blackwater Navigation Conservation Area **Value:** High – viewpoint is located within the Chelmer and Blackwater Navigation Conservation Area. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High
B	Users of PRoW	Illustrative view north from PRoW 90_20, adjacent to Hatfield Priory Registered Park and Garden **Value:** High – viewpoint is located adjacent to Hatfield Priory Registered Park and Garden. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High
C	Users of PRoW (public footpath)	Illustrative view north-west from PRoW 246_18, adjacent to Braxted Park Registered Park and Garden **Value:** High – viewpoint is located adjacent to Braxted Park Registered Park and Garden. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High

Viewpoint	Receptor type	Viewpoint description
D	Users of PRoW	Winter – Illustrative view south-east from PRoW 90_48, south of Terling Place Registered Park and Garden Summer – Illustrative view south-east from Terling Hall Road, at the junction with the access drive to Maddox Hall **Value:** High – viewpoint is located close to Terling Place Registered Park and Garden. **Susceptibility:** High – users of PRoW, whose attention is likely to be focused on the view. **Sensitivity:** High
E	Users of PRoW and residents within private properties	Illustrative view north-west from PRoW 128_7, north of Copford Green Conservation Area **Value:** High – viewpoint is located north of Copford Green Conservation Area. **Susceptibility:** High – users of PRoW and residents, whose attention is likely to be focused on the view. **Sensitivity:** High

8.8.49 Based on the consideration of value and susceptibility within Table 8.13, visual receptors at the representative and illustrative viewpoints have been assessed as meeting the typical descriptions presented in Table 8.6 for visual receptors of high, medium, low and negligible sensitivity.

8.9 Potential impacts

Construction

8.9.1 The potential temporary landscape and visual impacts during construction are likely to be associated with the following:

- Utility diversions – The gas main diversion would potentially affect local LCA A9 Blackwater River Valley and landscape sub-area A9A during construction.
- Extensive construction activity associated with the proposed scheme, including construction of the offline bypasses; de-trunking parts of the existing A12; widening of the existing A12; new and improved junctions; overbridges for realigned local roads and walkers, cyclists and horse-riders; retaining walls; cuttings; embankments; attenuation ponds; and access tracks.
- Movement of construction plant and delivery vehicles.
- Excavation and earthworks across extensive areas in association with borrow pits.
- Construction compounds.
- Vehicle haul roads.

- Any temporary lighting and signage needed for the works.
- Stockpiled soil and materials.

8.9.2 Potential landscape and visual impacts during construction would also be associated with loss of vegetation to facilitate construction, including vegetation removal associated with widening the existing A12. Loss of vegetation relates to both construction and operation.

8.9.3 The proposed scheme would be constructed as a single project, with the three design sections of the proposed scheme, described in Section 2.5 of Chapter 2: The proposed scheme, of the Environmental Statement [TR010060/APP/6.1], being undertaken concurrently. Further details relating to construction activity, including information relating to the construction programme, is included within Chapter 2: The proposed scheme [TR010060/APP/6.1].

Operation

8.9.4 The proposed scheme could increase the prominence of major highway infrastructure within the landscape, particularly as extensive established vegetation that helps to integrate the existing A12 into the landscape is likely to be removed along the online sections. The scale of the infrastructure, including major new and improved junctions, and the elevated position of some elements would be at odds with the scale and character of the surrounding landscape. The offline bypasses and major junctions are likely to have particularly adverse effects on landscape character and quality, with a loss of vegetation, disruption to field pattern and reduced tranquillity. Restored borrow pits would also potentially result in permanent vegetation loss, changes to land use and landscape character.

8.9.5 There would potentially be operational impacts on local LCA A9 Blackwater River Valley and landscape sub-area A9A resulting from the gas main diversion due to restrictions on replanting over the easement.

8.10 Design, mitigation and enhancement measures

8.10.1 Landscape objectives have been defined as part of an overarching set of scheme-specific design principles presented within the Design Principles document [TR010060/APP/7.10], which have been used to inform development of the proposed scheme design, including both the highway alignment and Environmental Masterplan on Figure 2.1 [TR010060/APP/6.2]. The landscape objectives seek to mitigate adverse landscape and visual effects and have been developed in accordance with DMRB LD 117 Landscape Design (Highways England, 2020d).

8.10.2 A holistic approach has been taken to developing the objectives and principles through collaborative working between environmental disciplines and engineering specialists. The landscape objectives seek to mitigate adverse landscape and visual effects, including effects on existing green infrastructure, and to contribute to the green infrastructure network.

Embedded (design) mitigation

8.10.3 The environment team has worked in close collaboration with the infrastructure design team to avoid or reduce environmental impacts through the proposed scheme design. This is referred to as embedded (or design) mitigation. Chapter 3: Assessment of alternatives [TR010060/APP/6.1], details the design alternatives that have been considered, including the environmental factors which have influenced the decision making.

8.10.4 Embedded mitigation relevant to this aspect aims to integrate the proposed scheme into the local context and minimise the impact on the landscape in line with DMRB LD 117.

8.10.5 Embedded mitigation relevant to this aspect includes the following:

- Alignment of the proposed scheme and location of junctions and borrow pits designed to reduce landscape and visual effects.
- Sensitive design of residual water bodies within restored borrow pits and attenuation ponds, to integrate these features into the landscape and reduce visual effects.
- Lighting limited to junctions and side roads and designed to best practice to reduce light spill. Use of light-emitting diode luminaires which use less energy than conventional luminaires, while reducing light spill into adjacent areas.
- Planting to reduce adverse landscape and visual effects, including native hedgerows, shrubs and trees. Consideration of the species, pattern and distribution of proposed hedgerows, shrubs and trees along the proposed scheme to reflect the distinctive local character of vegetation within the adjacent landscape and provide screening for visual receptors.
- Native tree and shrub planting on and adjacent to highway earthworks to create woodlands, copses and shelterbelts in order to break up the scale of the road, screen structures, traffic, and lighting and help integrate the proposed scheme into the existing landscape pattern.

Standard mitigation

8.10.6 Standard mitigation would occur as a matter of course due to legislative requirements or standard sector practices. Examples of standard mitigation for this aspect includes the following:

- Topsoil and subsoil to be stripped from temporary works areas such as sites proposed for construction compounds and areas allocated for the stockpiling of materials. Where practicable, stripped soil to be stored in grass seeded bunds around the perimeter of the temporary works and construction areas including borrow pits to provide temporary visual screening. Stockpile heights would not exceed 4m for topsoil and 6m for subsoil, but would be kept as low as practicable.

- Where environmental bunds are proposed as part of both the construction and permanent works, they would be constructed as early as is practicable and seeded to provide screening of the construction work. There would be grass seeded bunds at least 2m high around the southern and western sides of junction 20b main compound and around the perimeter of junction 22 main compound. Breaks in the bunds would be required for utilities.

- Consideration would be given during detailed design stage to the type of site security fencing near large construction compounds, proposed structures, listed buildings and residential properties to provide an additional temporary screening function.

- Existing vegetation within the Order Limits including within temporary works areas would be retained as far as reasonably practicable. Particular attention would be given to the retention of mature vegetation, including ancient, veteran and notable trees (both verified and potential), trees subject to TPOs, specimen trees, category A and B trees, important hedgerows and ancient woodland, which would be retained in accordance with, as a minimum, the Retained and Removed Vegetation Plans [TR010060/APP/2.14]. Vegetation to be removed is shown on the same plan.

- All trees to be retained would be protected throughout the construction period in accordance with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations (British Standards Institution, 2012).

- Works to TPO, veteran, ancient and notable trees would be supervised by the Ecological Clerk of Works and supported by an experienced arboriculturist. In the event tree canopy pruning is required to facilitate the works, this would be undertaken by qualified and competent staff working to BS 3998:2010 Tree work – Recommendations (British Standards Institution, 2010).

- An Arboricultural Method Statement and Tree Protection Plan would be prepared during the detailed design phase, refined following final design agreement and in place prior to works affecting trees commencing and appended to the EMP. The Arboricultural Method Statement and Tree Protection Plan would include areas of special measures to protect and retain features that would be subject to encroachment and localised removal. This would be based on the special measure areas, construction exclusion zones and outline tree protection measures presented within the Arboricultural Impact Assessment (Appendix 8.4 of the Environmental Statement [TR010060/APP/6.3]).

- Where it would be necessary to remove vegetation within temporary works areas, such as construction compounds, utility routes, haul roads and regrading areas, this would be replaced on completion of construction using the same or similar species to that removed where practicable (subject to restrictions to planting over and around pipeline easements and

consideration of species with regards to climate change and resilience to pests and disease and landowner agreement). All land used temporarily would be restored and returned to an appropriate condition relevant to its previous use wherever practicable and appropriate, including the ripping, minor regrading and re-spreading of topsoil. Hedgerows, fences and walls would be reinstated to a similar style and quality to those that were removed with landowner agreement.

- No topsoil would be incorporated within grassland areas on new earthworks to create low nutrient substrate suitable for species rich grassland establishment and increase local biodiversity where reasonably practicable, in accordance with Major Project Instructions (Highways England, 2020e). Low nutrient grassland would be seeded along highway verges and at junctions.
- Locally extracted soils would be replaced as close to its source of origin as reasonably practicable, and appropriate to the design, including within utility trenches.
- Opportunities for planting early in the construction phase would be sought where practicable.
- Temporary lighting would be provided to ensure safe working conditions and to maintain security within construction compounds and working areas. Best practice measures would be implemented where practicable to ensure temporary lighting is avoided or directed away from heritage assets, residential and/or ecological receptors such as watercourses, woodland, badger setts, bat roosts and important commuting habitats.
- Refinement of the design of earthworks, where space and material are available, to create natural gradients and slopes that achieve better integration with the surrounding landform.
- Routes of final utility diversions and the gas main diversion and methods of construction to be refined to retain as much existing vegetation as practicable, in particular mature vegetation and woodland.
- Replanting along the easement of the gas main diversion would be carried out in accordance with utility company's guidance and best practice standards. Where woodland vegetation is lost and trees cannot be replaced *in situ* due to the restrictions of utility easements, native shrub planting would be used in line with the relevant utility company's guidance. Where tree lines and tree belts are lost and cannot be replaced due to the restrictions of utility easements, native hedgerow planting would be used in line with the relevant utility company's guidance.
- Working width for the installation of the gas main diversion would be reduced as far as reasonably practicable through woodland and where the gas main diversion crosses through hedgerow field boundaries. All main river crossing(s) would be installed using trenchless techniques, such as horizontal drilling. Directional drilling would be considered where practicable.

- The LEMP would be developed and implemented based on the measures and approaches detailed within the LEMP in the first iteration EMP [TR010060/APP/6.5].
- A five-year aftercare period as outlined within the LEMP, which is appended to the first iteration EMP [TR010060/APP/6.5], would be established for all soft environmental features of the proposed scheme.
- The landscape proposals illustrated on the Environmental Masterplan Figure 2.1 [TR010060/APP/6.2] would be refined at the detailed design stage based on the design principles presented within the Design Principles document [TR010060/APP/7.10], including design principles for landscape, veteran trees and borrow pit restoration.

8.10.7 Standard mitigation is included in the REAC within the first iteration of the EMP [TR010060/APP/6.5] which forms part of the DCO submission (refer to Chapter 5: Environmental assessment methodology [TR010060/APP/6.1]). The LEMP, which is appended to the first iteration EMP [TR010060/APP/6.5], presents how landscape and ecological features would be protected during construction, and how landscape and ecological mitigation would be implemented and maintained. The LEMP will be further developed prior to construction by the Principal Contractor and will be secured by the second iteration EMP.

Additional mitigation

8.10.8 Within this LVIA, landscape and visual mitigation is categorised as embedded or standard. No additional mitigation has therefore been proposed.

Enhancement

8.10.9 This LVIA does not take into account enhancements. Options for enhancements that would be beneficial for landscape, such as reinforcement of hedgerows with additional native planting, are presented within Chapter 9: Biodiversity, of the Environmental Statement [TR010060/APP/6.1].

8.11 Assessment of likely significant effects

8.11.1 This section summarises likely significant landscape and visual effects, as well as landscape and visual effects that would be unlikely to be significant. Appendix 8.2 and Appendix 8.3 of the Environmental Statement [TR010060/APP/6.3] provide full details relating to landscape and visual effects, including a description of the landscape and visual effects during construction, operation year 1 and operation year 15; differences between assessment during winter and summer; and the magnitude and significance of effect on each receptor at each assessment timeframe. Landscape and visual effects that would be significant as well as those that would not be significant are recorded in Appendix 8.2 and Appendix 8.3 of the Environmental Statement [TR010060/APP/6.3]. Photography from the representative and illustrative viewpoints is provided in Figure 8.4 [TR010060/APP/6.2] and photomontages are presented within Figure 8.5 [TR010060/APP/6.2].

Construction

Landscape effects

Loss of trees of status

8.11.2 In line with DMRB LA 107, the assessment of impacts on landscape components, such as trees and woodland, and perceptual and aesthetic aspects are considered within the assessment of impacts on landscape character. However, in response to the Scoping Opinion (Planning Inspectorate, 2021), the following concise section identifies whether there would be loss of trees of status. For the purpose of this LVIA, trees of status comprise verified veteran, ancient and notable trees as defined by the Woodland Trust, potential veteran and ancient trees identified through a scheme-specific arboricultural survey, trees with TPOs and trees within conservation areas.

8.11.3 The proposed scheme design has been refined throughout where practicable to avoid impacts on trees protected by TPOs and trees identified as meeting ancient, veteran and category A criteria. Category A trees are defined as being of high quality and value within Section 3 of Appendix 8.4 of the Environmental Statement [TR010060/APP/6.3].

8.11.4 No verified veteran, ancient or notable trees as defined by the Woodland Trust would be removed by the proposed scheme. An Arboricultural Method Statement and Tree Protection Plan will be appended to the EMP.

8.11.5 Ancient woodland at Perry's Wood, west of Inworth Road, would be unaffected by proposed alterations to signage and road marking which would take place within the existing highway corridor.

8.11.6 None of the potential ancient trees identified by the scheme-specific arboricultural survey would be affected by the proposed scheme. Five potential veteran trees identified by the scheme-specific arboricultural survey would be removed during construction to accommodate the proposed scheme. The loss of the following potential veteran trees would be unavoidable, unless where identified, due to engineering constraints which are explained further within Chapter 3: Assessment of alternatives [TR010060/APP/6.1]:

- An oak tree south of the A12 and south-west of Witham to accommodate earthworks for the widened A12.
- An oak tree east of Witham to accommodate a temporary haul road running east of and parallel with the existing A12.
- A willow tree east of junction 22 (Colemans interchange) and north of the proposed offline bypass between junction 22 and junction 23 (Kelvedon South interchange) to accommodate earthworks for the offline bypass between junction 22 and junction 23.
- A willow tree north-east of Rivenhall End and north of the proposed offline bypass between junction 22 and junction 23 to accommodate the new bypass.

- An oak tree south of junction 24 (Kelvedon North interchange) to accommodate junction 24 and the earthworks around the southern roundabout. This tree is at risk of removal, but opportunities to retain it may be presented at detailed design.

8.11.7 The following trees with TPOs would be removed during construction to accommodate the proposed scheme:

- The southern part of a group TPO north of the B1137 Main Road and Boreham House Registered Park and Garden to accommodate pavement works along the widened Main Road. The extent of the trees to be removed within this group TPO is illustrated on the Retained and Removed Vegetation Plans [TR010060/APP/2.14]. These trees are at risk of removal, but opportunities to retain them may be presented at detailed design.

- A horse chestnut south of the B1137 Main Road along the frontage of Boreham House Registered Park and Garden to tie in the widened Main Road with Boreham House access. This tree is at risk of removal, but opportunities to retain it may be presented at detailed design.

8.11.8 There would be localised tree loss within the Chelmer and Blackwater Navigation Conservation Area east of the A12 to accommodate drainage proposals. These trees are at risk of removal, but opportunities to retain them may be presented at detailed design.

8.11.9 Trees of status, including those to be removed, are illustrated on the Retained and Removed Vegetation Plans [TR010060/APP/2.14]. Further detail relating to impacts on trees, including effects on category A and B trees (trees of high/moderate quality and value), is included within the Arboricultural Impact Assessment, which is presented in Appendix 8.4 of the Environmental Statement [TR010060/APP/6.3].

Significant landscape effects during construction

8.11.10 There would be significant landscape effects on the following local LCAs (identified on Figure 8.2 [TR010060/APP/6.2]) during construction, which have been assessed as being of medium sensitivity:

- A7 Lower Chelmer River Valley
- A9 Blackwater River Valley
- Landscape sub-area A9A
- B19 Langley Green Farmland Plateau
- B21 Boreham Farmland Plateau
- F3 Totham Wooded Farmland
- B2 Easthorpe Farmland Plateau
- F1 Messing Wooded Farmland

8.11.11 These local LCAs would be directly affected by construction activity, including the presence of construction compounds and haul roads, construction lighting, movement of construction plant, removal of vegetation, excavation of borrow pits, for the gas main diversion, attenuation ponds and flood compensation areas, and construction of access tracks. Major construction works would occur within these areas, such as the excavation of borrow pits and major earthworks associated with the construction of and improvements to junctions, construction of the offline bypasses, online widening, the construction of overbridges, works on the existing A12 including de-trunking, roundabouts and where the new construction ties-in with existing roads and features. The physical disruption and the presence of numerous uncharacteristic elements as described above within these local LCAs would cause significant damage to the existing landscape character and affect tranquillity during construction.

8.11.12 While landscape sub-area B2A would be directly affected by construction activity, it has been assessed as being of low sensitivity. Combined with construction works (and the operational scheme) being set within the context of the transport corridor containing the A12 and the GEML railway line and the largely urban surrounding environment, the overall landscape effects during construction (and operation) would not be significant.

8.11.13 There would be no significant landscape effects during construction on the local LCAs identified below, which have been assessed as being of medium sensitivity:

- B17 Terling Farmland Plateau
- B18 Silver End Farmland Plateau
- A2 Wooded Roman River Valley
- A5 Colne River Valley Slopes
- B3 Southern Colchester Farmland Plateau
- B4 Great Tey Farmland Plateau
- F2 Tiptree Wooded Farmland

8.11.14 These local LCAs are located outside the Order Limits and would not be directly affected by the proposed scheme. Intervening features such as vegetation, including field boundary vegetation, and vegetation along the GEML which runs to the north of the A12, and built development such as within Eight Ash Green and along London Road, Copford, would restrict intervisibility between the proposed scheme and these local LCAs. These local LCAs were included within the study area agreed through consultation with local planning authorities, and were included within the ESR (Highways England, 2020a) and the PEIR (Highways England, 2021). It was not considered appropriate to scope them out while the design was still developing.

Visual effects

8.11.15 While construction activity would largely be set within the context of the existing A12 infrastructure, the presence of construction elements such as construction compounds, temporary lighting, major earthworks for the construction of junctions, bypasses, overbridges and online widening, the movement of construction plant on haul roads, extensive extraction for borrow pits and attenuation ponds and removal of vegetation, would be dominant in open views close to the proposed scheme.

8.11.16 There would be significant effects during construction for visual receptors at 29 of the 36 representative viewpoints assessed. The visual receptors at these viewpoints that would be affected, the description of effect and the magnitude and significance of effect is detailed within Appendix 8.3 [TR010060/APP/6.3].

8.11.17 There would not be significant effects during construction for visual receptors at representative viewpoints 1, 12, 14, 21, 26 and 31. These viewpoints are slightly further away from the proposed scheme, and/or intervening vegetation would restrict the extent of visibility between the receptors and the proposed scheme. There would not be significant effects during construction for visual receptors at representative viewpoint 25, because views of construction activity (and the operational scheme) would be set within the context of existing highway infrastructure as well as the surrounding urban environment which is lit.

8.11.18 There would be no significant effects for visual receptors at all five of the longer distance illustrative viewpoints A – E during construction (and operation) due to the distant nature of the views combined with intervening features such as topography, vegetation and built development.

Operation

Landscape effects

Year 1 winter and summer

8.11.19 During operation in year 1, mitigation planting would be unestablished and ineffective in terms of reinstating the landscape and integrating the proposed scheme into the landscape.

8.11.20 There would be significant landscape effects on the following local LCAs of medium sensitivity during operation in year 1:

- A9 Blackwater River Valley
- Landscape sub-area A9A
- B19 Langley Green Farmland Plateau
- B21 Boreham Farmland Plateau
- F3 Totham Wooded Farmland
- B2 Easthorpe Farmland Plateau
- F1 Messing Wooded Farmland

8.11.21 Major new structures or restored borrow pits would be located within these local LCAs, including newly lit junctions 21 (Witham South interchange), 22 and 24, the offline bypasses between junctions 22 and 23 and junctions 24 and 25 (Marks Tey interchange), overbridges and local road realignments, as well as roundabouts and tie-ins on de-trunked sections of the existing A12. These structures would increase the extent of highway infrastructure and encroach on the surrounding landscape, as well as affecting land use, field pattern and tranquillity. Where elevated, structures would be at odds with the relatively flat and low-lying valley landscapes. Where present, restored borrow pits would cause large scale change to the character of the landscape. Loss of vegetation would exacerbate the prominence of highway infrastructure within the landscape. Loss of distinctive willow plantation within the Blackwater River Valley relevant to the gas main diversion would affect the character of the landscape. The presence of uncharacteristic elements within these local LCAs as described above would cause significant damage to the existing landscape character during operation in year 1.

8.11.22 There would not be significant effects during operation in year 1 on local LCAs B17, B18, A2, A5, landscape sub-area B2A, B3 and B4 for the reasons described in the construction effects section. In addition, there would not be significant effects during operation in year 1 on A7 Lower Chelmer River Valley.

8.11.23 Vegetation removed to accommodate online widening within A7 Lower Chelmer River Valley would exacerbate the prominence of the A12 corridor and traffic flow within the landscape. However, the proposed scheme would be set within the context of the existing A12, and the attenuation ponds would not be out of character within the low-lying Chelmer River Valley. Landscape effects on A7 Lower Chelmer River Valley would therefore be not significant during operation in year 1.

Year 15 winter and summer

8.11.24 In year 15, mitigation planting would have established to help integrate the proposed scheme into the landscape, and the magnitude and significance of effects on local LCAs would generally be lower than as assessed at year 1. However, there would be continued significant residual landscape effects within the seven local LCAs identified as experiencing significant landscape effects in year 1.

8.11.25 While established mitigation planting would reduce effects in year 15, the presence of major structures would cause a permanent increase in the extent of highway infrastructure and encroachment on the surrounding landscape, as well as affecting land use, field pattern and tranquillity. Restored borrow pits would cause residual change to the character of the landscape. Lighting at junctions 21, 22 and 24 and headlights on the offline bypasses would exacerbate the prominence of highway infrastructure at night-time. Where elevated, structures would continue to be at odds with the relatively flat and low-lying valley landscapes, and the presence of uncharacteristic elements within these local LCAs would cause significant damage to the existing landscape character during operation in year 15.

8.11.26 Consistent with during operation in year 1, there would not be significant effects during operation in year 15 on local LCAs B17, B18, A2, A5, landscape sub-area B2A, B3, B4 and A7.

8.11.27 Table 8.16 within Section 8.13 of this chapter provides a summary of the significant residual landscape effects in year 15 that would apply to each local LCA.

Visual effects

Year 1 winter and summer

8.11.28 During operation in year 1, mitigation planting would be unestablished and ineffective in terms of reinstating the landscape, integrating the proposed scheme into the landscape and providing visual screening.

8.11.29 While the proposed scheme would largely be set within the context of the existing A12, vegetation loss would exacerbate the visual prominence of the new and existing highway infrastructure, including day and night-time effects from lighting, headlights, signage and traffic flow. The extent of highway infrastructure would be increased and major new structures, such as new and improved junctions, the offline bypasses, realigned overbridges and gantries, would be prominent within the relatively flat and low-lying landscape, particularly where raised above ground level. Proposed scheme elements within the broader landscape surrounding the A12, including restored borrow pits, attenuation ponds and access tracks, would also affect views.

8.11.30 There would be significant visual effects during operation in year 1 for visual receptors at 26 of the 36 representative viewpoints assessed. The visual receptors at these viewpoints that would be affected, the description of effect and the magnitude and significance of effect is detailed within Appendix 8.3 [TR010060/APP/6.3].

8.11.31 There would be no significant effects for visual receptors at representative viewpoints 1, 12, 14, 21, 25, 26 and 31 or at all five of the longer distance illustrative viewpoints A – E during operation in year 1 (or in year 15) for the reasons described in the construction effects section. In addition, there would be no significant effects from representative viewpoints 2, 4 and 24 in year 1 because, following the removal of construction elements, the operational scheme would not alter the overall balance of features and elements that comprise the existing view.

Year 15 winter and summer

8.11.32 In year 15, mitigation planting would have established to help integrate the proposed scheme into the landscape and to help filter and screen views. Established mitigation planting in year 15 would likely reduce the significance of effects at the majority of representative viewpoints.

8.11.33 There would be residual significant visual effects in year 15 for visual receptors at 11 of the 36 representative viewpoints assessed. These are where visual receptors are close to the proposed scheme and where the presence of major new structures or restored borrow pits would remain a prominent feature of the view, or significantly change the character of the view, despite established mitigation planting. The visual receptors at these viewpoints that would be

affected, the description of effect and the magnitude and significance of effect is detailed within Appendix 8.3 [TR010060/APP/6.3]. Residual significant visual effects in year 15 are also summarised in Table 8.16 within Section 8.13 of this chapter.

8.11.34 Residual effects in year 15 for visual receptors at 25 of the 36 representative viewpoints and for visual receptors at illustrative viewpoints A – E would not be significant, as described within Appendix 8.3 [TR010060/APP/6.3].

8.12 Monitoring

8.12.1 The LEMP, which is appended to the first iteration EMP [TR010060/APP/6.5], presents how the landscape and ecological mitigation would be implemented, monitored, and maintained. This will be a live document through the detailed design and construction phases, and will be developed further by the Principal Contractor prior to the start of the construction works. The LEMP will be secured by the second iteration EMP.

8.13 Summary

8.13.1 This section summarises significant landscape and visual effects and provides a concise comparison of the significance of effect at the three assessment timeframes, taking the mitigation presented within Section 8.10 of this chapter into account. Appendix 8.2 and Appendix 8.3 of the Environmental Statement [TR010060/APP/6.3] provide full details relating to landscape and visual effects.

8.13.2 Table 8.14 presents which local LCA would incur significant effects, and what the overall significance of effects would be during construction and operation.

Table 8.14 Significant landscape effects

Local LCA	Significance of effect during construction	Significance of effect during operation year 1 winter and summer	Significance of effect during operation year 15 winter and summer
A7 Lower Chelmer River Valley	Moderate adverse (significant)	Slight adverse (not significant)	Slight adverse (not significant)
A9 Blackwater River Valley	Large adverse (significant)	Large adverse (significant)	Moderate adverse (significant)
Landscape sub-area A9A	Large adverse (significant)	Large adverse (significant)	Moderate adverse (significant)
B19 Langley Green Farmland Plateau	Large adverse (significant)	Large adverse (significant)	Moderate adverse (significant)
B21 Boreham Farmland Plateau	Large adverse (significant)	Large adverse (significant)	Moderate adverse (significant)
F3 Totham Wooded Farmland	Moderate adverse (significant)	Moderate adverse (significant)	Moderate adverse (significant)

Local LCA	Significance of effect during construction	Significance of effect during operation year 1 winter and summer	Significance of effect during operation year 15 winter and summer
B2 Easthorpe Farmland Plateau	Large adverse (significant)	Large adverse (significant)	Moderate adverse (significant)
F1 Messing Wooded Farmland	Large adverse (significant)	Large adverse (significant)	Moderate adverse (significant)

8.13.3 Table 8.15 presents which viewpoints would incur significant effects, and what the overall significance of effects would be during construction and operation.

Table 8.15 Significant visual effects

Representative viewpoint and receptor type	Significance of effect during construction	Significance of effect during operation year 1 winter and summer unless stated otherwise	Significance of effect during operation year 15 winter and summer unless stated otherwise
2. Representative view west from PRoW 213_45 on Paynes Lane, Boreham Receptor type: users of the PRoW (public bridleway) and residents within private properties	Moderate adverse (significant)	Slight adverse (not significant)	Slight adverse (not significant)
3. Representative view north from the Centenary Circle long distance path (PRoW 234_17) where it meets PRoW 234_18, within the Chelmer and Blackwater Navigation Conservation Area Receptor type: users of the PRoW (public footpath)	Moderate adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
4. Representative view north-west along Station Road from residential properties along The Street, Hatfield Peverel Receptor type: residents within private properties	Moderate adverse (significant)	Slight adverse (not significant)	Slight adverse (not significant)

Representative viewpoint and receptor type	Significance of effect during construction	Significance of effect during operation year 1 winter and summer unless stated otherwise	Significance of effect during operation year 15 winter and summer unless stated otherwise
5. Representative view north-east from footpath/cycleway south of A12, east of Hatfield Peverel Receptor type: users of the footpath/cycleway	Large adverse (significant)	Large adverse (significant)	Moderate adverse (significant)
5. Representative view north-east from footpath/cycleway south of A12, east of Hatfield Peverel Receptor type: residents within private properties	Large adverse (significant)	Large adverse (significant)	Slight adverse (not significant)
6. Representative view east from PRoW 90_29, east of Hatfield Peverel Receptor type: users of the PRoW (public footpath)	Large adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
7. Representative view north from residential properties along Maldon Road, Witham Receptor type: residents within private properties	Large adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
8. Representative view north-east along Blackwater Rail Trail Country Park Receptor type: users of Blackwater Rail Trail Country Park public open space	Moderate adverse (significant)	Winter: Moderate adverse (significant) Summer: Slight adverse (not significant)	Slight adverse (not significant)
9. Representative view west from Whetmead Local Nature Reserve Receptor type: visitors of the Whetmead Local Nature Reserve public open space	Large adverse (significant)	Large adverse (significant)	Slight adverse (not significant)

Representative viewpoint and receptor type	Significance of effect during construction	Significance of effect during operation year 1 winter and summer unless stated otherwise	Significance of effect during operation year 15 winter and summer unless stated otherwise
10. Representative view south-west from Little Braxted Lane/National Cycle Route 16 Receptor type: users of national cycle route	Very large adverse (significant)	Very large adverse (significant)	Large adverse (significant)
10. Representative view south-west from Little Braxted Lane/National Cycle Route 16 Receptor type: vehicle travellers on Little Braxted Lane	Moderate adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
11. Representative view north-east from Little Braxted Lane/National Cycle Route 16 Receptor type: users of national cycle route	Large adverse (significant)	Large adverse (significant)	Large adverse (significant)
11. Representative view north-east from Little Braxted Lane/National Cycle Route 16 Receptor type: vehicle travellers on Little Braxted Lane	Moderate adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
11a. Representative view north from PRoW 105_29, east of Little Braxted Lane Receptor type: users of the PRoW (public bridleway) and residents within private properties	Large adverse (significant)	Large adverse (significant)	Moderate adverse (significant)
13. Representative view west from residential properties along Braxted Road, Rivenhall End Receptor type: residents within private properties	Very large adverse (significant)	Very large adverse (significant)	Large adverse (significant)

Representative viewpoint and receptor type	Significance of effect during construction	Significance of effect during operation year 1 winter and summer unless stated otherwise	Significance of effect during operation year 15 winter and summer unless stated otherwise
13. Representative view west from residential properties along Braxted Road, Rivenhall End Receptor type: vehicle travellers on Braxted Road	Moderate adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
15. Representative view south-east from residential properties along Ewell Hall Chase within Kelvedon Conservation Area Receptor type: residents within private properties and users of the PRoW (public footpath)	Large adverse (significant)	Large adverse (significant)	Slight adverse (not significant)
16. Representative view south-east from PRoW 92_15, east of Brockwell Meadows Local Nature Reserve, Kelvedon Receptor type: users of the PRoW (public footpath)	Large adverse (significant)	Large adverse (significant)	Slight adverse (not significant)
17. Representative view west from residential properties along B1023 Inworth Road Receptor type: residents within private properties	Very large adverse (significant)	Very large adverse (significant)	Large adverse (significant)
17. Representative view west from residential properties along B1023 Inworth Road Receptor type: vehicle travellers on B1023 Inworth Road	Moderate adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)

Representative viewpoint and receptor type	Significance of effect during construction	Significance of effect during operation year 1 winter and summer unless stated otherwise	Significance of effect during operation year 15 winter and summer unless stated otherwise
18. Representative view north-west from PRoW 78_12, east of the driveway to Prested Hall (grade II listed) Receptor type: users of the PRoW (public footpath) and residents within private properties	Very large adverse (significant)	Very large adverse (significant)	Large adverse (significant)
19. Representative view west from PRoW 128_23, south of Easthorpe Road Receptor type: users of the PRoW (public footpath)	Very large adverse (significant)	Large adverse (significant)	Slight adverse (not significant)
19. Representative view west from PRoW 128_23, south of Easthorpe Road Receptor type: vehicle travellers on Easthorpe Road	Moderate adverse (significant)	Slight adverse (not significant)	Neutral (not significant)
20. Representative view north of PRoW 128_22 and Easthorpe Green Farmhouse (grade II listed) Receptor type: users of PRoW (public footpath) and residents within private properties	Very large adverse (significant)	Large adverse (significant)	Moderate adverse (significant)
22. Representative view south-east from PRoW 144_19 near Doggets Hammer Farm (grade II listed), Potts Green Receptor type: users of the PRoW (public footpath) and residents within private properties	Very large adverse (significant)	Very large adverse (significant)	Large adverse (significant)

Representative viewpoint and receptor type	Significance of effect during construction	Significance of effect during operation year 1 winter and summer unless stated otherwise	Significance of effect during operation year 15 winter and summer unless stated otherwise
23. Representative view south-east from PRoW 144_16 at Marks Tey recreation ground Receptor type: users of the PRoW (public footpath) and Marks Tey recreation ground/public open space	Moderate adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
24. Representative view west from PRoW 144_17 next to Marks Tey Hall (grade II listed) Receptor type: users of the PRoW (public footpath)	Moderate adverse (significant)	Slight adverse (not significant)	Slight adverse (not significant)
27. Representative view north from PRoW 145_5, near Inworth Hall (grade II listed) Receptor type: users of the PRoW (public footpath)	Very large adverse (significant)	Large adverse (significant)	Large adverse (significant)
28. Representative view west from PRoW 128_22, north of Easthorpe Road Receptor type: users of the PRoW (public footpath) and residents within private properties	Large adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
29. Representative view north from PRoW, 144_18 south of London Road Receptor type: users of the PRoW (public footpath)	Very large adverse (significant)	Large adverse (significant)	Slight adverse (not significant)
30. Representative view east along PRoW 78_18, Feering Receptor type: users of the PRoW (public footpath)	Large adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)

Representative viewpoint and receptor type	Significance of effect during construction	Significance of effect during operation year 1 winter and summer unless stated otherwise	Significance of effect during operation year 15 winter and summer unless stated otherwise
32. Representative view north-west from PRoW 78_18 on periphery of Prested Hall (grade II listed) grounds Receptor type: users of the PRoW (public footpath) and residents within private properties	Very large adverse (significant)	Large adverse (significant)	Large adverse (significant)
33. Representative view east from PRoW 90_2, Hatfield Peverel Receptor type: users of the PRoW (public footpath)	Very large adverse (significant)	Large adverse (significant)	Slight adverse (not significant)
34. Representative view south-west from PRoW 121_102 Receptor type: users of the PRoW (public footpath)	Large adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
35. Representative view north from PRoW 268_23 Receptor type: users of the PRoW (public footpath)	Large adverse (significant)	Moderate adverse (significant)	Slight adverse (not significant)
35. Representative view north from PRoW 268_23 Receptor type: residents within private properties	Large adverse (significant)	Slight adverse (not significant)	Slight adverse (not significant)

8.13.4 For landscape and visual, residual effects are considered as those assessed during operation in year 15 when mitigation planting would be established and therefore fully effective. Table 8.16 provides a summary of significant residual landscape effects and significant residual visual effects along with a summary of the description of effect during operation in year 15, mitigation measures and mitigation mechanism. The full description of effects is presented within Appendix 8.2 and Appendix 8.3 of the Environmental Statement [TR010060/APP/6.3].

Table 8.16 Summary of significant residual landscape and visual effects

Receptor and description of effect	Mitigation measures	Mitigation mechanism	Significance of effect during operation year 15 winter and summer
Receptor: Local LCA A9 Blackwater River Valley. Description of effect: Restored borrow pit I and parts of restored borrow pits F and J, the increased extent of highway infrastructure presented by J22 and the offline bypass between J22 and J23, as well as the elevated nature of proposed elements within the low-lying landscape, would cause residual change to land use and field pattern. Increased highway infrastructure would also affect tranquillity and night-time character. There would be permanent removal of two potential veteran trees.	Mitigation planting would include woodland planting of trees and shrubs, intermittent trees and shrubs, individual trees and hedges with intermittent trees along the offline bypass between J22 and J23 and around J22 and Braxted Road Overbridge.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)
Receptor: Local LCA landscape sub-area A9A. Description of effect: The online widening on embankment over the River Blackwater, the raised realignment of Maldon Road and Highfields Overbridge replacement would exacerbate the presence of elevated structures within a localised part of the low-lying valley landscape. The gas main diversion easement would restrict the capacity to plant trees, including on the embankment west and south-west of Whetmead Local Nature Reserve, within the Blackwater Rail Trail Country Park and where woodland and willow plantation would be lost within the River Blackwater Valley, resulting in residual change to the character of the landscape.	Mitigation planting would include woodland planting of trees and shrubs along the widened A12 east of Witham and intermittent trees and shrubs on the southern embankment of the A12 where it runs through the Blackwater River Valley.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)

Receptor and description of effect	Mitigation measures	Mitigation mechanism	Significance of effect during operation year 15 winter and summer
Receptor: Local LCA B19 Langley Green Farmland Plateau. Description of effect: The increased extent of highway infrastructure presented by part of the offline bypass between J24 and J25, the subsequent change to land use and field pattern, effects on tranquillity and night-time character, the elevated nature of some proposed elements within the relatively flat plateau landscape and severance of the driveway/avenue to Prested Hall would result in noticeable residual change to the existing landscape character.	Mitigation planting would include woodland planting of trees and shrubs and tall screen planting along the offline bypass between J24 and J25, individual trees at Prested Hall Overbridge and along the realigned Easthorpe Road and intermittent trees and shrubs around attenuation ponds.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)
Receptor: Local LCA B21 Boreham Farmland Plateau. Description of effect: Restored borrow pits E and F and the increased extent of highway infrastructure at J21, including additional lighting would add to the change in land use and field pattern east of Hatfield Peverel. The loss of a group of trees and an individual tree of TPO status and a potential veteran tree would be permanent.	Mitigation planting would include woodland planting of trees and shrubs along the widened A12 corridor and around J19 and J21. New woodland planting of trees and shrubs, hedges with intermittent trees and individual trees would help integrate attenuation and ecology ponds and access tracks into the landscape	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)
Receptor: Local LCA F3 Totham Wooded Farmland. Description of effect: Borrow pit J as well as new lighting at J24, which falls largely within the adjacent landscape, would present uncharacteristic features within the arable landscape. The loss of a potential veteran tree would be permanent.	Mitigation planting within the restored borrow pit J and individual trees along the J24 slip road.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)

Receptor and description of effect	Mitigation measures	Mitigation mechanism	Significance of effect during operation year 15 winter and summer
Receptor: Local LCA B2 Easthorpe Farmland Plateau. Description of effect: The increased extent of highway infrastructure presented by part of the offline bypass between J24 and J25, the subsequent change to land use and field pattern, effects on tranquillity and night-time character, the elevated nature of some elements within the relatively flat plateau landscape would result in noticeable residual change to the existing landscape character.	Mitigation planting would include individual trees along the realigned roads, woodland planting of trees and shrubs, tall screen planting and individual trees along the offline bypass between J24 and 25, and intermittent tree and shrub planting around the attenuation ponds.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)
Receptor: Local LCA F1 Messing Wooded Farmland. Description of effect: Although J24 would be in cutting, which would reduce the prominence of the infrastructure within the landscape, the increased extent of highway infrastructure at J24, the subsequent change to land use, field pattern and the introduction of lighting at J24 would result in noticeable residual change to the existing landscape character.	Mitigation planting along the widened A12 corridor, around J24 and around the attenuation ponds and access tracks would include woodland planting of trees and shrubs, intermittent trees and shrubs and individual trees.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)
Receptor: Representative viewpoint 5. Representative view north-east from footpath/cycleway south of A12, east of Hatfield Peverel. Receptor type: users of the footpath/cycleway. Description of effect: The proximity to J21 is likely to result in some residual noticeable views of the expanded highway infrastructure, albeit in the context of the existing lit A12.	Mitigation planting at J21 and along the A12 corridor would include woodland planting of trees and shrubs, and hedges with intermittent trees along either side of the footpath/ cycleway.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)

Receptor and description of effect	Mitigation measures	Mitigation mechanism	Significance of effect during operation year 15 winter and summer
Receptor: Representative viewpoint 10. Representative view south-west from Little Braxted Lane/National Cycle Route 16. Receptor type: users of national cycle route. Description of effect: The presence of major infrastructure would remain a noticeable feature of the view.	Mitigation planting would include intermittent trees and shrubs along the highway cutting and around Little Braxted Bridge.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Large adverse (significant)
Receptor: Representative viewpoint 11. Representative view north-east from Little Braxted Lane/National Cycle Route 16. Receptor type: users of national cycle route. Description of effect: The presence of major infrastructure and lighting at J22 would remain a noticeable feature of the view.	Mitigation planting would include intermittent trees and shrubs and woodland planting of trees and shrubs on the embankments of J22.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Large adverse (significant)
Receptor: Representative viewpoint 11a. Representative view north from PRoW 105_29, east of Little Braxted Lane. Receptor type: users of the PRoW (public bridleway) and residents within private properties. Description of effect: Glimpses of traffic and signage, including gantries, on J22 and the offline bypass between J22 and J23 would remain perceptible through intervening mitigation planting and this would form a new permanent feature in the view.	Mitigation planting would include hedges with intermittent trees along the realigned Little Braxted Lane, and woodland planting of trees and shrubs on the embankments of J22.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)

Receptor and description of effect	Mitigation measures	Mitigation mechanism	Significance of effect during operation year 15 winter and summer
Receptor: Representative viewpoint 13. Representative view west from residential properties along Braxted Road, Rivenhall End. Receptor type: residents within private properties. Description of effect: Raised structures including elevated offline bypass between J22 and J23 and Braxted Road Overbridge on embankment would remain noticeable within the low-lying Blackwater River Valley landscape.	Mitigation planting would include woodland planting of trees and shrubs on the eastern embankment of Braxted Road Overbridge and along the southern side of the offline bypass between J22 and J23.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Large adverse (significant)
Receptor: Representative viewpoint 17. Representative view west from residential properties along B1023 Inworth Road. Receptor type: residents within private properties. Description of effect: The new roundabout adjacent to the B1023 and new lighting columns along a section of Inworth Road, at the roundabout and at J24, would remain noticeable in the view.	Mitigation planting would include woodland planting of trees and shrubs along parts of the southbound carriageway of the A12 and individual trees around the new roundabout, J24 and along the side roads.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Large adverse (significant)
Receptor: Representative viewpoint 18. Representative view north-west from PRoW 78_12, east of the driveway to Prested Hall (grade II listed). Receptor type: users of the PRoW (public footpath) and residents within private properties. Description of effect: The elevated nature of new structures, severance of the formal drive to Prested Hall and closer proximity of major infrastructure would mean the proposed scheme would remain noticeable in the view.	Mitigation planting would include intermittent trees and shrubs and individual trees around Prested Hall Overbridge, and tall screen planting and linear woodland planting of trees and shrubs along the offline bypass between J24 and J25,	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Large adverse (significant)

Receptor and description of effect	Mitigation measures	Mitigation mechanism	Significance of effect during operation year 15 winter and summer
Receptor: Representative viewpoint 20. Representative view north of PRoW 128_22, and Easthorpe Green Farmhouse (grade II listed). Receptor type: users of PRoW (public footpath) and residents within private properties. Description of effect: The proposed scheme, including Wishingwell Overbridge, would remain perceptible, bringing the traffic closer to the viewpoint.	Mitigation planting would include woodland planting of trees and shrubs (partly on an acoustic bund east of the offline bypass between J24 and J25) and tall screen planting east and west of the offline bypass between J24 and J25, and individual trees along Wishingwell Overbridge.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Moderate adverse (significant)
Receptor: Representative viewpoint 22. Representative view south-east from PRoW 144_19 near Doggets Hammer Farm (grade II listed), Potts Green. Receptor type: users of the PRoW (public footpath) and residents within private properties. Description of effect: The proximity to the offline bypass between J24 and J25 and the change in the character of the view, with the introduction of highway infrastructure to the rural context, would remain noticeable.	Mitigation planting would include woodland planting of trees and shrubs along and north of an acoustic bund between Potts Green and the offline bypass between J24 and J25.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Large adverse (significant)
Receptor: Representative viewpoint 27. Representative view north from PRoW 145_5, near Inworth Hall (grade II listed). Receptor type: users of the PRoW (public footpath). Description of effect: Borrow pit J and new lighting at J24 would cause a noticeable change in view.	Mitigation planting would include woodland planting of trees and shrubs along the southbound carriageway of the A12 and around J24 Underbridge, and mitigation planting within the restored borrow pit J.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Large adverse (significant)

Receptor and description of effect	Mitigation measures	Mitigation mechanism	Significance of effect during operation year 15 winter and summer
Receptor: Representative viewpoint 32. Representative view north-west from PRoW 78_18 on periphery of Prested Hall (grade II listed) grounds. Receptor type: users of the PRoW (public footpath) and residents within private properties. Description of effect: The elevated nature of Prested Hall Overbridge, and closer proximity of major infrastructure including the offline bypass between J24 and J25, would remain noticeable in views.	Mitigation planting would include linear woodland planting of trees and shrubs and tall screen planting along the offline bypass between J24 and J25, and blocks of intermittent trees and shrubs around Prested Hall Overbridge.	Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]	Large adverse (significant)

8.13.5 The overall long-term magnitude and residual significance of effect of the proposed scheme on local landscape character and visual amenity is considered to be **moderate adverse** and, therefore, significant. However, this would largely be confined to local LCAs of medium sensitivity that would be directly affected by major new infrastructure and restored borrow pits and 11 viewpoints out of the 36 representative viewpoints assessed. The residual effect on wider landscape character, 25 of the 36 representative viewpoints assessed and longer distance views (as demonstrated through assessment of five illustrative viewpoints) would not be significant.

8.13.6 The proposed scheme has been assessed in accordance with the requirements within DMRB LA 107 and in accordance with the NNNPS requirements for landscape and visual as presented within Table 8.3. In line with the requirements of the NNNPS, to avoid or minimise harm to the landscape and views, embedded mitigation measures for this aspect have been developed as presented within Section 8.10 of this chapter. Therefore, it is considered that the proposed scheme complies with the NNNPS for landscape and visual.

8.14 References

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