



Heidelberg Materials

TYTHERINGTON QUARRY: 6 MILLION TONNES ADDITIONAL RESERVES

Environmental Statement: Chapter 6 Landscape
and Visual





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6 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

6.1 INTRODUCTION

- 6.1.1 This ES chapter reports the outcome of the assessment of likely significant effects arising from the Proposed Scheme upon landscape and visual receptors. This chapter (and its associated figures and appendices) is intended to be read as part of the wider ES with particular reference to **Chapter 3: Description of Proposed Scheme**.

6.2 LIMITATIONS AND ASSUMPTIONS

- 6.2.1 There are no known limitations associated with the landscape and visual impact assessment (LVIA). Baseline photography has been undertaken during the winter months when vegetative screening is at its minimum. The assessment assumes a winter scenario and therefore represents the worst-case in accordance with best practice guidance set out in the Guidelines for Landscape and Visual Impact Assessment (Third Edition)¹ and Technical Guidance Note 06/19 Visual Representation of Development Proposals².

6.3 POLICY AND LEGISLATIVE CONTEXT

- 6.3.1 This section identifies the legislation, planning policy and technical guidance that has informed the assessment of effects with respect to landscape and visual amenity. Further information on policies relevant to the Proposed Scheme is provided in **Chapter 5: Planning policy overview** as well as the accompanying Planning Statement.

LEGISLATIVE FRAMEWORK

- 6.3.2 A summary of the relevant legislation is given in **Table 6-1**.

Table 6-1 - Legislation relevant to the LVIA

Legislation	Legislative context
European Landscape Convention (ELC) ³	The ELC is a Council of Europe initiative that provides a broad framework for landscape planning and management across all member states including the UK, which ratified the ELC in 2007. The ELC defines landscape as, “ <i>an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors</i> ” and is committed to several core principles and actions. These commitments are implemented by existing

¹ Landscape Institute and the Institute of Environmental Management and Assessment, (2013). *Guidelines for Landscape and Visual Impact Assessment. 3rd edition*. London. Routledge.

² Landscape Institute. (2019). *Technical Guidance Note 06/19 Visual Representation of Development Proposals*. [online]. Available at: <https://www.landscapeinstitute.org/visualisation/> [Accessed 01 December 2023].

³ Council of Europe (2000). *European Landscape Convention*. [online]. Available at: <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=09000016802f80c6> [Accessed 01 December 2023].

Legislation	Legislative context
	domestic policy and legislation rather than through any ELC-specific framework.
Hedgerow Regulations 1997⁴	These Regulations make provision for the protection of important hedgerows in England and Wales. The Regulations set out criteria that must be used in determining which hedgerows are important. The criteria relate to the value of hedgerows from an archaeological, historical, landscape or wildlife perspective.

PLANNING POLICY

6.3.3 A summary of the relevant national and local planning policy is given in **Table 6-2**. The Planning Statement covers the detail of actual policies.

Table 6-2 - Planning policy relevant to the LVIA

Policy	Policy context
National planning policy:	
National Planning Policy Framework (NPPF) 2023⁵	Section 15. Conserving and enhancing the natural environment: Paragraph 174 requires planning policies and decisions to contribute to and enhance the natural and local environment by (amongst other criteria): a) protecting and enhancing valued landscapes, (in a manner commensurate with their statutory status or identified quality in the development plan) and b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services.
National Planning Practice Guidance (NPPG) Minerals⁶	Paragraph 013 lists “ <i>visual impact on the local and wider landscape</i> ” and “ <i>landscape character</i> ” as well as “ <i>impacts on nationally protected landscapes (National Parks, the Broads and Areas of Outstanding Natural Beauty)</i> ” and “ <i>site restoration and aftercare</i> ” amongst the principal issues that mineral planning authorities should address. Paragraph 39 requires planning applications to include details of the proposals for land restoration and aftercare whilst paragraph 40 deals with the level of detail required on restoration and aftercare recognising that this is dependent on the circumstances of each specific site. Paragraph 59 sets out the requirements of a site-specific landscape strategy which should accompany applications for either a new site or any significant extension to an existing working site.

⁴ UK Government (1997). *Statutory Instrument 1997 No. 1160 The Hedgerows Regulations 1997*. [online]. Available at: <http://www.legislation.gov.uk/ukSI/1997/1160/made> [Accessed 01 December 2023].

⁵ Department for Levelling Up, Housing and Communities (2023). *National Planning Policy Framework*. [online]. Available at: <https://www.gov.uk/government/publications/national-planning-policy-framework--2> [Accessed 01 December 2023].

⁶ Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2014). *National Planning Practice Guidance (NPPG) Minerals*. [online]. Available at: <https://www.gov.uk/guidance/minerals> [Accessed 01 December 2023].

Policy	Policy context
Local planning policy:	
South Gloucestershire Local Plan Core Strategy 2006-2027⁷	Policy CS9 – Managing the Environment and Heritage states that new development will be expected to (amongst other criteria) “ <i>conserve and enhance the character, quality, distinctiveness and amenity of the landscape.</i> ”
South Gloucestershire Local Plan: Policies, Site and Places⁸	Policy PSP2 – Landscape seeks the protection and enhancement of the natural landscape. It supports proposals where they conserve and enhance the quality, amenity, distinctiveness and special character of the landscape (defined by the Landscape Character Assessment) and includes landscape features, typography and landforms.

TECHNICAL GUIDANCE

- 6.3.4 A summary of the technical guidance for the assessment of effects on landscape and visual amenity is given in **Table 6-3**.

Table 6-3 - Technical guidance relevant to the LVIA

Technical guidance document	Context
Guidelines for Landscape and Visual Impact Assessment (Third Edition)¹	The third edition of this guidance (known as ‘GLVIA3’), produced by the Landscape Institute and Institute of Environmental Assessment, is widely regarded by landscape and planning professions as the ‘industry standard’ together with best practice and professional experience.
Technical Guidance Note 06/19 Visual Representation of Development Proposals²	Provides supplementary guidance to GLVIA3 ¹ as to appropriate techniques to capture site photography and the selection, production and presentation of types of visualisations appropriate to the circumstances in which they will be used.
Technical Guidance Note 02/21 Assessing landscape value outside national designations⁹	Provides information and guidance to landscape professionals and others who need to make judgments about the value of a landscape (outside national landscape designations) in the context of the UK Town and Country Planning system.

⁷ South Gloucestershire Council (2013). *South Gloucestershire Local Plan Core Strategy 2006-2027*. [online]. Available at: <https://beta.southglos.gov.uk/core-strategy-2006-2027> [Accessed 01 December 2023].

⁸ South Gloucestershire Council (2017). *South Gloucestershire Local Plan: Policies, Sites and Places Plan*. [online]. Available at: <https://beta.southglos.gov.uk/policies-sites-and-places-plan-ppsp/> [Accessed 01 December 2023].

⁹ Landscape Institute (2021). *Technical Guidance Note 02/21 Assessing landscape value outside national designations*. [online]. Available at: <https://www.landscapeinstitute.org/news/new-guidance-assessing-landscape-value-outside-national-designations/> [Accessed 01 December 2023].

Technical guidance document	Context
Technical Information Note 01/2017 (Revised). Tranquillity – an overview¹⁰	Provides an overview of what is understood by the term ‘tranquillity’ within the landscape profession.
Draft Technical Guidance Note 05/23 Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3)¹¹	Draft version for consultation. Provides a compilation of clarifications on GLVIA3 ¹ and produced to help interpret aspects of the guidance. It should be read alongside GLVIA3 ¹ .

6.4 DATA GATHERING METHODOLOGY

STUDY AREA

- 6.4.1 The study area has been defined to ensure that the LVIA concentrates upon receptors that are most likely to be significantly affected by the Proposed Scheme, in accordance with guidance set out in paragraphs 5.2 and 6.2 in GLVIA31. These state that the study area “*should include the site itself and the full extent of the wider landscape around it which the proposed development may influence in a significant manner*” and “*should include the area from which the proposed development will potentially be visible*”. Paragraph 6.2 continues “*The emphasis must be on a reasonable approach which is proportional to the scale and nature of the proposed development.*”
- 6.4.2 The LVIA Study Area extends to a 1km buffer from the extant planning permission boundary and is shown in **Figure 6.1**.

DESK STUDY

- 6.4.3 The LVIA has been undertaken with reference to **Chapter 3: Description of Proposed Scheme**, supported by a number of data sources as follows:
- Ordnance Survey (OS) 1:25,000 scale mapping;
 - National Character Area Profile 118: Bristol, Avon Valley and Bridges¹²;
 - South Gloucestershire Landscape Character Assessment¹³;

¹⁰ Landscape Institute (2017). *Technical Information Note 01/2017 revised. Tranquillity – an overview*. [online]. Available at: <https://www.landscapeinstitute.org/technical-resource/tranquillity/> [Accessed 01 December 2023].

¹¹ Landscape Institute (2023). *Draft Technical Guidance Note 05/23 Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3)*. (online). Available at: <https://www.landscapeinstitute.org/technical-resource/notes-and-clarifications-on-aspects-of-the-3rd-edition-guidelines-on-landscape-and-visual-impact-assessment-glvia3-consultation/> [Accessed 01 December 2023].

¹² Natural England (2013). *NCA Profile 118: Bristol, Avon Valley and Bridges (NE400)*. [online]. Available at: <https://publications.naturalengland.org.uk/publication/4646942?category=587130> [Accessed 01 December 2023].

¹³ South Gloucestershire Council (2014). *South Gloucestershire Landscape Character Assessment*. Available online at: <https://beta.southglos.gov.uk/landscape-character-assessment/> [Accessed 01 December 2023].

- Multi-Agency Geographic Information for the Countryside (MAGIC)¹⁴;
- Light pollution and dark skies mapping produced by LUC for CPRE¹⁵;
- South Gloucestershire Public Rights of Way mapping¹⁶; and
- Google Earth Pro (aerial and Street View imagery).

6.4.4 Reference has also been made to the Arboricultural Impact Assessment¹⁷ which is presented at **Appendix 10C**.

SITE VISIT AND SURVEY WORK

6.4.5 A field survey was completed in February 2024 to obtain viewpoint photography at the locations set out in the Scoping Report with some in-field micro siting undertaken where necessary i.e. where foreground hedgerows or local landform obscured views towards the Site. Two additional locations (Viewpoints 6 and 7) have also been included following the findings of the field survey. Photography was undertaken during the winter months thereby reflecting the maximum visibility scenario in accordance with paragraph 4.3 of GLVIA3¹. The viewpoint schedule is set out in **Table 6-4** and the locations shown on **Figure 6.2**.

Table 6-4 – Viewpoint schedule

Reference	Grid Reference	Location	Reason for selection	Figure Reference
1	365596, 188017	Itchington Road to the west of the Site	Closest publicly accessible location to the Proposed Scheme	6.3
2	365525, 187812	Celtic Way/Jubilee Way and local PRow (footpath) OTY/24/20, close to the junction with Itchington Road	Promoted recreational route. Selected to represent views of north-bound walkers.	6.4
3	365368, 188095	Celtic Way/Jubilee Way and local PRow (footpath) OTY/24/20	Promoted recreational routes. Selected to represent close distance views of south- bound walkers.	6.5
4	365127, 187598	Local PRow (footpath) OTY/28/10	Local PRow network. Selected to represent middle distance views of walkers	6.6

¹⁴ Natural England (2023). Multi-Agency Geographic Information for the Countryside. [online]. Available at: <https://magic.defra.gov.uk/home.htm> [Accessed 01 December 2023].

¹⁵ Natural England (2016). England's Light Pollution and Dark Skies Mapping. [online]. Available at: <https://www.cpre.org.uk/light-pollution-dark-skies-map/> [Accessed 01 December 2023].

¹⁶ South Gloucestershire Council (2023). *South Gloucestershire Public Rights of Way mapping*. [online]. Available at <https://rightsofway-southglos.esdm.co.uk/map> [Accessed 01 December 2023].

¹⁷ WSP on behalf of Heidelberg Materials (2024). *Tytherington Quarry: 6 million Tonnes Additional Reserve. Arboricultural Impact Assessment*.

Reference	Grid Reference	Location	Reason for selection	Figure Reference
5	365100, 188441	Celtic Way/Jubilee Way and local PRow (bridleway) OAN/42/10	Promoted recreational routes. Selected to represent middle distance views of south- bound walkers.	6.7
6	364834, 188747	Celtic Way/Jubilee Way and local PRow (bridleway) OAN/42/10 to the south of The Abbey	Elevated position on promoted recreational routes.	6.8
7	365002, 188847	Hobblers Way (Coast to Coast - Wash to Severn) / A38	Elevated position on a promoted recreational route.	6.9
8	365200, 188889	Hobblers Way (Coast to Coast - Wash to Severn) / A38 west of Grovesend	Elevated position on a promoted recreational route.	6.10

6.4.6 The resultant photographs from the viewpoints have been digitally joined (using Autopano Giga software) to form a panorama and the annotated panoramic photographs have been presented as Type 1 Annotated Viewpoint Photographs in accordance with best practice guidelines set out in the Landscape Institute's *Technical Guidance Note 06/19 Visual Representation of Development Proposals*².

6.5 OVERALL BASELINE

CURRENT BASELINE

Description of the Site

Woodleaze Quarry

- 6.5.1 Tytherington Quarry comprises two historic quarries. Grovesend Quarry, which was the initial quarry, comprises the main quarry offices, weighbridge, processing plant and quarry railway sidings. Woodleaze Quarry to the south is only accessible from Grovesend Quarry via a tunnel. All ongoing mineral extraction is currently taking place from within Woodleaze Quarry.
- 6.5.2 Woodleaze Quarry is bound along its north-western and south-western edge by Itchington Road, which links the A38 at Grovesend to the north before continuing below the M5 to connect with the settlement of Itchington to the south. Tree/scrub belts are located on low screenbanks between the quarry boundary and Itchington Road and form an effective visual screen.
- 6.5.3 The north-eastern boundary of Woodleaze Quarry comprises the quarry railway sidings which are separated from the Woodleaze Quarry void by a linear tree belt. Along the south-eastern boundary, a treed screenbank separates the quarry from the M5 motorway. The crest of this screenbank typically sits at an elevation of 105m Above Ordnance Datum (AOD), rising from an elevation of approximately 98m AOD along the external toe of the screenbank, with a localised maximum elevation of 107m AOD towards the centre of the screenbank (approximately 7m to 8m in height).

Existing soil store area

- 6.5.4 The existing soil store area is located within the southern corner of Woodleaze Quarry, to the east of Itchington Road. Within this area lies a central overburden store, which is approximately 8m to 9m in height (crest at an elevation of 105m AOD) and was seeded with a calcareous grassland mix following its construction. Two smaller, linear topsoil stores are located to the north-west and south of the larger overburden store, rising to an elevation of approximately 98.5m AOD and 100m AOD respectively with a landcover of semi-improved grassland.
- 6.5.5 To the north and east of the store lay intact, species-rich hedgerows, one of which (the north-east to south-west aligned hedgerow) previously formed the northern boundary of the field within which the soil and overburden stores were constructed. This feature is recorded in the Arboricultural Impact Assessment¹⁷ as being between 5m and 13m in height and contains four oak trees (11m-12m in height). Two shorter sections of hedgerow line an internal access route (which previously formed Itchington Road) on a north-west to south-east orientation with the outer (eastern-most) section being planted in 2007. A section of former hedgerow, which in part formed the southern boundary of the soil store field, is located along the inner toe of the M5 screenbank on a north-east to south-west alignment. Due to limited management, it now has a closed canopy with the adjoining woodland, as recognised in the Phase 1 habitat mapping and Arboricultural Impact Assessment¹⁷.
- 6.5.6 The landform which forms a continuation of the M5 screenbank along the southern edge of the existing soil store area is approximately 5.5m in height at its western end (rising from an elevation of 97m to 102.5m AOD). The landform increases in height to approximately 7m and to a maximum elevation of 105m AOD at its eastern end where it joins the original M5 screen mound close to the original alignment of Itchington Road. This landform is covered by semi-mature sycamore, silver birch, ash, hazel, blackthorn, hawthorn, oak and cherry trees which were planted in the winter of 2007-2008 and strong planting lines and tree protection tubes remain visible. The Arboricultural Impact Assessment¹⁷ records this group of trees as being 8m to 10m in height.

Wider Landscape context

Topography and drainage

- 6.5.7 Tytherington Quarry is located on a broad linear ridgeline, which runs on a north-east to south-west axis at an elevation of ~100m AOD. Descending, gently rolling, south-east facing slopes fall towards and contain the Tytherington Plain and Earthcott Vale to the east, which lie between ~50-65m AOD. A small bluff forming Tytherington Hill lies between the settlement of Tytherington and the M5 motorway.
- 6.5.8 To the north-west of the Site, the landform rises to a maximum elevation of 109m AOD close to the A38 and hillfort at Little Abbey, Alveston.
- 6.5.9 There are no watercourses within the LVIA Study Area.

Land use and vegetation patterns

- 6.5.10 Tytherington Quarry, comprising Woodleaze Pit, Grovesend Pit and the exhausted North Face Pit, occupies the northern part of the LVIA Study Area. Beyond this, the landscape is predominantly pastoral with regular, medium sized fields typically bound by thick, clipped hedgerows. There are occasional mature hedgerow trees and small regular shaped copses of deciduous woodland to the west of the Site, with the area around Itchington Common also featuring woodland cover. Further woodland is present along the northern and north-western fringes of Tytherington, whilst tree belts

and plantation woodland also line sections of the M5 motorway and the perimeter of Tytherington Quarry.

Settlement patterns

- 6.5.11 Three villages are present or partially present within the LVIA Study Area; Tytherington, which lies to the east of the Site beyond the M5 motorway, the smaller settlement of Grovesend, located on the outskirts of Thornbury to the north of the Site and Itchington, to the south of the Site. Beyond the settlements, the landscape is sparsely populated with a small number of farmsteads and isolated properties.

Transportation network

- 6.5.12 The principal transport routes within the LVIA Study Area include the M5 motorway which passes on a south-west to north-east alignment adjacent to the south-eastern edge of Tytherington Quarry. To the north, the A38 follows a broadly parallel alignment to the M5 between the quarry and the town of Thornbury.
- 6.5.13 Beyond the principal roads, a series of minor roads and lanes cross the landscape connecting the settlements to the A38. This includes the realigned Itchington Road, which passes immediately adjacent to the south-western boundary of the Site.
- 6.5.14 The Thornbury Branch Line is a dedicated freight rail line with sidings within the quarry. The route is a 12km branch of the Midland Railway and runs from Yate to Thornbury (Grovesend Overbridge).

Recreational routes

National and regional routes

- 6.5.15 There are no National Trails or Sustrans National Cycle Routes within 1km of the Site. However, three regional promoted walks have sections of their routes which pass close to Tytherington Quarry as follows:
- Jubilee Way: a 27km long route which links Aust, at the south side of the Severn Bridge, with Old Sodbury at the base of the Cotswold Hills. The route follows a north-south alignment through the LVIA Study Area, passing within ~170m of the Proposed Scheme at its closest point.
 - Celtic Way: a 116km long route through South Wales and the South-West peninsula. This route coincides with the Jubilee Way through the LVIA Study Area and therefore passes ~170m to the west of the Proposed Scheme at its closest point.
 - Hobblers Way (Coast to Coast - Wash to Severn): a 311km long promoted route running diagonally across the country from the River Nene in the east to the Severn Bridge in the west. Within the LVIA Study Area, the route follows the A38 at a minimum distance of ~890m to the north-west of the Site.

Local Public Rights of Way network

- 6.5.16 The local Public Right of Way (PRoW) network predominantly extends to the west, south-west and south of the Site where a moderately high level of provision is present linking minor roads and settlements via a network of footpaths and bridleways which cross the agricultural landscape. Further footpaths and bridleways extend to the south-east of the M5 motorway where they link the two settlements of Itchington and Tytherington.

Landscape Character

National Level

- 6.5.17 At a national scale, Tytherington Quarry lies within the Bristol, Avon Valley and Bridges National Character Area (NCA), as defined in the National Character Area Profile 118. The summary description of this NCA notes:

*"The area is characterised by alternating ridges and broad valleys, with some steep, wooded slopes and open rolling farmland. It is flanked by ... the Cotswolds to the east and the Severn and Avon vales to the west, which largely separates it from the Severn Estuary except for a small stretch of coastline between Clevedon and Portishead."*¹²

"It has a complex geology, being rich in geomorphological features such as the dramatic Avon Gorge, and there are many designated exposures and rich fossil beds. The varied settlement pattern has been influenced by the geology and geomorphology and the expansion of the City of Bristol at its centre."

*"The M5 motorway runs up the western edge and the M4 skirts across the north of Bristol, with Bristol Airport to the south. Although the urban area covering this NCA is significant at over 21 per cent, much of the surrounding rural landscape is farmed."*¹²

- 6.5.18 The supporting description states the NCA has several modern quarries, including Tytherington and notes that: *"The impact of quarrying on the character of the area is minimal"*.¹²

District Level

- 6.5.19 At a more detailed scale, South Gloucestershire Council has undertaken a district wide Landscape Character Assessment¹³. The Assessment indicates that Tytherington Quarry is located within Landscape Character Area (LCA) 17 Rudgeway and Tytherington Ridge whose key characteristics are as follows:

- *"A broad linear ridgeline, with ridge/plateau and gentle slopes to the east, seen as a backdrop to the vale and plain beyond.*
- *Open to semi-enclosed predominantly pastoral landscape of regular, medium sized fields with a mix of thick, clipped and intermittent hedges and stock fencing.*
- *Limited common land at several sites to the north and east.*
- *There are a number of areas of calcareous grassland across this character area that add both visual interest and provide important habitat for a diverse range of flora including areas of species rich grassland.*
- *Regular dispersed pattern of copses throughout, with large areas of deciduous woodland in the south and north and containing sections of the western boundary along the A38, while also providing habitat for notable species including European Protected Species. Limited mature tree specimens are associated with some older farmsteads, occasionally within hedgerows or fields.*
- *Occasional extensive views from the western boundary include the Severn Estuary and beyond. The eastern slopes look towards the Cotswold Scarp.*
- *Extensive road pattern of M5, M4/M5 interchange and A38 define this area. B4427 and other minor roads connect and cross the area.*
- *Settlement is limited, with small villages/ hamlets and ribbon settlement along roads. Stone walls line some roads, most notably sections of the A38 and roads adjacent to older farms.*
- *One large active quarry that includes a geological SSSI, and a number of powerlines lie to the north and one to the south.*

- *The Hortham hospital site has been redeveloped for housing, while retaining much of its strong and characteristic tree cover.*"¹³

6.5.20 The assessment references Tytherington Quarry as follows:

*"Tytherington Quarry occupies an extensive area to the north, comprising a plant area and areas of excavation which have been worked sequentially southwards, parallel to the M5. The edge of the site is largely contained by hedgerows and hedgerow trees, supplemented in places with earth mounds, and a developing woodland structure."*¹³

Landscape Designations

National landscape designations

- 6.5.21 The southern part of Tytherington Quarry, including the soil store area, is located within the Green Belt. However, as recognised in *Draft Technical Guidance Note 05/23 Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3)*¹¹, Green Belt is a planning policy designation and compliance with policy should be addressed separately to the LVIA.
- 6.5.22 There are no other national landscape designations located near to Tytherington Quarry. The closest national landscape designations are the Cotswold National Landscape located ~9.6km to the east, and the Wye Valley National Landscape located ~13.6km to the north-west across the Severn Estuary.

Local landscape designations

- 6.5.23 There are no local landscape designations within South Gloucestershire.

Visual baseline

- 6.5.24 The visibility and landscape influence of Tytherington Quarry is primarily determined by its position on the plateau landform, distribution of visual receptors and the perimeter vegetative screening around the quarry. This includes a wooded linear bund along the south-eastern edge of the quarry, running parallel with the M5. This containment is recognised in the South Gloucestershire Landscape Character Assessment¹³ which notes.
- "Tytherington Quarry is largely well integrated, given the containment of views in this locality as a result of the plateau landform, intervening hedgerow structure with occasional trees and mound/planting mitigation measures along the quarry's site boundary."*
- 6.5.25 The presence of Tytherington Hill to the east of the M5 motorway, descending landform to the south-east and a cluster of small woodlands and copses around Tytherington, also contribute to a reduced visual envelope.

PREDICTED FUTURE BASLINE

Overview

- 6.5.26 Landscape change is an ongoing and inevitable process and would continue across the LVIA study area irrespective of whether the Proposed Scheme proceeds. Change can arise through natural processes (e.g. the maturity of woodlands) and natural systems (e.g. river erosion) or, as is often the case, occurs as a result of human activity, land use, management or neglect.

Wider landscape change

Ash dieback

- 6.5.27 Chalara dieback of ash became established in the UK in 2012 with the consequence that the future of common ash (*Fraxinus excelsior*) as a woodland, hedgerow and urban tree species became under threat. Reference to the Forestry Commission's map of confirmed infection sites for the UK¹⁸ indicates that the OS 10km grid square within which Tytherington Quarry is located has a record of confirmed infection of ash trees within a natural environment. Impacts on the landscape are likely to develop relatively slowly, starting with the decline of young trees and only becoming readily apparent if mature trees are felled. This may open up views for visual receptors, alter the structure of existing woodlands and has implications with regard to tree species proposed as part of the landscape mitigation.

Other forces for change

- 6.5.28 Reference to the National Character Area Profile 118: Bristol, Avon Valleys and Ridges¹² indicates that alongside climate change which may alter tree productivity, woodland composition, pests and diseases and agricultural regimes, other key drivers for change include significant development on the settlement fringes, regeneration of former industrial sites and increased pressure for food production. With specific reference to mineral working, the Profile notes that "*The Carboniferous Limestone continues to be quarried and there is continuing pressure for expansion.*"¹²
- 6.5.29 On a local, LCA level, the South Gloucestershire Landscape Character Assessment¹³ records that the Rudgeway and Tytherington Ridge character area is a "*predominantly agricultural area with significant transport and settlement influences and pressures on its fringes.*"¹³ It continues, "*the presence of key transport routes around the boundaries of this area, together with the proximity of the urban edge of Bristol to the south, increases the pressures for change within this area*"¹³ and that "*a further increase in traffic or additional built development could potentially result in a significant change in local character.*"¹³ Also of relevance, the Assessment states that "*Throughout the area, there is generally little new planting to provide succession and sustain the landscape structure and biodiversity in the future. In the long term this could result in a decline or loss of features, which may increase the openness of the area. Exceptions are at Tytherington Quarry.*"¹³
- 6.5.30 Due to the long term and unpredictable nature of ash die back, climate change and unknown medium-long term development pressures on the landscape, the assessment will be conducted against current baseline conditions. An In-Combination Climate Change Impacts (ICCI) assessment relevant to the LVIA is set out in **Section 6.14**

¹⁸ Defra project team including Fera, Natural Resources Wales and Forestry Commission. 2024. *Chalara (Hymenoscyphus fraxineus) - infections confirmed in the Wider Environment as at 30/11/2022*. [online]. Available at: <https://secure.fera.defra.gov.uk/chalaramap/>

6.6 CONSULTATION

- 6.6.1 The assessment has been informed by consultation responses and ongoing stakeholder engagement. An overview of the approach to consultation is provided in **Section 2.4 of Chapter 2: Approach to Environment Impact Assessment**.

SCOPING

- 6.6.2 A Scoping Opinion was issued by South Gloucestershire Council (SGC) on 18 January 2024. A summary of the relevant response received in the Scoping Opinion in relation to landscape and visual receptors and confirmation of how these have been addressed within the assessment to date is presented in **Table 6-5**.

Table 6-5 - Summary of issues raised during consultation regarding landscape and visual amenity

Issue raised	Consultee	Response and how considered in this chapter	Section Ref
The Proposed Scheme will need to demonstrate how it accords with the objectives set out in the SPD documents and how it will fit in with the character of its landscape surroundings.	South Gloucestershire Council	The LVIA has been informed by the LCAs as set out in the South Gloucestershire Landscape Character Assessment Supplementary Planning Document (Revised and Proposed for Adoption November 2014) and an assessment made in relation to the host LCA.	Sections 6.5 and 6.11.
A LVIA to GLVIA 3 supported by analysis plans and photographs showing the baseline views from assessment viewpoints should be submitted. Wireframe images may be helpful to show the change in view from more sensitive or open viewpoints (visual receptors) including where there may be a change in the vegetated skyline around the quarry.	South Gloucestershire Council	The LVIA presented in this Chapter has been undertaken in accordance with a methodology which accords with GLVIA3 ¹ . The baseline photographs have been taken and are presented in accordance with TGN 06/19 ² . The vegetation would be retained around the perimeter of the Site as described in Section 6.7 with vegetation removal occurring within the quarry or on the inner slopes of existing perimeter landforms. As such, it is anticipated that there would be limited changes to the vegetation skyline around the quarry and little benefit would accrue from the production of wireframe images.	Chapter 6 with the methodology set out in Section 6.9 and Appendix 6A . Baseline photography is presented in Figures 6.4- 6.10 .
A current tree survey, together with tree protection plan to BS5837:2012 should be submitted.	South Gloucestershire Council	A tree survey has been undertaken and the findings have informed the LVIA where appropriate.	Appendix 10C with the findings used to inform the baseline in Section 6.5 and assessment of effects on landscape elements in Section 6.10 .
A landscape mitigation and planting strategy, supported by planting schedule and details of any new screen bunding (the gradients of which should be designed to support	South Gloucestershire Council	New landforms are indicated on the Phasing Plans and the planting strategy is detailed in Section 6.7 . This is reflected in the assessment on effects on landscape character which forms part of the LVIA.	Figure 3.4 with mitigation measures described in Section 6.7 and considered as part of

Issue raised	Consultee	Response and how considered in this chapter	Section Ref
the establishment of mitigation planting, and to fit in with the character of the surrounding landscape) should be submitted.			the assessment in Sections 6.10-6.12 . A Landscape and Biodiversity Enhancement Plan is contained within Appendix 10B .
Detailed planting plans specifying the location, species, stock size, planting centres and quantities of all proposed tree and structure planting, can be agreed as a condition of any planning consent.	South Gloucestershire Council	Noted.	Not applicable
Details of all proposed boundary treatments, and proposed levels for structural bunding and working platforms.	South Gloucestershire Council	Boundary treatments remain unchanged as part of the Proposed Scheme. Details of perimeter landforms and proposed quarry benches are shown on the Phasing Plans and set out as part of the description of the Proposed Scheme.	Figures 3.1-3.4 and Chapter 3.
Restoration strategy and long-term landscape management plan.	South Gloucestershire Council	A restoration strategy and Landscape and Biodiversity Enhancement Plan, which details the short- and longer-term management regime, has been prepared as part of the development proposals.	Figure 3.4, Chapter 3, and Section 6.7. A Landscape and Biodiversity Enhancement Plan is contained within Appendix 10B .

6.7 ENVIRONMENTAL MEASURES INCOPORATED INTO THE PROPOSED SCHEME

6.7.1 A range of environmental measures have been embedded into the development proposals as outlined in **Chapter 3 (Section 3.3)**. **Table 6-6** outlines how these embedded measures will influence the landscape and visual assessment.

Table 6-6 - Summary of the embedded environmental measures and how they influence the LVIA

Receptor	Change and effects	Embedded measure and influence on assessment
Landscape elements	The loss of key landscape elements which either play a strong landscape role and consequently their loss would dilute the local landscape character, or a strong visual and screening role.	<p><u>Operational phases:</u></p> <ul style="list-style-type: none"> Retention of perimeter plantation woodland to maintain vegetated skylines and screening. Translocation of existing hedgerow to within the field to the south-east of the Site (alongside the M5 motorway and which is referred to as the 'D-shaped field') and which lies within Heidelberg Materials land ownership (off-site mitigation). The hedgerow would be used to fill gaps within the existing boundary hedgerow. Retained trees and sections of hedgerow to be protected. <p><u>Restoration:</u></p> <ul style="list-style-type: none"> New woodland, scrub, hedgerow and grassland would be introduced as part of the restoration of the site to compensate for that lost during the operational phases. Exposed quarry faces and areas of water body also contribute to a diverse landscape within the site boundary.
Landscape character	Direct landscape effects on the character of the host LCA as a result of extraction and implementation of the restoration scheme.	<p><u>Operational phases:</u></p> <ul style="list-style-type: none"> Retention of perimeter plantation woodland to maintain vegetated skylines and screening. Relocated soil store mound to be grass seeded to reduce its contrast with the colours and textures present within the surrounding landscape. <p><u>Restoration:</u></p> <ul style="list-style-type: none"> Woodland, scrub and hedgerow mixes to reflect the species found locally within the landscape.

Receptor	Change and effects	Embedded measure and influence on assessment
Visual receptors	Changes to receptors views as a result of extraction or creation of new landforms and new visual components introduced as part of the restoration scheme.	<p><u>Operational phases:</u></p> <ul style="list-style-type: none"> Retention of perimeter plantation woodland to maintain vegetated skylines and screening. Translocation of existing hedgerow to within the field to the south-east of the Site (alongside the M5 motorway and which is referred to as the 'D-shaped field') and which lies within Heidelberg Materials land ownership (off-site mitigation). The hedgerow would be used to fill gaps within the existing boundary hedgerow. Relocated soil storage mound to be grass seeded to reduce its contrast with the colours and textures present within the surrounding landscape. <p><u>Restoration:</u></p> <ul style="list-style-type: none"> Landscape elements and patterns to reflect those found locally within the landscape to reduce the contrast in visual receptors views. Exposed quarry faces to be softened with pockets of scrub habitat on the benches. Bench restoration would create a mosaic of woodland, scrub, calcareous grassland, and bare rock.

RESTORATION STRATEGY

6.7.2 The restoration plan is illustrated in **Figure 3.4** and the progressive and final restoration scheme is described in **Chapter 3: Description of Proposed Scheme**. The restoration strategy is based on the permitted scheme (as detailed in planning consent NA/IDO/002/A dated 7 February 2006), amended to take account of changes to the footprint of void and soil store area.

6.7.3 Further detail is also presented in **Appendix 10B: Landscape and Biodiversity Enhancement Plan**.

Proposed planting

Native woodland and scrub planting

6.7.4 The woodland species mix set out in **Table 6-7** is derived from those species that occur locally with additional native species to ensure that a robust, diverse and resilient woodland is created. It has

also been informed by recent data from Forest Research ¹⁹²⁰ with regard to tree species suitability resulting from climate change within South-West England.

Table 6-7 – Proposed woodland and scrub species mix

Tree component	Shrub component
Field maple (<i>Acer campestre</i>)	Dogwood (<i>Cornus sanguinea</i>)
Norway maple (<i>Acer platanoides</i>)	Hazel (<i>Corylus avellana</i>)
Birch (<i>Betula pendula</i>)	Hawthorn (<i>Crataegus monogyna</i>)
Hornbeam (<i>Carpinus betulus</i>)	Spindle (<i>Euonymus europaeus</i>)
Beech (<i>Fagus sylvatica</i>)	Holly (<i>Ilex aquifolium</i>)
Crab apple (<i>Malus sylvestris</i>)	Wild Privet (<i>Ligustrum vulgare</i>)
Wild Cherry (<i>Prunus avium</i>)	Honeysuckle (<i>Lonicera periclymenum</i>)
Pendunculate Oak (<i>Quercus robur</i>)	Blackthorn (<i>Prunus spinosa</i>)
Whitebeam (<i>Sorbus aria</i>)	Goat Willow (<i>Salix caprea</i>)
Small-leaved Lime (<i>Tilia cordata</i>)	Wayfaring Tree (<i>Viburnum. lantana</i>)
	Guelder Rose (<i>Viburnum opulus</i>)

- 6.7.5 Whilst Ash (*Fraxinus excelsior*) would typically form a tree species of the woodland, it has been omitted at this time due to the spread of Chalara dieback in recent years, although its inclusion will be kept under future review.

¹⁹ Forest Research (undated). Regional changes in England in tree species suitability resulting from climate change. (online). Available at: <https://www.forestresearch.gov.uk/research/climate-change-impacts/climate-change-impacts-and-adaptation-in-englands-woodlands/regional-changes-in-england-in-tree-species-suitability-resulting-from-climate-change/>

²⁰ Forest Research (2024). Ecological Site Classification Decision Support System (ESC). (online). Available at: <http://www.forestdss.org.uk/geoforestdss/#>

Native hedgerow planting

6.7.6 The hedgerow species mix is based upon the species which are found within the existing site hedgerows as detailed in **Chapter 10: Biodiversity**. The hedgerow mix would include the following species:

- Field Maple (*Acer campestre*);
- Hazel (*Corylus avellana*);
- Hawthorn (*Crataegus monogyna*);
- Spindle (*Euonymus europaeus*);
- Holly (*Ilex aquifolium*);
- Wild Privet (*Ligustrum vulgare*);
- Honeysuckle (*Lonicera periclymenum*);
- Blackthorn (*Prunus spinosa*);
- Dog Rose (*Rosa canina*); and
- Guelder Rose (*Viburnum opulus*).

6.7.7 Hazel would form a dominant species within the mix to provide suitable habitat for dormice and other mammal species which depend on nuts as foraging resource. Other native species include flowering and fruiting species to provide berries for birds and forage for pollinating insects. At least 12no. standard hedgerow trees would be introduced with species comprising Oak (*Quercus robur*) and holly (*Ilex aquifolium*).

Grassland

6.7.8 The seed mix for the grassland will be determined following the testing of the soil beneath the existing soil store and will comprise either neutral or calcareous grassland. This will use a grass/wildflower mix of UK provenance suitable for National Vegetation Classification (NVC) MG6 or CG5 or wet grassland respectively. Further detail with regard to likely species contained within these mixes is set out in the Landscape and Biodiversity Enhancement Plan in **Appendix 10B**.

6.8 SCOPE OF THE ASSESSMENT

The Proposed Scheme

6.8.1 The LVIA considers the following aspects of the Proposed Scheme:

- Operational Phases (Phases 1, 2 and 3) which would include:
 - The removal of vegetation and soils from within the consented soil store area and placement of the soils to modify and raise a section of the M5 screenbank to a maximum elevation of 110m AOD;
 - The working of minerals from within the consented soil store area and deepening within the existing Woodleaze void to provide Tytherington Quarry with an additional 3 years of reserves (based on current output rates); and
 - Progressive restoration where achievable.
- Restoration Phase, which considers the final restoration of the site post 2042, with a focus on the existing soil store area where the changes relative to the permitted scheme are concentrated.

SPATIAL SCOPE

- 6.8.2 The spatial scope of the assessment of landscape and visual effects covers the area of the Proposed Scheme contained within the red line boundary, together with a 1km offset from the extant planning permission boundary which forms the basis of the study area described in **Section 6.4**.
- 6.8.3 Given the nature of the Proposed Scheme (as set out in **Chapter 3: Description of Proposed Scheme**), it was considered that little benefit would accrue from the production of a computer-generated Zone of Theoretical Visibility (ZTV) due to the levels of screening provided by the surrounding trees belts (which would increase as they continue to grow in height) and likely considerable over-estimation of theoretical visibility that a ZTV would imply. The identification of visual receptors and likely visual envelope has therefore been based on desk and field survey observations.

TEMPORAL SCOPE

- 6.8.4 The temporal scope of the LVIA is consistent with the period over which the Proposed Scheme would be carried out and therefore covers both the operational phases of the development (sub-divided into phases where appropriate) as well as the landscape and visual effects from the proposed restoration scheme.

POTENTIAL RECEPTORS

- 6.8.5 The principal landscape and visual receptors that have been identified as being potentially subject to effects are summarised in **Table 6-8**.

Table 6-8 - Receptors included in the LVIA

Name	Sensitivity	Type
Plantation broadleaved deciduous woodland	Sensitivity to change has been assessed in Section 6.10 in accordance with the methodology outlined in Appendix 6A .	Landscape element
Hedgerow with hedgerow trees	Sensitivity to change has been assessed in Section 6.10 in accordance with the methodology outlined in Appendix 6A .	Landscape element
Grassland	Sensitivity to change has been assessed in Section 6.10 in accordance with the methodology outlined in Appendix 6A .	Landscape element
LCA 17: Rudgeway and Tytherington Ridge	Sensitivity to change has been assessed in Section 6.11 in accordance with the methodology outlined in Appendix 6A .	Landscape character
Users of the Celtic Way/Jubilee Way	Likely high sensitivity receptors whose views and visual amenity may be altered as a consequence of the Proposed Scheme.	Visual receptors: recreational
Users of the Hobblers Way (Coast to Coast – Wash to Severn)	Likely high sensitivity receptors whose views and visual amenity may be altered as a consequence of the Proposed Scheme.	Visual receptors: recreational

Name	Sensitivity	Type
Users of the local PRow network to the west of the Site	Likely high sensitivity receptors whose views and visual amenity may be altered as a consequence of the Proposed Scheme.	Visual receptors: recreational
Drivers and their passengers travelling along the M5 motorway	Lower sensitivity but higher numbers of visual receptors whose views and visual amenity may be altered as a consequence of the Proposed Scheme.	Visual receptors: vehicular
Drivers and their passengers travelling along the A38	Lower sensitivity but higher numbers of visual receptors whose views and visual amenity may be altered as a consequence of the Proposed Scheme.	Visual receptors: vehicular
Drivers and their passengers travelling along the Itchington Road	Lower sensitivity but higher numbers of visual receptors whose views and visual amenity may be altered as a consequence of the Proposed Scheme.	Visual receptors: vehicular

POTENTIALLY SIGNIFICANT EFFECTS

Effects scoped-in to the assessment

6.8.6 The landscape and visual receptors that have been taken forward for further assessment are summarised below:

- Landscape elements within the site boundary and which may be subject to direct landscape effects;
- Landscape character which may be subject to direct or indirect landscape effects; and
- The visual amenity of recreational and vehicular receptors within the study area.

Effects scoped-out of the assessment

6.8.7 The following receptors (set out in **Table 6-9**) have been scoped out from being subject to further assessment within the LVIA because the potential effects are not considered likely to be significant:

Table 6-9 - Receptors scoped out of the LVIA

Element scoped out	Justification
Landscape effects – National Character Areas (NCAs)	Whilst reference to NCAs provide landscape context, they are too extensive and generalised to potentially experience significant landscape effects. This approach is advocated by paragraph 5.14 of GLVIA3 ¹ and the smaller local authority LCAs are to be taken forward as receptors in the LVIA. NCA 118 will therefore not require further assessment and is scoped out of the LVIA.
Landscape effects – Landscape Character Areas (LCAs)	LCA 10: Earthcott Vale extends to the south-east of the Site, beyond the M5 motorway. The landform, which descends in a south-easterly direction away from the Site together with the perimeter tree belt which follows the south-eastern edge of the quarry, and which would be retained as part of the Proposed Scheme, substantially reduces any potential visual effects pathway. It is recognised that effects upon LCAs are not entirely dependent on the presence of a visual effects pathway and can also be generated by changes to other perceptual characteristics impacting upon

Element scoped out	Justification
	landscape qualities such as tranquillity. The South Gloucestershire Landscape Character Assessment notes that “the M5, crossing the side slopes of this landform, is evident from within occasional glimpsed views from around Itchington, with some audible influence within this area.” Significant effects upon this receptor as a consequence of the Proposed Scheme are therefore considered unlikely and LCA 10 is scoped out of the LVIA.
Visual effects – residential receptors	A review of the distribution of residential visual receptors, orientation of residents’ principal views, intervening local landform and vegetation, and installation of effective screening landforms and vegetation around Tytherington Quarry indicate that there are no residential receptors who would sustain the necessary magnitude of change to their views to give rise to significant visual effects as a consequence of the Proposed Scheme. Residential visual receptors (both private views from isolated properties and people in their communities) will therefore not require further assessment and are scoped out of the LVIA.

6.9 ASSESSMENT METHODOLOGY

- 6.9.1 The generic project-wide approach to the assessment methodology is set out in **Chapter 4**, and specifically in **Sections 4.5 to 4.7**. However, whilst this has informed the approach that has been used in this LVIA, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific needs of the LVIA. The methodology for the LVIA accords with best practice guidance listed in **Table 6-3**.

METHODOLOGY FOR PREDICTION OF EFFECTS

Overview

- 6.9.2 The assessment of the significance of landscape and visual effects is, according to GLVIA3, “an evidence-based process combined with professional judgement.”¹ All assessments and judgements must be transparent and capable of being understood by others. Levels of landscape and visual effects are determined by consideration of the nature or ‘sensitivity’ of each receptor or group of receptors and the nature of the effect or ‘magnitude of change’ that would result from the proposed extension at Tytherington Quarry and its restoration.
- 6.9.3 The assessment methodology is set out in detail in **Appendix 6A** and summarised below.

Landscape assessment

- 6.9.4 The sensitivity of a landscape receptor e.g., a LCA, to a particular development is determined by the susceptibility of that landscape receptor to the changes identified as the result of a particular Proposed Scheme and its value. The methodology describes landscape sensitivity as high, medium or low.
- 6.9.5 Landscape value is determined by taking into consideration a range of attributes including: the presence or absence of landscape designations; natural and cultural heritage interests, associations, distinctiveness, recreational value and perceptual qualities, both in terms of scenic and perceptual qualities. It is also concerned with landscape quality and the physical state of a

landscape receptor which could include consideration of the landscape receptor's intactness and the condition of individual landscape elements. The absence of landscape planning designations does not automatically mean that an area or landscape receptor is of low landscape value.

- 6.9.6 Landscape susceptibility concerns the ability of a landscape receptor to accommodate the Proposed Scheme without undue consequences for the maintenance of the baseline situation. The landscape assessment includes analysis for each landscape receptor of the factors that have been assessed in the determination of its landscape value and the assessment of its susceptibility to the operation and restoration of the Proposed Scheme. These are set out in a proforma that show how the assessment of the landscape value and landscape susceptibility have been combined to determine that landscape receptor's sensitivity.
- 6.9.7 The magnitude of landscape change resulting from the operation and restoration of the proposed extension at Tytherington Quarry is assessed as high, medium, low or very low. In accordance with GLVIA3¹ the magnitude of landscape change takes into account: the size and/or scale of the change that would result from each identified landscape effect acting upon a landscaped receptor; the geographical extent over each identified landscape effect would be experienced; and the duration and reversibility of each identified landscape effect.

Visual assessment

- 6.9.8 The sensitivity of visual receptors considers the susceptibility of the visual receptor to the visual change identified and the value that is likely to be attributed by the visual receptor to their baseline view. These are described as high, medium or low. The main influencing factors are:
- The occupation or activity of the visual receptor at each location;
 - The extent to which the visual receptors' attention or interest is focused upon the available views;
 - The importance and/or popularity of the view;
 - The typical numbers of visual receptors to whom that view is available;
 - In a link with landscape considerations, the context of a viewpoint in terms of landscape value and quality within a view; and
 - Any indication of a view being valued such as the presence of interpretation boards, parking and seating facilities, it being referenced in a guidebook or marked on a published map.
- 6.9.9 The nature of visual effects or their magnitude of change resulting from the operation and restoration of the proposed extension at Tytherington Quarry is assessed as high, medium, low or very low. The magnitude of visual change is described by reference to the scale of visual change; the contrast with the baseline view; separation distance; the duration over which a view is available; the angle of view; levels of screening; and whether new visual elements are seen on a skyline or against a background.

SIGNIFICANCE EVALUATION METHDOLOGY

- 6.9.10 The significance level attributed to each effect has been assessed based on the sensitivity of the affected receptor(s) and the magnitude of change arising from the Proposed Scheme, as well as a number of other factors that are outlined in more detail in **Chapter 4: Approach to EIA**. The sensitivity of the affected receptor is assessed on a scale of high, medium and low, and the magnitude of change is assessed on a scale of high, medium, low or very low.

Table 6-10 – Significance evaluation matrix applicable to the LVIA

		Landscape or Visual Sensitivity		
		High	Medium	Low
Magnitude of landscape or visual change	High	Major (Significant)	Major/Moderate (Significant)	Moderate (Potentially Significant)
	Medium	Major/Moderate (Significant)	Moderate (Potentially Significant)	Moderate/Minor (Not Significant)
	Low	Moderate (Potentially Significant)	Moderate/Minor (Not Significant)	Minor (Not Significant)
	Very Low	Moderate/Minor (Not Significant)	Minor (Not Significant)	Negligible (Not Significant)
	Zero	None		

6.9.11 In those instances where there would be no effect, the magnitude has been recorded as ‘Zero’ and the level of effect as ‘None’.

Effect Significance

- 6.9.12 Effects that are classified as ‘**major**’ or ‘**major/moderate**’ are considered to be **significant**. Effects assessed as being ‘moderate’ would have the potential to be significant and whether they are assessed as significant or not significant is a matter of professional judgement and is justified in the detailed assessment for the relevant landscape or visual receptor. In line with the emphasis placed in GLVIA3¹ upon application of professional judgement, the adoption of an overly mechanistic approach through overreliance upon a matrix is avoided through the provision of clear and accessible narrative explanations of the rationale underlying the assessment made for each landscape and visual receptor over and above the outline assessment provided by use of the matrix.
- 6.9.13 The type of effect is also considered and may be direct or indirect; temporary or permanent (reversible); cumulative; and positive, neutral or negative. The assessment unavoidably involves a combination of both quantitative and subjective assessment and wherever possible a consensus of professional opinion has been sought through consultation, internal peer review, and the adoption of a systematic, impartial, and professional approach.
- 6.9.14 The following terms have been used to define the significance of the effects identified and apply to both beneficial and adverse effects:
- **Major effect:** where the Proposed Scheme could be expected to have a substantial improvement or deterioration on landscape receptors (landscape elements and landscape character) or visual receptors (residential, recreational or vehicular receptors);

- **Moderate effect:** where the Proposed Scheme could be expected to have a noticeable improvement or deterioration on landscape receptors (landscape elements and landscape character) or visual receptors (residential, recreational or vehicular receptors);
- **Minor effect:** where the Proposed Scheme could be expected to result in a perceptible improvement or deterioration on landscape receptors (landscape elements and landscape character) or visual receptors (residential, recreational or vehicular receptors); and
- **Negligible:** where no discernible improvement or deterioration is expected as a result of the Proposed Scheme on landscape receptors (landscape elements and landscape character) or visual receptors (residential, recreational or vehicular receptors), including instances where no change is confirmed.

6.10 ASSESSMENT OF EFFECTS: LANDSCAPE ELEMENTS

PLANTATION BROADLEAVED DECIDUOUS WOODLAND

Landscape sensitivity

- 6.10.1 The sensitivity of the plantation broadleaved deciduous woodland to landscape change is assessed as Medium based on consideration of the following:
- The overall value of the plantation woodland is assessed as Medium:
 - Rarity – the plantation broadleaved deciduous woodland is non-designated (Low),
 - Condition – the condition of the plantation broadleaved deciduous woodland is moderate with planting lines visible and tree tubes present. The Arboricultural Impact Assessment¹⁷ records the condition as being ‘Fair’ and notes the woodland as being of BS 5837²¹ Category C2 (Medium/Low); and
 - Role – woodland is cited as a key characteristic of the host LCA at a County level with a “*regular dispersed pattern of copses throughout, with large areas of deciduous woodland in the south and north.....*” described in the South Gloucestershire Landscape Character Assessment¹³. It plays an important role in screening the quarry, contributing to visual amenity (High).
 - Susceptibility: the 17-year-old plantation broadleaved deciduous woodland may be replaced, but replacement would require a moderate amount of time to achieve a similar landscape (and visual) role to that of the baseline (Medium).

Magnitude of change and level of effect

- 6.10.2 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-11**.

²¹ British Standards Institution (2012). *BS 5837:2012 Trees in relation to design, demolition and constructions – Recommendations*.

Table 6-11 - Assessment of effects: plantation broadleaved deciduous woodland

Phase and timescales	Commentary	Magnitude of change and level of effect
Phase 1 (up to end of Year 4)	Towards the end of Phase 1 as part of the preparatory works, approximately 0.75ha of plantation broadleaved deciduous woodland would be felled from across the crest and internal slope of the M5 screenbank. This equates to approximately 18% of the total extent of plantation broadleaved deciduous woodland along the M5 screenbank. The woodland on the outer western and southern slopes of the screenbank would be retained so as to maintain its screening role. The Moderate level of effect is judged to be Not Significant on the basis of the localised (site-level) effect.	Medium Moderate, adverse and Not Significant
Phase 2 (up to end of Year 7)	The continued loss of plantation broadleaved deciduous woodland during this phase to accommodate the newly constructed soil and overburden store means that the Moderate level of effect concluded in Phase 1 would be maintained when compared to baseline conditions.	Medium Moderate, adverse and Not Significant
Phase 3 (up to end of Year 9)	The continued loss of plantation broadleaved deciduous woodland during this phase means that the Moderate level of effect concluded in Phase 1 would be maintained when compared to baseline conditions.	Medium Moderate, adverse and Not Significant
Restoration (Year 1, 2042)	An equivalent amount of woodland as that lost in Phase 1 would be reintroduced as part of the restoration of the site using the species list set out in Table 6-7 . This would result in a slightly greater species diversity than under baseline conditions and would compensate for the small proportion of plantation broadleaved deciduous woodland lost in earlier phases. However, this woodland would only play a very minor landscape role at Year 1.	Low Moderate/Minor, adverse and Not Significant
Restoration +15 years	The gradual maturation of woodland would see a return to conditions which are comparable to that of the baseline, giving rise to Minor, neutral effects.	Very Low Minor, neutral and Not Significant

HEDGEROW WITH HEDGEROW TREES

Landscape sensitivity

6.10.3 In terms of the sensitivity of this landscape element to change, this is assessed as Medium/Low based on consideration of the following:

- The overall value of hedgerows within the Site is assessed as Low:
 - Rarity – the hedgerows are non-designated, ordinary and prevalent landscape elements and do not qualify as ‘Important Hedgerows’ under the Hedgerow Regulations (Low);
 - Condition – The hedgerows have been subject to a low level of management, resulting in tall ‘leggy’ hedges. This is reflected in the ‘Fair’ condition recorded in the Arboricultural Impact

Assessment¹⁷ which notes these features as being of BS 5837²¹ Category C2 (Medium/Low); and

- Role – Hedgerows are cited as a key characteristic of the LCA 17: Rudgeway and Tytherington Ridge at a County Level (“a mix of thick, clipped and intermittent hedges”¹³) and a proportion of those within the Site once formed part of the wider agricultural field pattern as shown on 1844-1880 OS 25” 1st Edition mapping²². However, they no longer perform this role and instead have been separated from the rural hedgerow pattern by Itchington Road and their isolated presence within the quarry, resulting in a localised (site-level) role only. Others have a more recent origin having been planted in 2007 (Low).
- Susceptibility: An element which could be replaced but would require a moderate amount of time to fulfil a similar role and value to those hedgerows that are present as part of the baseline conditions (Medium).

Magnitude of change and level of effect

6.10.4 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-12**.

Table 6-12 – Assessment of effects: hedgerows

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	Whilst Phase 1 would see the continued extraction of permitted mineral reserves from within the existing quarry void, the north-western hedgerow together with sections of the north-eastern double hedgerows would be coppiced and translocated to fill in gaps along the hedgerow boundary of the neighbouring field as part of preparatory works. Approximately 28% of the hedgerow resource within the existing soil store area would be retained whilst that removed from within the site would be used to deliver off-site landscape enhancement as detailed in Table 6-6 .	Medium Moderate/Minor, adverse and Not Significant
	Phase 2 (up to end of Year 7)	The continued loss of hedgerow within the site during this phase means that the Moderate/Minor level of effect concluded in Phase 1 would be maintained when compared to baseline conditions.	Medium Moderate/Minor, adverse and Not Significant
	Phase 3 (up to end of Year 9)	It is anticipated that the proposed hedgerow along the northern boundary of the existing soil store area would be planted during Phase 3 as part of the progressive restoration (once access to the void from within this area is no longer	Low

²² Bristol City Council (undated). *Know Your Place mapping*. (online). Available at: <https://maps.bristol.gov.uk/kyp/?edition=southglos>

Phase and timescales		Commentary	Magnitude of change and level of effect
		required). This would reinstate approximately 180m of hedgerow along this boundary. When combined with the hedgerow lengths retained within the Site and translocated during Phase 1 (even accounting for a 50% failure rate of translocated stock), this would lead to a net gain in hedgerow of approximately 100m. The proposed hedgerow would contain greater species diversity than under baseline conditions however, would only play a very minor role during its establishment period.	Minor, adverse and Not Significant
Restoration	Restoration (Year 1, 2042)	The gradual maturation of the hedgerow and hedgerow trees planted within the site in Phase 3 would deliver a similar role to that under baseline conditions although the hedgerow would feature greater species diversity and an enhanced management regime undertaken in accordance with the Landscape and Biodiversity Enhancement Plan (Appendix 10B), which in balance, would lead to beneficial effects.	Very Low Negligible, beneficial and Not Significant
	Restoration +15 years	As described above for Restoration Year 1.	Very Low Negligible, beneficial and Not Significant

GRASSLAND

Landscape sensitivity

6.10.5 The main land cover within the existing soil store area is grassland across artificial landforms. The overall sensitivity of this landscape elements is assessed as Low based on consideration of the following:

- The overall landscape value of grassland within the Site is considered to be Low:
 - Rarity – grassland is a prevalent landscape element within the Site and wider landscape and is a non-designated, ordinary landscape element (Low);
 - Condition – the grassland is not actively managed or under a grazing regime (Low); and
 - Role – the grassland has a local role in reducing the contrast of the overburden and soil stores with the colours and textures of the surrounding landscape (Medium-Low).
- Susceptibility: the relative ease with which this element could be replaced, and the short timescales involved to achieve this (e.g. a single growing season) indicates a Low susceptibility.

Magnitude of change and level of effect

6.10.6 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-13**.

Table 6-13 – Assessment of effects: grassland

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	It is anticipated that the majority of grassland would be removed as part of the preparatory works towards the end of Phase 1, when soils are beginning to be stripped. This short-term disruption and small proportion of grassland which would be lost, would give rise to a Low magnitude of change and direct effect.	Low Minor, adverse and Not Significant
	Phase 2 (up to end of Year 7)	Any remaining areas of grassland would be removed in Phase 2 as the existing overburden and soil stores are relocated southwards to merge with the existing M5 screenbank. Once relocated, the new store would be seeded with a grass seed mix so as to minimise contrast with the surrounding colours and textures in the landscape.	Low Minor, adverse and Not Significant
	Phase 3 (up to end of Year 9)	The continued loss of a small portion of grassland from within the northern part of the existing soil store area to accommodate the footprint of the void, would give rise to a Low magnitude of change.	Low Minor, adverse and Not Significant
Restoration	Restoration (Year 1, 2042)	Once the soil and overburden store has been removed, the area would be reinstated as neutral or calcareous grassland (following testing of the soil chemistry) with small ponds/scrapes and bare ground to increase biodiversity. This would have a localised beneficial effect but would have limited characterising influence beyond site-level.	Very Low Negligible, beneficial and Not Significant
	Restoration +15 years	As described for the restoration phase (Year 1).	Very Low Negligible, beneficial and Not Significant

6.11 ASSESSMENT OF EFFECTS: LANDSCAPE CHARACTER

LCA 17: RUDGEWAY AND TYTHERINGTON RIDGE

Landscape sensitivity

- 6.11.1 An assessment of the sensitivity of LCA 17: Rudgeway and Tytherington Ridge, derived through consideration of the value of the landscape and its susceptibility to the type of development proposed in accordance with the methodology presented in **Appendix 6A**, is set out in **Table 6-14**.

Table 6-14 – Assessment of landscape sensitivity

Landscape value		
Criteria	Commentary	Value
Landscape designation	This LCA is not covered by a local or national landscape designation.	Medium
Natural heritage	There are no international nature conservation designations within the portion of LCA which coincides with the Study Area whilst national-level sites are limited to the Tytherington Quarry SSSI. On a local level, Sites of Nature Conservation Interest (SNCIs) include Cleeve Wood, Tytherington Tunnel, Tytherington Quarry, Tytherington Common and Ramsack Cottage Field.	Medium
Cultural heritage	A Hillfort and associated Romano-British occupation at Little Abbey, Alveston forms a Scheduled Monument which spans the A38 within the LVIA Study Area whilst a univallate hillfort lies to the east of the M5 close to Tytherington. A cluster of predominantly Grade II listed buildings and locally listed buildings are present within Tytherington whilst others are associated with a small number of isolated dwellings and farmsteads. The core of Tytherington is designated as a conservation area.	Medium
Condition	The published Assessment records that “ <i>Much of the existing landscape framework of hedgerows, hedgerow trees and woodland is in good condition and intact, however there is evidence of a loss in hedgerows adjacent to the A38 corridor, with some land use changes from agriculture to horse grazing. This has resulted in a more open character locally.</i> ” ¹³	Medium
Associations	There are no known associations with well-known literature, poetry, art, TV/film or music that contribute to perceptions of the landscape beyond any local associations that are undocumented.	Low
Distinctiveness	This is a largely agricultural landscape. The published Assessment notes that “ <i>the wooded slopes of Tytherington Hill, and setting of the village and common land at Tytherington are distinctive, with the church forming a prominent landmark</i> ” ¹³ . Elsewhere, there is a more limited presence of distinctive, rare or unusual features that help to confer a strong sense of place or identity.	Medium

Criteria	Commentary	Value
Recreational	The three regionally promoted walks (Jubilee Way, Celtic Way and Hobblers Way (Coast to Coast - Wash to Severn)), together with the local PRow network and area of Open Access Land at Itchington Fields Common all provide opportunities from which to view and experience the landscape.	High
Perceptual (Scenic)	This is a rural landscape of ordinary aesthetic appeal. Whilst Tytherington Quarry is well-screened and the published Assessment notes that the “A38 is largely a well integrated and visually contained rural corridor” ¹³ , the M5 corridor and number of overhead powerlines are locally prominent and disrupt views across the rural landscape.	Medium to Low
Perceptual (wildness and tranquillity)	The presence of large-scale overt human influence (powerlines) is a recognised detractor from tranquillity ²³ and levels of wildness are limited. The high volumes of traffic along the M5 corridor and associated visual and audible disturbance also erode levels of tranquillity. Reference to England’s Light Pollution and Dark Skies mapping ¹⁵ indicates that the landscape within the study area which coincides with the LCA, generally displays levels of radiance which are towards the moderate to lower end of the spectrum used in the mapping.	Low
Overall value	The overall value is assessed as Medium	Medium
Landscape susceptibility		
Criteria	Commentary	Susceptibility
Strength and robustness	This is a moderately robust landscape that is likely to be able to accommodate a degree of change.	Medium
Landscape Scale	This is a landscape of a suitably large enough scale to accommodate the type of change proposed.	Low

²³ Campaign to Protect Rural England (2005). Mapping Tranquillity. Defining and assessing a valuable asset. <https://www.oldsite.cpre.org.uk/resources/countryside/tranquil-places/item/1856>

Criteria	Commentary	Value
Openness / Enclosure	Levels of openness and enclosure vary throughout the LCA and are strongly influenced by variations in local landform and vegetation patterns as recorded in the published Assessment (<i>“the ridge and plateau area however varies between open and enclosed. Views from within this area are often curtailed by the slight hill and plateau landform”</i> ¹³)	Medium
Reinstatement	This is an agricultural landscape comprising a large proportion of landcover and elements which are generally capable of rapid reinstatement.	Low
Skyline	The South Gloucestershire Landscape Character Assessment ¹³ records that the <i>“undisturbed rural skylines of the ridge/ plateau are sensitive to change, particularly from the encroachment of built and vertical forms of development, due to its visually prominent location”</i> ¹³ with the <i>“undisturbed areas of the easterly facing slopes”</i> ¹³ being similarly sensitive, <i>“being visible from the adjoining vale and the Wickwar Ridge to the east”</i> ¹³ .	Medium
Association	There is a direct association between the Proposed Works and the active quarries which comprise Tytherington Quarry and which are recorded as a key characteristic of this landscape.	Low
Perceptual Qualities	The existing infrastructure and transport corridors disrupt scenic qualities and levels of remoteness and tranquillity.	Low
Landscape Context	This LCA form a backdrop in views from the east with the description for LCA 10: Earthcott Vale recording that the <i>“western boundary of this plateau area is visually influenced by the elevated Rudgeway and Tytherington Ridge to the west and is therefore, potentially sensitive to changes along the ridge which might affect the rural character of this area.”</i> ¹³	High
Overall susceptibility	The overall susceptibility to the type of change proposed is judged to be Medium/Low	Medium/Low
The overall value of this LCA is Medium. The overall susceptibility is judged to be Medium/Low indicating a Medium overall sensitivity.		

Magnitude of change and level of effect

6.11.2 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-15**.

Table 6-15 – Assessment of effects: LCA 17: Rudgeway and Tytherington Ridge

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	The removal of landscape elements would directly affect a small proportion of this LCA within the confines of the existing quarry. The loss of hedgerow (to be transplanted) and felling of the internal area of plantation woodland would be perceived from localised areas within the surrounding landscape, primarily from elevated locations to the north around The Abbey. However, the retention of perimeter woodland around northern and eastern boundaries of the quarry and across the crest and outer faces of the existing screenbank means that this loss would not represent a notable departure from baseline conditions and as such, would have limited characterising influence.	Low to Zero Moderate/Minor to None, adverse and Not Significant
	Phase 2 (up to end of Year 7)	The deepening and lateral extension of the void into the area to the south, would all take place within the visual containment provided by retained perimeter vegetation and landforms surrounding Woodleaze Quarry. In addition to the continued loss of a small proportion of landscape elements, the relocation of the overburden store to the south of its existing placement and increase in height from an elevation of 105m AOD to a maximum elevation of 110m AOD would be perceived as a minor component of the partial and localised views from elevated locations to the north around The Abbey. However, views from this area already feature the top of the artificial landform associated with the existing overburden mound, and consequently this relocated and slightly larger component of the view would not represent a notable departure from baseline conditions and as such, would have limited characterising influence.	Low to Zero Moderate/Minor to None, adverse and Not Significant
	Phase 3 (up to end of Year 9)	This phase would involve a small extension of the void to the south, although this low-level change would be screened by the perimeter vegetation meaning that it would have no characterising influence beyond the boundaries of the Site. Whilst the continued loss of landscape elements and relocated overburden store with an elevation of 110m AOD would continue to be perceived from localised areas to the north, a grass mantle across the overburden store would reduce any contrast with the colours and textures of the surrounding agricultural landscape. The magnitude of change would continue to be Low.	Low to Zero Moderate/Minor to None, adverse and Not Significant
Restoration	Restoration (Year 1, 2042)	Following cessation of all mineral extraction within the Site, material from the relocated overburden and soil store would be used to facilitate final restoration and the perimeter landform (internal slopes of the M5 screenbank), would be reinstated to slope gradients and a height which is comparable to that of the baseline. This would see the artificial landform (present under baseline conditions and then	Very Low to Zero Minor to None, neutral and Not Significant

Phase and timescales		Commentary	Magnitude of change and level of effect
		under a repositioned and increased height as part of this application) be removed in its entirety giving rise to a beneficial effect. The plantation woodland and grassland within the former soil store area would be reinstated in proportions which are not dissimilar to those present under baseline conditions, whilst the proposed hedgerow and hedgerow trees, planted in Phase 3, would be playing a minor landscape role. The remainder of Woodleaze Quarry would be restored in line with the permitted restoration scheme with a slight increase in the footprint of the waterbody. The re-introduced landscape elements (plantation woodland and grassland) would only play a very minor role at Year 1 and would have limited characterising influence, particularly from areas of LCA 17: Rudgeway and Tytherington Ridge beyond the site boundary.	
	Restoration +15 years	The gradual maturation of planting introduced as part of the restoration of the Site, would lead to a scenario which is similar to baseline conditions albeit with a slight overall loss of grassland and increased area of waterbody. The greater species diversity within the planting and enhanced management regime would lead to beneficial effects.	Very Low to Zero Minor to None, beneficial and Not Significant

6.12 ASSESSMENT OF EFFECTS: VISUAL RECEPTORS

RECREATIONAL USERS OF THE CELTIC WAY/JUBILEE WAY – NORTHBOUND WALKERS

Visual sensitivity

- 6.12.1 The sensitivity of recreational receptors using these promoted routes is judged to be High due to recreational visual receptors being assessed as possessing high susceptibility in accordance with GLVIA3¹ and the strong likelihood that these recreational receptors attach a high value to the views with enjoyment and appreciation of landscape being an important factor in their use of the routes.

Magnitude of change and level of effect

- 6.12.2 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-16**.

Table 6-16 – Assessment of effects: users of the Celtic Way/Jubilee Way - northbound walkers

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	For northbound walkers, there would be no changes to views from the section of routes to the south of the M5 motorway, with Proposed Scheme sitting below the local horizon formed by the intervening rising landform. Once beyond the M5, a combination of lower elevation, roadside cutting and foreground vegetation similarly limits views towards the Proposed Scheme. Viewpoint 2 represents the views of walkers travelling in a north-westerly direction across fields to the north-west of Itchington Road at a distance of approximately 170m. From this section of route, the removal of trees from the behind the perimeter tree cover towards the end of Phase 1 would lead to a slight reduction in the screening role in winter months. However, the treed skyline would largely remain intact and changes would be viewed obliquely to the direction of travel. Once the walker has reached the first field boundary (a distance of approximately 160m), the soil store area would be behind the viewer and there would be no further changes to walkers' views as a result of the Proposed Scheme.	Low/Very Low to Zero Moderate/Minor to None, adverse and Not Significant
	Phase 2 (up to end of Year 7)	The reduced width of the perimeter tree cover means that there is the potential for seasonally glimpsed views of the outline and mass of the relocated overburden mound beyond. However, the treed skyline would largely remain intact, and changes would appear in filtered views and viewed obliquely to the direction of travel.	Low/Very Low to Zero Moderate/Minor to None, adverse and Not Significant
	Phase 3 (up to end of Year 9)	Changes to walkers' views would be comparable to those described in relation to Phase 2.	Low/Very Low to Zero Moderate/Minor to None, adverse and Not Significant
Restoration	Restoration (Year 1, 2042)	Following cessation of all mineral extraction in 2042, there would be a gradual reduction in the outline and mass of the landform visible in seasonally glimpsed views through the retained perimeter trees, as the screenbank is returned to a height and profile which is comparable to that of the baseline. The reinstated woodland planting would play no visual role through the retained tree cover in walkers' oblique views at Year 1, and there would be no views of other components of the restored site.	Very Low to Zero Moderate/Minor to None, neutral and Not Significant

Phase and timescales		Commentary	Magnitude of change and level of effect
	Restoration +15 years	From a short section of the promoted routes, the gradual maturation of woodland planting introduced as part of the restoration of the Site, would lead to the return of views which are similar to those of the baseline.	Zero

RECREATIONAL USERS OF THE CELTIC WAY/JUBILEE WAY – SOUTHBOUND WALKERS

Visual sensitivity

- 6.12.3 The sensitivity of recreational receptors is as described for northbound walkers of these promoted routes.

Magnitude of change and level of effect

- 6.12.4 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-17**.

Table 6-17 – Assessment of effects: users of the Celtic Way/Jubilee Way - southbound walkers

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	For southbound walkers using the section of promoted routes to the north of the A38, there would be no changes to walkers' views as a consequence of the landform, which descends to the north. Once south of the A38, views would be similar to those presented in Figure 6.8 (Viewpoint 6) in which the existing overburden store, hedgerow to the north and upper southern faces of the quarry void are all minor visual components of views, back-clothed by woodland along the M5 screenbank. Changes to views from this section of the promoted routes towards the end of Phase 1, would include the removal of the hedgerow and hedgerow trees identified in Figure 6.8 and loss of trees from the crest and inner slopes of the M5 screenbank to the immediate south of the soil store area. All of these changes would take place within a small proportion of the horizontal field of view, at a minimum distance of 1km and viewed against a landscape backdrop of trees or distance hills.	Low/Very Low
		As users move southwards towards the location of Viewpoint 5 (Figure 6.7), changes to the view would involve the loss of hedgerow trees from in front of, and perimeter screenbank trees from behind the existing overburden store. Continuing southwards and with a further decrease in elevation close to Viewpoint 3 (Figure 6.6), changes to the composition of	Moderate/Minor to None, adverse and Not Significant

Phase and timescales		Commentary	Magnitude of change and level of effect
		<p>existing views would also include the loss of a proportion of plantation woodland from the inner slopes of the screenbank as it wraps around the western side of the site and tree cover from behind the existing overburden store.</p> <p>As walkers move southwards, the changes to views would become similar to those described for walkers travelling northbound and views towards the soil store area become oblique. Once the promoted routes reach Itchington Road, the site would be behind the user and there would be no further changes to receptors' views as a consequence of the Proposed Scheme.</p>	
	Phase 2 (up to end of Year 7)	<p>Once south of the A38, and in addition to the continued minor reduction in vegetation in the walkers' views, visual changes would also be associated with the repositioning of the upper southern quarry face with a slight increase in the vertical extent visible above the western perimeter trees, and the repositioning of the crest of the overburden store approximately 80m to the south of its present location and increase in height by 5m. These changes would take place within a small proportion of the horizontal field of view, at a minimum distance of 1km and viewed against a landscape backdrop of trees or distance hills.</p> <p>As users move southwards towards the location of Viewpoint 5 (Figure 6.7), changes to the view would involve the continued loss of hedgerow trees and perimeter screenbank trees and the repositioning of the existing overburden mound further to the south. The increase in height of the overburden store from a maximum elevation of 105m AOD to 110m AOD means that the newly positioned crest may be visible above a narrow section of the plantation woodland on the M5 screenbank from this location, at a distance of approximately 800m.</p> <p>Continuing southwards and with a further decrease in elevation close to Viewpoint 3 (Figure 6.6), the existing overburden store is visible in seasonally glimpsed views through the western perimeter vegetation but is not a readily identifiable feature. Changes to the composition of existing views would include the continued loss of a proportion of plantation woodland and partial views of the forming of the relocated overburden store further to the south. Whilst the separation distance between the viewer and this landform would increase when compared to baseline conditions, the loss of hedgerow trees from within the site would facilitate partial views of the relocated store.</p> <p>As walkers move southwards, the changes to views would become similar to those described for walkers travelling northbound and views towards the soil store area become oblique. The Moderate level of effect is assessed as being Not Significant due to the degree of screening and the visual</p>	<p>Low to Zero</p> <p>Moderate to None, adverse and Not Significant</p>

Phase and timescales		Commentary	Magnitude of change and level of effect
		context within which changes would take place which includes existing large-scale infrastructure.	
	Phase 3 (up to end of Year 9)	Changes to baseline views along the approximately 1.2km section of promoted recreational routes between the A38 and Itchington Road would be comparable to those described for Phase 2. A green mantle across the relocated overburden store would reduce any contrast with the colours and textures present within baseline views although the magnitude of change is likely to remain as low. The hedgerow proposed along the northern edge of the area, and which is anticipated to be planted during this phase as part of the progressive restoration, would play a minimal visual role.	Low to Zero Moderate to None, adverse and Not Significant
Restoration	Restoration (Year 1, 2042)	As part of the restoration of the site, there would be a gradual reduction in the height of the relocated overburden store visible in south-easterly views as the screenbank is returned to a height and profile which is comparable to that of the baseline. This would see the artificial landform (present under baseline conditions and then under a repositioned and increased height as part of this application) be removed in its entirety giving rise to a beneficial effect. The gradually maturing hedgerow trees introduced during Phase 3 would play a small visual role whilst the reinstated woodland planting would play no visual role in walkers' views at Year 1. There would be no views of other components of the restored site with the exception of part of the southern quarry face from the elevated section of routes close to Viewpoint 6.	Low/Very Low to Zero Moderate/Minor to None, neutral and Not Significant
	Restoration +15 years	The gradual maturation of woodland planting and hedgerow trees introduced as part of the restoration of the Site would mean that the composition of natural elements in walkers' middle-distance views would be comparable to the baseline, whilst the absence of an artificial overburden landform would give rise to a beneficial visual effect.	Very Low to Zero Moderate/Minor to None, beneficial and Not Significant

RECREATIONAL USERS OF THE HOBBLERS WAY (COAST TO COAST - WASH TO SEVERN)

Visual sensitivity

- 6.12.5 The sensitivity of recreational receptors using this promoted route is judged to be High due to recreational visual receptors being assessed as possessing high susceptibility in accordance with GLVIA3¹ and the strong likelihood that these recreational receptors attach a high value to the views with enjoyment and appreciation of landscape being an important factor in their use of the route.

Magnitude of change and level of effect

6.12.6 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-18**.

Table 6-18 – Assessment of effects: users of the Hobblers Way (Coast to Coast – Wash to Severn)

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	<p>The most open views for eastbound walkers using this promoted route are represented by Viewpoint 7 in Figure 6.9. From this slightly elevated location (approximately 103m AOD), changes to walkers' views during this phase would involve the loss of a small proportion of plantation woodland once felled as part of the preparatory works towards the end of this phase. All changes would take place within a narrow proportion of the horizontal field of view and would be viewed obliquely to the direction of travel. Either side of this short section of route, views towards the site would be precluded by a combination of landform and/or foreground screening elements.</p> <p>For westbound walkers, the clearest views towards the site occur from the short section of route close to Viewpoint 8 (Figure 6.10). From this location, the perimeter tree belt along the northern boundary of the quarry screens views across the quarry and the changes described in relation to eastbound walkers' views are unlikely to be readily discernible to the casual viewer and would be oblique to the direction of travel.</p>	<p>Very Low to Zero</p> <p>Moderate/Minor to None, adverse and Not Significant</p>
	Phase 2 (up to end of Year 7)	<p>For eastbound walkers using this promoted route close to Viewpoint 7 in Figure 6.9, the top of the existing overburden store is visible through and above the trees along the northern perimeter of the quarry at a distance of approximately 1km. Changes to walkers' views during this phase would involve the removal of this landform and the creation of a new landform to hold relocated soils and overburden with a crest which is approximately 60m further south and 5m higher than the existing crest of the store. A small proportion of plantation woodland would also continue to be absent from walkers' views. The new landform would be partially screened by intervening vegetation and its crest would be viewed against a landscape backdrop of trees or distant hills. All changes would take place within a narrow proportion of the horizontal field of view and would be viewed obliquely to the direction of travel.</p> <p>For westbound walkers using the short section of route close to Viewpoint 8 (Figure 6.10), the perimeter tree belt along the northern boundary of the quarry screens views across the quarry with the top of the existing overburden store just visible through and to the right of the closest (central) pylon in the view. The proposed landform would therefore be heavily</p>	<p>Very Low to Zero</p> <p>Moderate/Minor to None, adverse and Not Significant</p>

Phase and timescales		Commentary	Magnitude of change and level of effect
		screened by intervening vegetation even under winter conditions. The changes described in relation to eastbound walkers' views are unlikely to be readily discernible to the casual viewer and would be oblique to the direction of travel.	
	Phase 3 (up to end of Year 9)	Changes to baseline views along the approximately 220m section of promoted recreational route between Viewpoints 7 and 8 would be comparable to those described for Phase 2. A green mantle across the relocated overburden store would reduce any contrast with the colours and textures present within baseline views although the magnitude of change is likely to remain as Very Low.	Very Low to Zero Moderate/Minor to None, adverse and Not Significant
Restoration	Restoration (Year 1, 2042)	The gradual reduction in the height of the relocated overburden store visible would culminate in the removal of an artificial landform in walkers' oblique views from a short section of this route and would represent a very small-scale change. The reinstated woodland planting would play no visual role in walkers' views at Year 1, and there would be no views of other components of the restored site.	Very Low to Zero Moderate/Minor to None, beneficial and Not Significant
	Restoration +15 years	The continued absence of an artificial landform would be a small-scale change whilst the gradual maturation of the reinstated plantation woodland would reinforce the layers of tree cover already visible in the middle distance.	Very Low to Zero Moderate/Minor to None, beneficial and Not Significant

RECREATIONAL USERS OF THE LOCAL PROW NETWORK TO THE WEST OF THE SITE

Visual sensitivity

- 6.12.7 The sensitivity of recreational receptors using this local PROW network is judged to be High due to recreational visual receptors using PROWs being assessed as possessing medium or high susceptibility in accordance with GLVIA3¹ and the strong likelihood that these recreational receptors attach high value to the views with their appreciation being a factor in their use this PROW network.

Magnitude of change and level of effect

- 6.12.8 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-19**.

Table 6-19 – Assessment of effects: users of the local PRoW network to the west of the Site

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	The field survey indicated that local landform often restricts views towards the site from the PRoW network to the west of Viewpoint 4, with Viewpoint 4 (Figure 6.6) sited on a localised ridge of land offering the clearest views from this location. Changes to views towards the end of Phase 1 are likely to involve the loss of a small proportion of plantation woodland from behind retained perimeter woodland and beyond mature intervening hedgerow trees as part of the preparatory works. The magnitude of change would not exceed Low close to Viewpoint 3 (as described in Table 6-17 which is similarly applicable to footpaths OTY/27/10, OTY/27/20, OTY/26/20 and OTY/25/20) whilst a combination of increasing separation distance, local variations in landform, intervening vegetation and direction of travel means that elsewhere, the magnitude of change would more commonly be Very Low or Zero.	Low to Zero Moderate to None, adverse and Not Significant
	Phase 2 (up to end of Year 7)	Changes to walkers' views would be comparable to those described in relation to Phase 1.	Low to Zero Moderate to None, adverse and Not Significant
	Phase 3 (up to end of Year 9)	Changes to walkers' views would be comparable to those described in relation to Phase 1. The proposed hedgerow, which is anticipated to be planted during this phase as part of the progressive restoration, would play a minimal visual role in views from footpaths OTY/27/10, OTY/27/20, OTY/26/20 and OTY/25/20 close to Viewpoint 3.	Low to Zero Moderate to None, adverse and Not Significant
Restoration	Restoration (Year 1, 2042)	As part of the restoration of the site, there would be a gradual reduction in the height of the relocated overburden store visible in south-easterly views from footpaths close to Viewpoint 3 (OTY/27/10, OTY/27/20, OTY/26/20 and OTY/25/20), as the screenbank is returned to a height and profile which is comparable to that of the baseline. This would see the artificial landform (present under baseline conditions and then under a repositioned and increased height as part of this application) be removed in its entirety giving rise to a beneficial effect. The gradually maturing hedgerow trees introduced during Phase 3 would be playing a small visual role whilst the reinstated woodland planting would play no visual role in walkers' views at Year 1. There would be no views of other components of the restored site.	Low/Very Low to Zero Moderate/Minor to None, neutral and Not Significant
	Restoration +15 years	The gradual maturation of woodland planting and hedgerow trees introduced as part of the restoration of the Site means that the composition of natural elements in walkers' views	Very Low to Zero

Phase and timescales		Commentary	Magnitude of change and level of effect
		from footpaths close to Viewpoint 3 would be comparable to the baseline, whilst the continued absence of an artificial landform would give rise to a beneficial visual effect. From elsewhere within the local PRow network, the maturing woodland would reinforce the retained perimeter tree cover and have a minimal visual role.	Moderate/Minor to None, beneficial and Not Significant

DRIVERS AND THEIR PASSENGERS TRAVELLING ALONG THE M5 MOTORWAY

Visual sensitivity

- 6.12.9 The sensitivity of vehicular receptors using this transport route is judged to be Low, due to vehicular visual receptors being assessed as possessing medium susceptibility in accordance with GLVIA3¹ and the strong likelihood that these vehicular receptors attach a low value to the views with their appreciation unlikely to be a factor in their use of the M5.

Magnitude of change and level of effect

- 6.12.10 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in Table 6-20.

Table 6-20 – Assessment of effects: users of M5 Motorway

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	The removal of plantation woodland from across the crest and inner slopes of the M5 screenbank towards the end of Phase 1 is unlikely to be readily appreciated behind the retained belt of trees across the outer slopes. The high speed and oblique angle at which any changes would be viewed in relation to the direction of travel, means that the magnitude of change is unlikely to exceed Very Low during the winter months.	Very Low to Zero Negligible to None, neutral and Not Significant
	Phase 2 (up to end of Year 7)	The reduced width of the plantation woodland may allow some filtered, glimpsed views of the mass of the new landform through the retained tree cover during the winter months, whilst the crest of this landform, at an elevation of 110m AOD may just be visible above the trees. The high speed and oblique angle at which any changes would be viewed in relation to the direction of travel, means that the magnitude of change is unlikely to exceed Very Low during the winter months.	Very Low to Zero Negligible to None, adverse and Not Significant
	Phase 3 (up to end of Year 9)	Changes to receptors' views would be comparable to those described for Phase 2. There would be no views of the void	Very Low to Zero

Phase and timescales		Commentary	Magnitude of change and level of effect
		as it progresses southwards with the intervening M5 screenbank precluding northerly views.	Negligible to None, adverse and Not Significant
Restoration	Restoration (Year 1, 2042)	Soils and overburden from the relocated store would be used to facilitate the wider restoration strategy with a gradual reduction in the outline and mass of the landform visible in glimpsed views through the retained trees. Through the moving of material, the screenbank would be returned to a height and profile which is comparable to that of the baseline although reinstated woodland planting would play no visual role through the retained trees at Year 1.	Very Low to Zero Negligible, neutral and Not Significant
	Restoration +15 years	The gradual maturation of reinstated woodland planting would reinforce the vegetation cover across the M5 screenbank and return the composition of views to ones which are comparable to those of the baseline.	Zero

DRIVERS AND THEIR PASSENGERS TRAVELLING ALONG THE A38

Visual sensitivity

- 6.12.11 The sensitivity of vehicular receptors using this transport route is judged to be Medium, due to vehicular visual receptors travelling on 'A' roads being assessed as possessing medium susceptibility in accordance with GLVIA3¹ and the strong likelihood that these vehicular receptors attach medium or low value to the views with their appreciation unlikely to be a factor in their use of this section of A38.

Magnitude of change and level of effect

- 6.12.12 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-21**.

Table 6-21 – Assessment of effects: users of the A38

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	Existing views from this road corridor are presented in Figures 6.9 and 6.10 from Viewpoints 7 and 8. Changes to views would be comparable to those described in Table 6-18 although experienced at greater speed (40mph). Views would be experienced obliquely from along an approximately 220m section of the A38 between Viewpoints 7 and 8 and occur over a duration of approximately 12 seconds.	Very Low to Zero Minor to None, neutral and Not Significant

Phase and timescales		Commentary	Magnitude of change and level of effect
	Phase 2 (up to end of Year 7)	Changes to views would be comparable to those described for Phase 1 in Table 6-18 although experienced at greater speed (40mph), and would involve the presence of the landform to hold relocated soils and the loss of a small proportion of plantation woodland within a narrow proportion of the horizontal field of view.	Very Low to Zero Minor to None, neutral and Not Significant
	Phase 3 (up to end of Year 9)	Changes to receptors' views would be comparable to those described for Phase 2.	Very Low to Zero Minor to None, neutral and Not Significant
Restoration	Restoration (Year 1, 2042)	The gradual reduction in the height of the relocated overburden store visible would culminate in the absence of an artificial landform in receptors' oblique views at speed from a short section of this route. The reinstated woodland planting would play no visual role at Year 1, and there would be no views of other components of the restored site.	Very Low to Zero Minor to None, neutral and Not Significant
	Restoration +15 years	The continued absence of an artificial landform would be a small-scale change whilst the gradual maturation of the reinstated plantation woodland would reinforce the layers of tree cover already visible in the middle distance.	Very Low to Zero Minor to None, neutral and Not Significant Not Significant

DRIVERS AND THEIR PASSENGERS TRAVELLING ALONG ITCHINGTON ROAD

Visual sensitivity

6.12.13 Receptor sensitivity is judged to be Medium due to vehicular visual receptors travelling on minor roads being assessed as possessing medium susceptibility in accordance with GLVIA3¹. There is the likelihood that these vehicular receptors attach a medium value to the views across the rural landscape.

Magnitude of change and level of effect

6.12.14 The magnitude of change and level of effects for each phase of the Proposed Scheme is set out in **Table 6-22**.

Table 6-22 – Assessment of effects: users of Itchington Road

Phase and timescales		Commentary	Magnitude of change and level of effect
Operational Phases	Phase 1 (up to end of Year 4)	Views towards the existing soil store area are screened from along the majority of Itchington Road with the exception of a short (less than 15m) section of road to the west of the soil/overburden store close to Viewpoint 1 (Figure 6.3). From this section and the approximately 130m of road to the south, changes to receptors' views would comprise the loss of plantation woodland cover from the crest and inner face of the M5 screenbank which would take place behind the retained perimeter tree cover across the outer slopes and viewed at speed. This change is unlikely to be readily appreciated. For receptors' approaching from the south, minor changes are likely to occur for a slightly longer duration as the current wooded M5 screenbank occupies drivers' easterly views from the junction between the Celtic Way/Jubilee Way and Itchington Road. The high speed and corresponding brevity at which any changes would be viewed, means that the magnitude of change is unlikely to exceed Low during the winter months.	Low to Zero Moderate/Minor to None, adverse and Not Significant
	Phase 2 (up to end of Year 7)	Changes to receptors' views from the short (less than 15m) section of road to the west of the soil store close to Viewpoint 1 (Figure 6.3) and the approximately 130m of road to the south, would include the continued loss of plantation woodland cover from behind the retained perimeter tree cover across the outer slopes and the creation of the new landform slightly further to the south which may be glimpsed through the short gap in boundary vegetation or be apparent in filtered views through the reduced width of tree cover. The high speed and corresponding brevity at which any changes would be viewed, means that the magnitude of change is unlikely to exceed Low during the winter months.	Low to Zero Moderate/Minor to None, adverse and Not Significant
	Phase 3 (up to end of Year 9)	Changes to receptors' views would be similar to those described for Phase 2 from no greater than a 300m section of Itchington Road and for a duration of approximately 11 seconds.	Low to Zero Moderate/Minor to None, adverse and Not Significant
Restoration	Restoration (Year 1, 2042)	The gradual reduction in the height of the relocated soil store visible would culminate in the absence of an artificial landform in receptors' oblique views at speed from a very short section of this route. The reinstated woodland planting would play a minimal visual role at Year 1 of restoration whilst the gradually maturing hedgerow and hedgerow trees planted in Phase 3 would play a minor and fleeting visual role.	Low to Zero Moderate/Minor to None, beneficial and Not Significant

Phase and timescales		Commentary	Magnitude of change and level of effect
	Restoration +15 years	The continued absence of an artificial landform would be a small-scale beneficial change from a short section of road close to Viewpoint 1, whilst the gradual maturation of the reinstated plantation woodland, hedgerow and hedgerow trees would be comparable to baseline views.	Low/Very Low to Zero Moderate/Minor to None, beneficial and Not Significant

6.13 ASSESSMENT OF CUMULATIVE EFFECTS

DEVELOPMENTS INCLUDED IN THE CUMULATIVE LVIA

- 6.13.1 Mineral developments included in the cumulative effects assessment are Wickwar Quarry and Chipping Sodbury Quarry located approximately 5.1km and 7.1km to the north-east and south-east of Tytherington Quarry respectively.

CUMULATIVE LANDSCAPE EFFECTS

- 6.13.2 The Chipping Sodbury and Wickwar quarries are both located within LCA 5: Wickwar Ridge Vale as defined by the South Gloucestershire Landscape Character Assessment¹³. As a consequence of the separation distance, there are no common landscape receptors and no cumulative landscape effects.

CUMULATIVE VISUAL EFFECTS

- 6.13.3 In terms of cumulative visual effects, a review of the distribution of visual receptors included within the assessment indicates that common receptors are limited to users of the promoted long-distance recreational routes which passes through the study area as follows:

Users of the Jubilee Way/Celtic Way

- 6.13.4 These routes pass immediately adjacent to the Chipping Sodbury Quarry boundary, following Southfield Way (B4060) to the south of the processing area before continuing east across an agricultural field to the south of the main void.
- 6.13.5 With regard to views, the South Gloucestershire Landscape Character Assessment notes:
- “The linear quarries at Chipping Sodbury, are well screened, with only a few glimpsed views possible from the B4060 along their eastern boundaries. The works buildings are also generally well screened by linear tree belts on bunds in views from the east. However, the crusher building is visible in longer views from the south and east, due to its scale and height which rises above the adjacent vegetation. The linear pattern of screen vegetation along the edges of roads is of a bold and regular form, which is visually different to the adjacent, irregular rural field pattern.”¹³*
- 6.13.6 Despite their proximity to the quarry and as cited in the South Gloucestershire Landscape Character Assessment¹³, views are likely to be limited to a short (approximately 250m) section of the promoted routes along Southfield Way, from which there are partial views of quarry voids and processing plant. Due to the separation distance between Tytherington Quarry and Chipping Sodbury Quarry,

extensive vegetative screening surrounding both quarries and limited availability of views, sequential cumulative visual effects would be Not Significant.

Users of the Hobblers Way (Coast to Coast – Wash to Severn).

- 6.13.7 This route passes to the south and east of Wickwar Quarry at a minimum separation distance of approximately 1km. With respect to Wickwar Quarry the South Gloucestershire Landscape Character Assessment¹³ description states *“From within the area, Wickwar Quarry is visible only within glimpsed views from the adjacent roads which border the site. The exposed quarry face of the disused section is however evident from beyond the area in the vicinity of Heath End, to the west”*¹³.
- 6.13.8 Due to the separation distance and presence of vegetative screening around the quarry, it is likely that there would be minimal visibility of the quarry from this route. With the visual effects arising from Tytherington Quarry being no greater than Moderate/Minor, and as a consequence of the separation distance between the two sites, sequential cumulative visual effects from this promoted route would be Not Significant.

6.14 ASSESSMENT OF IN-COMBINATION CLIMATE IMPACTS

- 6.14.1 The In-combination Climate Change Impacts (ICCI) assessment presented in **Table 6-23** considers the extent to which climate change exacerbates or ameliorates the potential effects identified for landscape or visual receptors.
- 6.14.2 The ICCI assessment presented has been informed by the future baseline presented within **Chapter 13: Climate Resilience**. The ICCI uses the topic specific assessment methodologies and professional judgement to assess likelihood and magnitude of the impacts, with the combined consideration of future climate trends and impacts.

Table 6-23 - In-Combination Climate Change Impacts (ICCI) related to the LVIA

Climate trend	Discipline	Predicted effects	Potential ICCI	Embedded mitigation measures	Additional mitigation measures
Hotter summers with a decrease in summer precipitation and increased frequency of heatwaves and drought	Chapter 6: Landscape and Visual	New planting proposed as part of the restoration scheme to compensate for that lost and to reduce the potential impact upon landscape elements, landscape character and visual amenity.	Drought conditions causing failure of the proposed planting and reduced longevity of existing established trees and woodland, impacting on visual amenity and landscape character.	<p>The Landscape and Biodiversity Enhancement Plan (Appendix 10B) includes use of planting species suitable for climate change and consideration of watering for new planting. Watering would be scheduled early or late in the day to reduce transpiration.</p> <p>Proposed planting contains a diverse mix of native species to maximise the prospect that at least some species will adapt or potentially thrive under a warmer climate whilst some species may naturally fail.</p>	<p>Schedule phasing so that trees are planted early in the planting season so that roots can establish in advance of a drier summer.</p> <p>Potential to include deeper soil profiles or more moisture retentive organic content to retain moisture for tree species or vegetation to use during periods of drought.</p> <p>Potential use of mulch around new planting where feasible to reduce water loss from soil.</p>
<p>Warmer, wetter winters</p> <p>Increase in the intensity and frequency of flash</p>	Chapter 6: Landscape and Visual	New planting proposed as part of the restoration scheme to compensate for that lost and to reduce the potential impact upon landscape elements, landscape	A longer growing season could result in greater screening/filtering effect of planting due to faster growth and extended period of leaf cover.	Source trees from British nurseries wherever possible to avoid import of pests and disease.	No additional measures identified

Climate trend	Discipline	Predicted effects	Potential ICCI	Embedded mitigation measures	Additional mitigation measures
flooding, storms and wind events		character and visual amenity.	<p>Could lead to an increase in pests and diseases, leading to loss of vegetation and defoliation making species more susceptible to external stress.</p> <p>Wind may result in loss of trees which could disrupt views towards the site.</p>		

6.15 MITIGATION AND ENHANCEMENT MEASURES

- 6.15.1 Opportunities to mitigate potential adverse effects have already been incorporated within the development or are imposed through a number of existing regulatory controls. The Proposed Scheme with these measures and controls in place has been subject to assessment.
- 6.15.2 The principles of good practice mitigation during the operational phases will be applied to the Proposed Scheme as set out in **Chapter 3: Description of Proposed Scheme**.

6.16 CONCLUSIONS OF SIGNIFICANCE EVALUATION

- 6.16.1 The following table (**Table 6-24**) provides a summary of the conclusions about the significance of the predicted landscape and visual effects that have been subject to assessment in this ES.

Table 6-24 - Summary of significance of predicted landscape and visual effects

Receptor and effects	Magnitude ¹	Sensitivity ²	Significance	
			Level	Rationale
Operational Phases				
Plantation broadleaved deciduous woodland	Medium	Medium	Moderate NS	Removal of approximately 0.75ha of this landscape element in Phase 1, which equates to approximately 18% of the total extent of plantation broadleaved deciduous woodland along the M5 screenbank. The Moderate level of effect is judged to be Not Significant on the basis of the localised (site-level) effect.
Hedgerow with hedgerow trees	Medium	Low	Moderate/Minor NS	The north-western hedgerow together with sections of the north-eastern double hedgerows would be coppiced and translocated to fill in gaps along the hedgerow boundary of the neighbouring field as part of preparatory works in Phase 1. It is anticipated that the proposed hedgerow along the northern boundary of the existing soil store area would be planted during Phase 3 as part of the progressive restoration, which would reinstate approximately 180m of hedgerow along this boundary. When combined with the hedgerow lengths retained within the Site and translocated during Phase 1 (even accounting for a 50% failure rate of translocated stock), this would lead to a net gain in hedgerow of approximately 100m.
Grassland	Low	Low	Minor NS	Short-term disruption as grassland is removed from across the existing soil store area and seeding takes place across the newly created landform. Small proportion of grassland would be lost to accommodate the footprint of the void as it progresses southwards.
LCA 17: Rudgeway and Tytherington Ridge	Low to Zero	Medium	Moderate/Minor to None NS	Removal of a small proportion of landscape elements, relocation and increase in height of the existing overburden and soil stores, and the lateral extension of the void into the area to the south, would all take place within the footprint of the existing quarry. The proposed

Receptor and effects	Magnitude ¹	Sensitivity ²	Significance	
			Level	Rationale
				changes would not represent a notable departure from baseline conditions and as such, would have limited characterising influence.
Users of the Celtic Way/Jubilee Way - northbound walkers	Low/Very Low to Zero	High	Moderate/Minor to None NS	The removal of trees from the behind the perimeter tree cover would lead to a slight reduction in the screening role in winter months and the potential for seasonally glimpsed views of the outline and mass of the relocated soil mound from an approximately 160m section of route. However, the treed skyline would largely remain intact, and changes would be viewed obliquely to the direction of travel.
Users of the Celtic Way/Jubilee Way - southbound walkers	Low to Zero	High	Moderate to None NS	Changes to baseline views along the approximately 1.2km section of promoted recreational routes between the A38 and Itchington Road. The clearest views would occur from the elevated section of route to the south of the A38. Changes to the composition of views would be related to the removal of a hedgerow and hedgerow trees, the repositioning of the upper southern quarry face with a slight increase in the vertical extent visible, loss of trees from the crest and inner slopes of the M5 screenbank and the repositioning of the crest of the overburden store approximately 60m to the south of its present location and increase in height by 5m. This would take place within a small proportion of the horizontal field of view, at a distance of 1km and viewed against a landscape backdrop of trees or distance hills. The Moderate effect is assessed as being Not Significant due to the degree of screening and the visual context within which changes would take place with includes existing large-scale infrastructure
Users of the Hobblers Way (Coast to Coast – Wash to Severn)	Very Low to Zero	High	Moderate/Minor to None NS	Changes to views from along the approximately 220m section of promoted recreational route between Viewpoints 7 and 8 would involve the removal of the existing overburden store and the creation of a new landform with a crest which slightly further south (by 60m) and 5m higher than the existing crest of the store. A small proportion of plantation woodland would also be lost from walkers' views. All changes would take place within a narrow proportion of the horizontal

Receptor and effects	Magnitude ¹	Sensitivity ²	Significance	
			Level	Rationale
				field of view at a distance of 1km, be partially screened and would be viewed obliquely to the direction of travel.
Users of the local PRow network to the west of the Site	Low to Zero	High	Moderate to None NS	Changes to views are likely to involve the loss of a small proportion of plantation woodland from behind retained perimeter woodland with the closest views occurring from the local footpaths close to Viewpoint 3. From elsewhere, a combination of increasing separation distance, local variations in landform, intervening vegetation and direction of travel would commonly be Very Low or Zero.
Drivers and their passengers travelling along the M5 motorway	Very Low to Zero	Low	Negligible to None NS	The removal of plantation woodland from across the crest and inner slopes of the M5 screenbank is unlikely to be readily appreciated behind the retained belt of trees across the outer slopes. Whilst the reduced width of the woodland may allow some filtered, glimpsed views of the mass of the new landform through the retained tree cover during the winter months, changes would be viewed at high speed and an oblique angle in relation to the direction of travel.
Drivers and their passengers travelling along the A38	Very Low to Zero	Medium	Minor to None NS	Changes relating to the removal of the existing overburden store and the creation of a new landform and loss of a small proportion of plantation woodland would be viewed obliquely from along an approximately 220m section of the A38 between Viewpoints 7 and 8 and at a speed of 40mph, would occur over a duration of approximately 12 seconds.
Drivers and their passengers travelling along the Itchington Road	Low to Zero	Medium	Moderate/Minor to None NS	Changes to receptors' views would comprise the loss of plantation woodland cover from the crest and inner face of the M5 screenbank which would take place behind the retained perimeter tree cover across the outer slopes and viewed at speed (up to 60mph) from no greater than a 300m section of road as it approaches and then runs alongside the site. The removal of the existing overburden store and

Receptor and effects	Magnitude ¹	Sensitivity ²	Significance	
			Level	Rationale
				creation of a new landform slightly further to the south may be glimpsed through the short gap in boundary vegetation.
Restoration Phase				
Plantation broadleaved deciduous woodland	Low (Year 1) to Very Low (Year 15)	Medium	Moderate/Minor to Minor NS	An equivalent amount of woodland as that lost in Phase 2 would be reintroduced as part of the restoration in 2042.
Hedgerow with hedgerow trees	Very Low (Years 1 and 15)	Low	Minor to Negligible NS	It is anticipated that the proposed hedgerow along the northern boundary of the existing soil store area would be planted during Phase 3 as part of the progressive restoration and that there would be net gain in hedgerow of approximately 100m. The proposed hedgerow would contain greater species diversity than under baseline conditions with an enhanced management regime undertaken in accordance with the Landscape and Biodiversity Enhancement Plan (Appendix 10B) which in balance, would lead to beneficial effects.
Grassland	Very Low (Year 1 and 15)	Low	Negligible NS	Once the soil and overburden store has been removed, the area would be reinstated as neutral or calcareous grassland with small ponds/scrapes and bare ground to increase biodiversity. This would have a localised beneficial effect but would have limited characterising influence beyond site-level.
LCA 17: Rudgeway and Tytherington Ridge	Very Low to Zero (Years 1 and 15)	Medium	Minor to None NS	The perimeter landform (internal slopes of the M5 screenbank), would be reinstated to slope gradients and a height which is comparable to that of the baseline. Similarly, plantation woodland, hedgerow, hedgerow trees and grassland within the former soil store area would all be reinstated in proportions which are not dissimilar to those present under baseline conditions. The remainder of Woodleaze Quarry would be restored in line with the permitted restoration scheme with a slight increase in the footprint of the waterbody.

Receptor and effects	Magnitude ¹	Sensitivity ²	Significance	
			Level	Rationale
Users of the Celtic Way/Jubilee Way – northbound walkers	Very Low to Zero (Year 1) to Zero (Year 15)	High	Moderate/Minor to None NS	The screenbank would be returned to a height and inner slope profile which is comparable to that of the baseline whilst the gradual maturation of the reinstated woodland would lead to the return of views which are similar to those of the baseline from a 160m section of promoted routes.
Users of the Celtic Way/Jubilee Way - southbound walkers	Low to Zero (Year 1) to Low/Very Low to Zero (Year 15)	High	Moderate to None to Moderate/Minor to None NS	The absence of an artificial landform and the very minor role of a small proportion of plantation woodland would remain a small-scale change from baseline views at Year 1. The gradual maturation of woodland planting and hedgerow trees would mean that the composition of natural elements in walkers' middle-distance views would be comparable to the baseline at Year 15, whilst the absence of an artificial landform would give rise to a beneficial visual effect.
Users of the Hobblers Way (Coast to Coast – Wash to Severn)	Very Low to Zero (Year 1 and Year 15)	High	Moderate/Minor to None NS	The gradual reduction in the height of the relocated overburden store visible would culminate in the absence of an artificial landform in walkers' oblique views from a short section of this route whilst the gradual maturation of the reinstated plantation woodland would reinforce the layers of tree cover already visible in the middle distance.
Users of the local PRoW network to the west of the Site	Low/Very Low to Zero (Year 1) to Very Low to Zero (Year 15)	High	Moderate/Minor to None NS	The gradual maturation of woodland planting and hedgerow trees means that the composition of natural elements in walkers' views from footpaths close to Viewpoint 3 would be comparable to the baseline, whilst the absence of an overburden store landform would give rise to a beneficial visual effect. From elsewhere within the local PRoW network, the maturing woodland would reinforce the retained perimeter tree cover and have a minimal visual role.
Drivers and their passengers travelling along the M5 motorway	Very Low to Zero (Year 1)	Low	Negligible to None NS	The gradual maturation of reinstated woodland planting would reinforce the vegetation cover across the M5 screenbank and return

Receptor and effects	Magnitude ¹	Sensitivity ²	Significance	
			Level	Rationale
	to Zero (Year 15)			the composition of views to ones which are comparable to those of the baseline.
Drivers and their passengers travelling along the A38	Very Low to Zero (Year 1 and Year 15)	Medium	Minor to None NS	The gradual reduction in the height of the relocated overburden store visible would culminate in the absence of an artificial landform in receptors' oblique views at speed from a short section of this route. The gradual maturation of the reinstated plantation woodland would reinforce the layers of tree cover already visible in the middle distance
Drivers and their passengers travelling along the Itchington Road	Low to Zero (Year 1 and Year 15)	Medium	Moderate/Minor to None NS	The gradual reduction in the height of the relocated overburden store visible would culminate in the absence of an artificial landform in receptors' oblique views at speed from a very short section of this route whilst the gradual maturation of the reinstated plantation woodland, hedgerow and hedgerow trees would also represent a small-scale change.
Key	Magnitude ¹	Sensitivity ²	Significance	
	High Medium Low Very Low No Change	High Medium Low	S = Significant NS = Not Significant	

6.17 IMPLEMENTATION OF ENVIRONMENTAL MEASURES

6.17.1 **Table 6-25** describes the environmental measures embedded within the Proposed Scheme and the means by which they will be implemented, i.e. they will have been secured through the planning conditions.

Table 6-25 - Implementation of environmental measures

Environmental measure / mitigation	Responsibility for implementation	Compliance mechanism	ES section reference
Progressive restoration undertaken during Phases 1 to 3 of the development.	Heidelberg Materials and Landscape Contractor	By Planning Condition drafted and monitored by South Gloucestershire Council.	6.7
Implementation of final restoration scheme.	Heidelberg Materials and Landscape Contractor	By Planning Condition drafted and monitored by South Gloucestershire Council.	6.7
Implementation of landscape planting and management during the aftercare period (5 years).	Heidelberg Materials and Landscape Contractor	By Planning Condition drafted and monitored by South Gloucestershire Council.	6.7

6.18 REFERENCES

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- Reference 6.2: Landscape Institute. (2019). *Technical Guidance Note 06/19 Visual Representation of Development Proposals*. [online]. Available at: <https://www.landscapeinstitute.org/visualisation/> [Accessed 01 December 2023].
- Reference 6.3: Council of Europe (2000). *European Landscape Convention*. [online]. Available at: <https://rm.coe.int/CoERMPublicCommonSearchServices/DisplayDCTMContent?documentId=0900016802f80c6> [Accessed 01 December 2023].
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- **Reference 6.9:** *Landscape Institute (2021). Technical Guidance Note 02/21 Assessing landscape value outside national designations.* [online]. Available at: <https://www.landscapeinstitute.org/news/new-guidance-assessing-landscape-value-outside-national-designations/> [Accessed 01 December 2023].
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- **Reference 6.11:** *Landscape Institute (2023). Draft Technical Guidance Note 05/23 Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3).* (online). Available at: <https://www.landscapeinstitute.org/technical-resource/notes-and-clarifications-on-aspects-of-the-3rd-edition-guidelines-on-landscape-and-visual-impact-assessment-glvia3-consultation/> [Accessed 01 December 2023].
- **Reference 6.12:** *Natural England (2013). NCA Profile 118: Bristol, Avon Valley and Bridges (NE400).* [online]. Available at: <https://publications.naturalengland.org.uk/publication/4646942?category=587130> [Accessed 01 December 2023].
- **Reference 6.13:** *South Gloucestershire Council (2014). South Gloucestershire Landscape Character Assessment.* Available online at: <https://beta.southglos.gov.uk/landscape-character-assessment/> [Accessed 01 December 2023].
- **Reference 6.14:** *Natural England (2023). Multi-Agency Geographic Information for the Countryside.* [online]. Available at: <https://magic.defra.gov.uk/home.htm> [Accessed 01 December 2023].
- **Reference 6.15:** *Natural England (2016). England's Light Pollution and Dark Skies Mapping.* [online]. Available at: <https://www.cpre.org.uk/light-pollution-dark-skies-map/> [Accessed 01 December 2023].
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