

## **The Biodiversity Sub-Objective**

### **TAG Unit 3.3.10**

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Department for Transport

Transport Analysis Guidance (TAG)

# Contents

<b>1</b>	<b>The Biodiversity Sub-objective</b>	<b>1</b>
1.1	Introduction	1
1.2	Methodology for Plans	1
	<i>Appraisal of the Magnitude of Impact of Each Transport Option</i>	4
	<i>Overall Assessment Score</i>	6
1.3	Determining the Overall Assessment Score Where More Than One Area is Affected.	6
	<i>Non Road Transport Options</i>	7
	<i>Qualitative Comment on the Effects of an Option</i>	8
1.4	Methodologies for Strategies	8
	<i>Completing the Appraisal Process</i>	9
<b>2</b>	<b>Application of TAG to Highway Schemes</b>	<b>11</b>
2.1	Methods and Worksheets	11
2.2	Data Transformation from DMRB to TAG	11
2.3	DMRB Stages 1 and 2/ TAG	11
<b>3</b>	<b>Further Information</b>	<b>15</b>
<b>4</b>	<b>References</b>	<b>15</b>
<b>5</b>	<b>Document Provenance</b>	<b>15</b>

# 1 The Biodiversity Sub-objective

## 1.1 Introduction

- 1.1.1 The reader should be aware that it is helpful to read this TAG Unit in conjunction with *The Environmental Capital Approach* (TAG Unit 3.3.6).
- 1.1.2 This guidance on the appraisal of biodiversity impacts is based on advice from English Nature. Its purpose is to advise on how to appraise the costs and benefits of transport options in terms of their effects on both biodiversity and earth heritage (geological) interests. It builds on the methods for assessing biodiversity and earth heritage that are set out in DMRB 11.3.4.5 and 11.3.11.5.

## 1.2 Methodology for Plans

- 1.2.1 The methodology for appraising the impact of plans on biodiversity and earth heritage broadly follows the four stage general approach to appraising 'environmental capital' set out in TAG Unit 3.3.6. Applied to biodiversity and earth heritage, the approach is:
- to describe sequentially the characteristic biodiversity and earth heritage features;
  - to appraise environmental capital - using a set of indicators, this is done by assessing
    - the importance of these characteristic features,
    - why they are important, and
    - their inter-relationships;
  - to describe how proposals impact on biodiversity and earth heritage features, including effects on its distinctive quality and substantial local diversity; and
  - to produce an overall assessment score on a seven point scale.
- 1.2.2 **Stage 1: Describing biodiversity and earth heritage features.** The first stage starts by describing the biodiversity and earth heritage features. This process is a means of systematically recording and expressing the characteristic and distinctive biodiversity and earth heritage features of an area. The process identifies and describes what currently exists in the landscape and any discernible trends which would lead to degradation or loss of those characteristic features in the absence of the proposals. This description provides a baseline character against which the incremental impact of proposals on that character can be appraised. The process of describing these features does not itself make a quality judgement. Quality judgements (that is, appraising the importance of features) are made in the subsequent 'capital' stage of the appraisal.
- 1.2.3 **Stage 2: Appraise environmental capital.** The second stage uses the concept of environmental capital to assess what biodiversity and earth heritage features matter and why they are important. As with the process for describing the features, it is important to assess what matters and why at present, and how that may change over time in the absence of the proposal. This provides a base level of environmental capital against which the impact of the proposal on that level of capital can be appraised. Environmental capital is a suitable methodology to use because it builds on information about biodiversity and earth heritage features by using a set of common indicators and definitions to add cultural and subjective values and assess impacts, in order to produce an overall qualitative summary assessment on a seven point scale.

- 1.2.4 **Stage 3: Appraise the proposal's impact.** This stage of the approach involves describing and scoring the impact of the study proposal on each of the biodiversity and earth heritage features/attributes, taking account of the baseline environmental capital established in the preceding stages. The descriptions and scores produced in this stage will inform judgement about the overall assessment score.
- 1.2.5 **Stage 4: Overall assessment score.** This stage consists of deriving an overall assessment score (on the standard seven point textual scale: large/moderate/slight beneficial and adverse, neutral). It will be informed by the descriptive comments and scores for the impact described in Stage 3 and the definitions given below for the scores.
- 1.2.6 Using these four stages it is possible to consider how well, or not, a proposal can, in the first place, integrate with the local biodiversity and earth heritage interests and in the second place be mitigated to protect and enhance characteristic features. The inter-relationships between biodiversity and earth heritage with other sub-objectives, such as landscape and water must be considered. They will not, however, be dealt with in any detail in this guidance in order to avoid double-counting.
- 1.2.7 The paragraphs below describe how to complete the appraisal worksheet with respect to biodiversity and earth heritage.
- 1.2.8 **Area** - All biodiversity and earth heritage features affected, or potentially affected, by each option should be listed in Worksheet 1 (provided at the end of the TAG unit). It is important that a broad approach is taken which covers all relevant features, including both designated and non-designated sites. In determining this list, reference to English Nature's Natural Area profiles is recommended in order that the appraisal can be set in the context of the biodiversity and earth heritage objectives of the area as a whole. Local Biodiversity Action Plans should also be taken into account. Thus the 'area' listed could relate to a specific site, or to a more general area relating to a habitat of importance in the context of the Natural Area's objectives.
- 1.2.9 **Attribute/Feature** - Strictly speaking, the Environmental Capital approach suggests that all the different attributes of a natural feature should be appraised separately. Thus, for example, a Site of Special Scientific Interest (SSSI) may have two main attributes: biodiversity and recreation. In such cases the attributes should be listed and evaluated separately. However, it may be difficult in practice to disaggregate the individual attributes of a biodiversity and/or earth heritage site. An alternative is to describe the feature of interest. Features of the site should be described at Phase One habitat type or species group level (for example birds, wetland invertebrates, dry heath etc). A site or area may have more than one feature. Where different features lead to different assessment scores, they should be entered on different lines on the Worksheet and appraised separately. Where this is not the case, it is sufficient to group and describe the features on a single line.
- 1.2.10 **Scale at which the attribute/feature matters** - This could be 'international', 'national', 'regional' or 'local'.
- 1.2.11 **Importance** - This column allows a descriptive assessment of the biodiversity and earth heritage importance of the feature. For example: "High importance - rare granite materials (geological history)". Often the importance of biodiversity and earth heritage features is indicated by a formal designation. In such cases the reasons for its designation should be summarised briefly. Where the feature is not designated, the importance should be considered by judgement in relation to factors such as rarity, representativeness, distinctiveness and quality.

- 1.2.12 **Trend** (in relation to a target level) - This column records information on the abundance of the habitat or natural feature relative to its target level (where appropriate) and its trend, where known (in relation to Biodiversity Action Plan targets, for example).
- 1.2.13 **Substitution possibilities** - This aims to take account of the fact that the loss of an irreplaceable attribute of a natural feature is often considered to be more significant than one that is replaceable. This involves a judgement about whether the habitat(s) are technically replaceable to a sufficient quality; or whether the species can be successfully relocated; or whether the ecosystem services provided by the feature could be fully substituted. A judgement must, therefore, be made according to whether the habitats / species or natural features are substitutable or not substitutable.
- 1.2.14 Clearly, these are difficult considerations. Many habitats are not wholly recreatable. For example, if one loses a 200 year old woodland, even in 200 years' time, its replacement will not be as old (and biologically diverse) as the original habitat would have been. There is also a 'historical continuity' problem and various other problems relating to 'substitution'. A precautionary approach must be taken in this judgement, as research for English Nature has shown (English Nature Science Series No 21, Parker D M. 1995). However, at the simplest level, habitats that are man-made are likely to be considered more replaceable than natural habitats. Any commitments made in the Environmental Statement or agreed with statutory advisors must be implemented if the proposal proceeds.
- 1.2.15 Overall appraisal of biodiversity and earth heritage value - Having recorded information against each of the four indicators above, it is then necessary to derive a summary of the biodiversity and earth heritage value of the feature or attribute, based on these four indicators. A guide is set out in Table 1 below. Also provided, in Table 5, is a provisional categorisation based on statutory or local designations, or Biodiversity Action Plan objectives. This can be used as a broad guide for determining biodiversity and earth heritage value, but it is only a starting point. The four indicators described above should be considered in making the overall judgement. For example, it may be considered that a site not designated as an SSSI has very high value, since the SSSI series is representative rather than all-inclusive. Conversely, a site hosting a single individual of a widespread Berne Convention species may not warrant the highest classification (as would have been indicated by Table 5).
- 1.2.16 Much of the land with Bonn and Berne Convention species interest is covered by designated sites. However, there are cases where important species can not be covered practically by a site designation, because of their dispersed nature. In some cases, undesignated areas of land hosting Bonn and Berne Convention species will be considered to be of high biodiversity and earth heritage value, for example because of important nesting sites for rare species. Table 5 suggests that sites hosting 'significant populations' of Convention species may be considered as of international importance. The judgement about whether the population is 'significant' will vary from case to case. Recording information on this in the footnotes of Worksheet 1 will be helpful.

**Table 1 Guidance on Describing the Nature Conservation Value of Features**

Value	Criteria	Examples
Very high	High importance and rarity, international scale and limited potential for substitution	Internationally designated sites
High	High importance and rarity, national scale, or regional scale with limited potential for substitution	Nationally designated sites Regionally important sites with limited potential for substitution
Medium	High or medium importance and rarity, local or regional scale, and limited potential for substitution	Regionally important sites with potential for substitution Locally designated sites
Lower	Low or medium importance and rarity, local scale	Undesignated sites of some local biodiversity and earth heritage interest
Negligible	Very low importance and rarity, local scale	Other sites with little or no local biodiversity and earth heritage interest

**Appraisal of the Magnitude of Impact of Each Transport Option**

1.2.17 Appraisal of potential impacts is likely to be more difficult for strategic level studies than for project appraisal. The paragraphs below deal with plan or project level appraisal or corridor studies where the routes and modes can be identified in broad terms. This is followed by a section on appraising impacts for strategic or area/corridor studies where the routes, and perhaps modes of transport, are less explicit in the proposal.

1.2.18 **Mitigation** - Where scheme options include proposals for mitigation, this should generally be taken account of in the appraisal of impacts. However, an exception to this general rule is described below. There are three categories to consider:

- design proposals to minimise the impact of the proposal on the site (reducing run-off, for example);
- on-site, or near-site, mitigation to help conserve existing biodiversity interest where the impacts can not be minimised (e.g. dedicated animal crossings, land management regimes); and
- off-site proposals (such as habitat replacement) to compensate for biodiversity and earth heritage losses.

These categories should be developed sequentially in scheme design.

1.2.19 The first two categories are essentially about minimising the effects on or near the site. It is appropriate for these to be considered in appraising impact, provided they have been documented properly in the Environmental Statement. The key is to make an appropriate judgement about net impact. Where there is some risk in the mitigation proposals, it is appropriate to complete separate appraisals, for the 'with' and 'without' mitigation cases.

1.2.20 The third category above is about compensation for expected loss, though in Environmental Statements it is often described as 'mitigation'. A precautionary approach needs to be taken here: often it is not appropriate to lower the impact category on the basis of off-site compensation proposals, as these are unlikely

- to fully recompense for the lost features. This is especially so for the more valuable sites.
- 1.2.21 In later stage appraisals, mitigation proposals should be documented in an Environmental Statement. New ideas for mitigation not documented in the Environmental Statement should not be taken account of in the impact appraisal, though they should be suggested in text on Worksheet 1. Such ideas could then be worked up as a separate sub-option, to allow the consequences of adoption to be appraised.
- 1.2.22 At earlier appraisal stages, Environmental Statements may not be available. In such circumstances it is reasonable to assume usual mitigation designs for a scheme of this type (such as dedicated animal crossings, for example). Mitigation proposals should be considered in the appraisal only where these are feasible and likely to be specified in the Environmental Statement. Evidence from previous schemes of a similar type should be considered. There must be a documented audit trail of mitigation assumptions on which the appraisal is based.
- 1.2.23 **Impact** - It is not realistic to assess the ecological impact based on set rules in terms of the percentage of a site's feature affected. Instead, the impact of a proposal on a site should be considered using the well established ecological concepts of significance and integrity, which have been reflected in the UK Habitats Regulations and land use planning guidance.
- 1.2.24 The impacts which need to be considered may be direct or indirect, individual or cumulative, temporary or permanent, may be geographically dispersed, and may be harmful or beneficial. Impacts on biodiversity or earth heritage via effects on air, water and soil resources, or via effects from noise, light or water, are also relevant. Note that in this context we are making a judgement about impact purely for the purposes of appraisal i.e. whether the investment of public funds is worth the costs and benefits. The normal planning processes will also continue to apply, for example with respect to European sites.
- 1.2.25 The basis for the assessment of impact should be the long term condition of the feature under the option being considered, compared with the long term condition of the feature under a 'do nothing' scenario; note that the condition of the latter may be different from its current state. Table 2 below provides guidance on the impact magnitude.

**Table 2 Criteria for Determining the Magnitude of the Impact**

<b>Magnitude</b>	<b>Criteria</b>
Major negative	The proposal (either on its own or with other proposals) may adversely affect the integrity of the site, in terms of the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and / or the population levels of species of interest.
Intermediate negative	The site's integrity will not be adversely affected, but the effect on the site is likely to be significant in terms of its ecological objectives. If, in the light of full information, it cannot be clearly demonstrated that the proposal will not have an adverse effect on integrity, then the impact should be assessed as major negative.
Minor negative	Neither of the above apply, but some minor negative impact is evident. (In the case of Natura 2000 sites a further appropriate assessment may be necessary if detailed plans are not yet available).
Neutral	No observable impact in either direction.
Positive	Impacts which provide a net gain for wildlife overall.

1.2.26 Note that the magnitude of the impacts relates only to their physical effects. It is, to an extent, independent of nature conservation value of the feature or attribute affected.

**Overall Assessment Score**

1.2.27 This final stage of the process combines the appraisal of biodiversity and earth heritage value of the features, with the appraisal of the magnitude of the impacts, to determine the consequence of those impacts. It is this element that is represented by the overall assessment score.

1.2.28 The overall assessment score should be determined using Table 3 and recorded both on Worksheet 1 and the Appraisal Summary Table. Where more than one feature or attribute is involved, an appraisal category is needed for each of these, which are then summarised in an overall summary score for the option (see below).

**Table 3 Estimating the Overall Appraisal Category**

Magnitude of potential impact	Nature conservation value of sites damaged or improved				
	<i>Very high</i>	<i>High</i>	<i>Medium</i>	<i>Lower</i>	<i>Negligible</i>
<i>Major negative</i>	Very large adverse	Very large adverse	Moderate adverse	Slight adverse	Neutral
<i>Intermediate negative</i>	Large adverse	Large adverse	Moderate adverse	Slight adverse	Neutral
<i>Minor negative</i>	Slight adverse	Slight adverse	Slight adverse	Slight adverse	Neutral
<i>Neutral</i>	Neutral	Neutral	Neutral	Neutral	Neutral
<i>Positive</i>	Large beneficial	Large beneficial	Moderate beneficial	Slight beneficial	Neutral

Notes:

- (A) Options in the 'very large adverse category' are likely to be unacceptable on nature conservation grounds alone (even with compensation proposals).
- (B) There should be a strong presumption against options in the 'large adverse' category, with more than 1:1 compensation (net gain within the Natural Area) for the very occasional cases where development is allowed as a last resort.
- (C) Options in the 'moderate adverse' category should include at least 1:1 compensation (no net loss within the Natural Area) if the development is allowed.
- (D) See Tables 1, 5 and note (F) below for the definition of nature conservation value.
- (E) See the main text for the definition of impact.
- (F) Positive impacts should be considered to be of lower value if the gains are clearly evident but not significant in terms of the conservation objectives of the Natural Area. Positive impacts should be classed as moderate value if they deliver significant gains to the Biodiversity Action Plan objectives in the Natural Area, and as large value if they deliver positive gains of national or international importance.

**1.3 Determining the Overall Assessment Score Where More Than One Area is Affected.**

1.3.1 Where a proposal affects more than one feature, determining the overall assessment score is more complex, since the different 'scores' for each feature considered need to be weighed up in an overall assessment score. *The Environmental Capital Approach* (TAG Unit 3.3.6) provides further advice on accumulating impacts where more than one area is affected. That advice expands on the advice given here, and should be read with this advice. The following guidelines are suggested:

- Most negative category. If a proposal affects, say, five features, of which one is in the 'large adverse' category and the remaining four are 'slight adverse', then the overall assessment score should be 'large adverse'. The principle here is that a proposal or option as a whole should be classified in the most negative category of the sites scored. The rationale for this approach is that it encourages the development of alternative options which avoid such adverse outcomes. However, where no alternatives exist, some judgement may be required to derive an overall assessment score which fairly represents the effects of the scheme as a whole.
- Cumulative adverse effects. A proposal may affect a number of sites, each of which score 'slight adverse' or 'moderate adverse'. Where it is clear that the cumulative effect on all these sites is at least equivalent, ecologically, to a single site in the higher category, then the proposal should be scored in the higher category. Thus, for example, a proposal may affect four sites and have an adverse effect on each. If the view is that the cumulative effect is equivalent to a single site in the 'large adverse' category, then this score should be applied. It may be worth looking at examples across options or across different studies to help make this judgement appropriately and consistently.
- Positive effects. When classifying a proposal or option with several sites, it may be appropriate to consider adverse appraisals in some areas against beneficial assessments (through mitigation, for example) elsewhere, to judge the net assessment overall. However, this appraisal should not be based on a simple hectareage or number of sites approach. An appropriate ecological judgement has to be made about the overall effects of the proposal.

Clearly, where more than one feature is involved, judgements about the overall assessment score are not easy to make. It is important that the overall assessment score is checked to see that it is a sensible answer and feels right.

### Non Road Transport Options

- 1.3.2 Although the new appraisal guidance was originally designed for the appraisal of road schemes (DETR, 1998d), this guidance has been adapted to make it equally applicable for appraising the effects of non-road options, and mixed mode schemes. However, the following points are especially relevant.
- **Scale** - For some schemes, e.g. major rail proposals, the appraisal may involve a large number of affected features. It may, therefore, be helpful to summarise the individual feature appraisals in Worksheet 1 into meaningful groups before determining the overall assessment score. For example, this summary could set out the type and number of sites in each assessment score.
  - **Associated infrastructure** - The effects of both land take and associated infrastructure, such as stations for rail schemes, and tunnels, need to be appraised.
  - **Operational impacts** - The ongoing operational impacts from use may differ between different transport modes, so it is especially important to consider these.
- 1.3.3 It is important that all impacts on biodiversity and earth heritage are recorded, even where a particular transport mode may be the favourable environmental option overall.

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### **Qualitative Comment on the Effects of an Option**

- 1.3.4 This qualitative box on the Appraisal Summary Table should state whether biodiversity and earth heritage features are typical of the locality and summarise the overall effect of the project or proposal on biodiversity and earth heritage interests.

## **1.4 Methodologies for Strategies**

- 1.4.1 Where strategic level or corridor studies involve options with clearly defined routes and modes of transport, the principles of the appraisal process are the same as those described above. Where the strategic study does not provide clear definition of routes or possible modes of transport, a more strategic level of appraisal will be necessary. Two alternative methods are suggested below.
- 1.4.2 It may be appropriate, through scenario planning, to devise possible or expected routes or modes, or to devise worst, middle and best case scenarios. Where this can be related to specific impacts in specific locations, then the methodology is the same in principle as that described above, and Worksheet 1 should be completed. However, the assumptions made need to be made very clear in the appraisal process, and the overall assessment score may need to be expressed as a range (e.g. 'moderate to large adverse').
- 1.4.3 Conversely, the data on impacts at the strategic level may be limited to, for example, gross land take or changes to land use in the area as a whole. In such cases it may only be possible to appraise an option in relation to strategic objectives, rather than impacts on identified areas. It may also be possible only to appraise the impacts in more general terms, as outlined in Table 4 below.
- 1.4.4 For such cases, a more general methodology for determining the assessment score is suggested, based on Worksheet 2 (provided at the end of the TAG Unit). This includes the following steps.
- Establishment of biodiversity and earth heritage objectives, which may be at national, regional, and / or local scale. The key source documents relating to a local area's biodiversity and earth heritage objectives are English Nature's Natural Area profiles and Local Biodiversity Action Plans. These need to be considered in the context of regional and national objectives.
  - Prediction of each option's impacts on those biodiversity and earth heritage objectives.
  - Derivation of an overall assessment score based on the guidance in Table 4 below.
- 1.4.5 For some strategic level studies, it may be appropriate to complete both Worksheets 1 and 2. For example, it may be appropriate to complete Worksheet 1 for features known to be affected, plus Worksheet 2 for impacts on general objectives which can not be related back to specific features. Or, it may be appropriate to evaluate strategic options in relation to general objectives, using Worksheet 2, but to back this up by completing the Environmental Capital and biodiversity and earth heritage value elements of Worksheet 1, to provide an environmental baseline underlying the appraisal of impacts. In each case, the overall assessment score for the option as a whole needs to be made clear.

**Table 4 Guidance on Determining the Appraisal Category for Strategic Studies**

<b>Appraisal category</b>	<b>Criteria</b>
Probably positive	May have mixed positive and negative impacts, but the positive impacts are likely to be more significant than the negative impacts.
Probably negative	May have mixed positive and negative impacts, but the negative impacts are likely to be more significant.
Insignificant	This score should be used where the project has no significant impacts on biodiversity and earth heritage
Unknown/unclear	This score should be used in one of two circumstances: where the level of information available is insufficient to identify one of the above categories; or where the project has positive and negative impact, which cannot be considered insignificant, but do not clearly indicate that the overall impact will be probably positive or negative

**Completing the Appraisal Process**

- 1.4.6 Worksheets 1 or 2, or both as applicable, should be completed with an assessment score and supporting information for each feature assessed. Where appropriate, footnotes should be included on the Worksheet to explain assumptions relating to the appraisal. An overall assessment score for the option should be recorded at the bottom of the Worksheet and on the Appraisal Summary Table. A textual description of the overall effects on biodiversity and earth heritage should also be included in the summary table.

**Table 5 Guide to Biodiversity and Earth Heritage Value**

**International designations**

- Ramsar Sites (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971)
- World Heritage Sites (Convention for the Protection of World Cultural & Natural Heritage, 1972)
- Biosphere Reserves (UNESCO Man & The Biosphere Programme)
- European Sites (EC Habitats Directive 1992 & UK Habitats Regulations 1994):
  - Special Areas of Conservation (SACs)
  - Special Protection Areas (SPAs)
  - Sites of Community Importance (SCIs)
  - Possible / Candidate SACs and potential SPAs
- Sites hosting habitats/species of (European) Community interest (annexes 1 & 2, Habitats Directive, 1992)
- Sites hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979)
- Sites hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979)
- Biogenetic Reserves under the Council of Europe
- European Diploma Sites under the Council of Europe

**National designations**

- Sites of Special Scientific Interest (SSSIs; Wildlife & Countryside Act 1981 as amended and National parks and Access to the Countryside Act 1949)
- Sites with Limestone Pavement Orders (Wildlife & Countryside Act 1981)
- Nature Conservation Review Sites (NCR)
- Geological Conservation Review (GCR) sites
- Marine Nature Reserves (MNRs; Wildlife & Countryside Act 1981)
- Areas of Special Protection for Birds (ASPs; Wildlife & Countryside Act 1981)
- Sites hosting Red Data Book species
- Sites hosting species not covered by the Berne Convention but in schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981

**Regionally important and locally designated sites**

- Local Nature Reserves (LNRs; National Parks and Access to the Countryside Act 1949)
- Sites of Importance to Nature Conservation (SINCs) / County Wildlife Sites (CWSs) / other local designations
- Regionally Important Geological Sites (RIGs)
- Important 'inventory' sites (e.g. ancient semi-natural woodland, and grassland, inventories)
- Other sites (not described above) with Biodiversity Action Plan (BAP) priority habitats/species
- Other natural / semi-natural sites of significant biodiversity importance, not referred to above (e.g. sites relevant to local Biodiversity Action Plan / Natural Area objectives)

**Other sites with local conservation interest**

- Sites not in the above categories, but with some biodiversity or earth heritage interest.

## 2 Application of TAG to Highway Schemes

This section provides advice on the links between TAG's treatment of the biodiversity sub-objective and the advice given in Volume 11 of the *Design Manual for Roads and Bridges (DMRB)*, which deals with the environmental assessment of highway projects. An explanation of the correspondence between the advice set out in TAG and DMRB is given in *Applying the multi-modal new approach to appraisal to highway schemes* (TAG Unit 2.6)

### 2.1 Methods and Worksheets

2.1.1 Worksheet 1 separates the features of interest and requires each one to be described and evaluated separately. Each feature is described under the headings Scale (at which attribute matters), Importance (of attribute), Trend (in relation to target) and Biodiversity and Earth Heritage Value. Note that, at all Stages, the assessment score and its basis must be discussed with English Nature and their views taken into account.

2.1.2 At DMRB Volume 11 Stage 3, surveys carried out in accordance with Section 3 Part 4.7.9 will give all the information to fill in the worksheet 1 but the information will need to be split to fill in the different boxes and the rules on categorisation and significance described above need to be applied.

### 2.2 Data Transformation from DMRB to TAG

Data Requirements	Modify DMRB output?	Data Sources
Worksheet Description of existing features Appraise environmental capital Impact on 7 point scale	Re-order Re-order Yes	DMRB 11.3.4.7.9-20 DMRB 11.3.4 Use advice in this TAG Unit
AST Summary of character and effects Assessment score	Yes Yes	Summarise worksheet Transfer from worksheet

2.2.1 The biodiversity resource (habitat, area or species) are described separately for this topic with the aggregation of effects of the different areas being done in the step from the worksheet to the overall assessment score rather than across the worksheet itself as is the case for landscape, townscape and heritage. The first column therefore gives each resource to be assessed a name, and the subsequent columns are first a description of the feature or attribute followed by the indicators listed above. Substitution Possibilities, which occurs in the guidance text does not have a column in the worksheet.

2.2.2 The assessment follows the familiar four stage process of description, appraisal of environmental capital, appraisal of the proposal's impact and scoring. This is done for each biodiversity resource separately in the Magnitude of Impact column on a five point scale for which definitions are given in Table 2. An assessment score is recorded for each resource in the final column of the table on an eight point scale using the matrix provided by Table 3. This is then combined into an Overall or Summary assessment score as described earlier in this TAG Unit.

### 2.3 DMRB Stages 1 and 2/ TAG

2.3.1 Stage 1 DMRB requires a constraints plan and a statement of the likely effects of the proposal. The information gained can be used to populate the TAG

worksheet. Limitations and assumptions made should be made clear in the qualitative comments section at the end of the worksheet.

- 2.3.2 Stage 2 will include a more detailed analysis of the important features, including a walkover survey , and the route(s) will have been developed to some extent. Again, all known information of relevance should be included in the worksheet with a statement of the limitations and assumptions.

**Worksheet 1      Environment: Biodiversity - Plan Level**

**Scheme / option:**

Area	Description of feature / attribute	Scale (at which attribute matters)	Importance (of attribute)	Trend (in relation to target)	Biodiversity and earth heritage value	Magnitude of impact	Assessment score

Reference Source(s): \_\_\_\_\_  
\_\_\_\_\_

Summary assessment score: \_\_\_\_\_  
\_\_\_\_\_

Qualitative comments: \_\_\_\_\_  
\_\_\_\_\_

**Worksheet 2      Environment: Biodiversity - Strategy Level**

**Scheme / option:**

<b>Relevant Biodiversity and Earth Heritage objectives</b>	<b>Scale of objective (e.g. national)</b>	<b>Assessment score</b>

Reference Source(s): \_\_\_\_\_  
\_\_\_\_\_

Summary assessment score: \_\_\_\_\_  
\_\_\_\_\_

Qualitative comments: \_\_\_\_\_  
\_\_\_\_\_

### 3 Further Information

The following documents provide information that follows on directly from the key topics covered in this TAG Unit.

For information on:	See:	TAG Unit number:
Appraisal Summary Table	<i>Transport Appraisal and the New Green Book</i>	TAG Unit 2.7
	<i>The Appraisal Process</i>	TAG Unit 2.5
The Environmental Capital Approach	<i>The Environmental Capital Approach</i>	TAG Unit 3.3.6

### 4 References

Highways Agency *Design Manual for Roads and Bridges* (DMRB)

Parker D M. *1995 English Nature Science Series No 21*

DETR (1998a) *Guidance on the New Approach to Appraisal*

DETR (1998b) *Understanding the New Approach to Appraisal*

### 5 Document Provenance

This Transport Analysis Guidance (TAG) Unit is based on Chapter 4, Section 10 of the *Guidance on the Methodology for Multi-Modal Studies Volume 2* (DETR, 2000). Section 2 of this TAG Unit is taken from the Highways Bridging Document.

Technical queries and comments on this TAG Unit should be referred to:

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