
**VOLUME 10 ENVIRONMENTAL
DESIGN AND
MANAGEMENT
SECTION 0 ENVIRONMENTAL
OBJECTIVES**

PART 8

HA 93/01

**CONTRACT PERFORMANCE
REQUIREMENTS**

SUMMARY

This Advice Note provides guidance on the compilation of employers requirements and to contractors designers and management in the use of functions and elements in describing environmental requirements.

INSTRUCTIONS FOR USE

This is a new document to be incorporated into the manual.

1. Insert HA 93/01 into Volume 10, Section 0.
2. Archive this sheet as appropriate.

Note: A quarterly index with a full set of Volume Contents Pages is available separately from The Stationery Office Ltd.



THE HIGHWAYS AGENCY



**THE SCOTTISH EXECUTIVE DEVELOPMENT
DEPARTMENT**



**THE NATIONAL ASSEMBLY FOR WALES
CYNULLIAD CENEDLAETHOL CYMRU**



THE DEPARTMENT FOR REGIONAL DEVELOPMENT*

Contract Performance Requirements

* A Government Department in Northern Ireland

<p>Summary: This Advice Note provides guidance on the compilation of employers requirements and to contractors designers and management in the use of functions and elements in describing environmental requirements</p>
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REGISTRATION OF AMENDMENTS

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Contents

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2. D & B Contracts Introduction
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1.0 INTRODUCTION

1.0.1 This chapter of the Advice Note provides guidance to both compilers of Employer's requirements, and Contractors' Designers and Managers, on the application of Functions and Elements for describing Environmental Requirements, and the model text for each Function and Element, to be amended as necessary for individual DBFO schemes and inserted/referred to in Schedules 4 & 6 to the Employer's Requirements.

1.0.2 The contract references relate only to the Highway Agency's Model DBFO Document, and do not apply to Scotland, Wales, and Northern Ireland.

1.0.3 The Employer's Requirements in respect of landscape and ecological works are generally to be illustrated on the scheme's Environmental Masterplan drawings. Guidance is given on content in Part 7 of this Advice Note. The plans will be at suitable scale to adequately illustrate the areas requiring treatment, areas of existing vegetation or ecological interest to be protected, and other Environmental Elements or Planning Features that are relevant.

The features are described by attaching Functions and Elements to each area on the Masterplan.

1.0.4 Compilers should also provide a numerical 'Unique Feature Reference' to each area or feature, and create a tabular schedule within the requirements including any location-specific requirements, or variations to the core element description or performance specification. An example is provided below.

The need for and extent of the referenced schedules within the Employer's Requirements will be determined by the complexity of the scheme, the extent to which the illustrative design has been developed, and the adequacy of other documentation describing location-specific requirements, and thus whether the transfer of risk with the ability to be innovative during design can be safely passed to the DBFO Co without prejudicing the environmental objectives and commitments made for the scheme.

1.0.5 The principle is that the Function(s) and Element attached to each feature adequately describe the expected result, in terms of physical nature, and performance by the date of handback. Additional descriptive notes or references to other documents will amplify any location-specific constraints or objectives.

The Employer's Requirements thus operate in the same manner as the Environmental Database system described in Part 6. They provide the DBFO Co. with a framework of necessary information from which the Design and Management can be developed using the appropriate professional skills.

1.0.6 The DBFO Company's Designer prepares the detailed design and materials choice/specification based on the Environmental Masterplan, the Functions/Elements shown thereon, and any supplementary data provided in the Employer's Requirements.

1.0.7 The Employer's Requirements should oblige the DBFO Co to prepare his Design – and Outline Management Strategy, using the procedures described in this DMRB Vol 10 Section 0, utilising the Function/Elements, and the core requirements of the Environmental Database.

The Drawings should therefore be produced in electronic format, with all features being described by Function/Element, and with a Unique Feature Reference.

The accompanying schedules will be in the form of a skeleton Database, including all the core datasets in the prescribed format. Additional design/specification information (species, size, construction details etc) will be contained within additional documentation, cross-referenced by the Unique Feature Reference and/or "Path" column within the Database. Planting schedules etc may of course be shown on the Drawings if preferred.

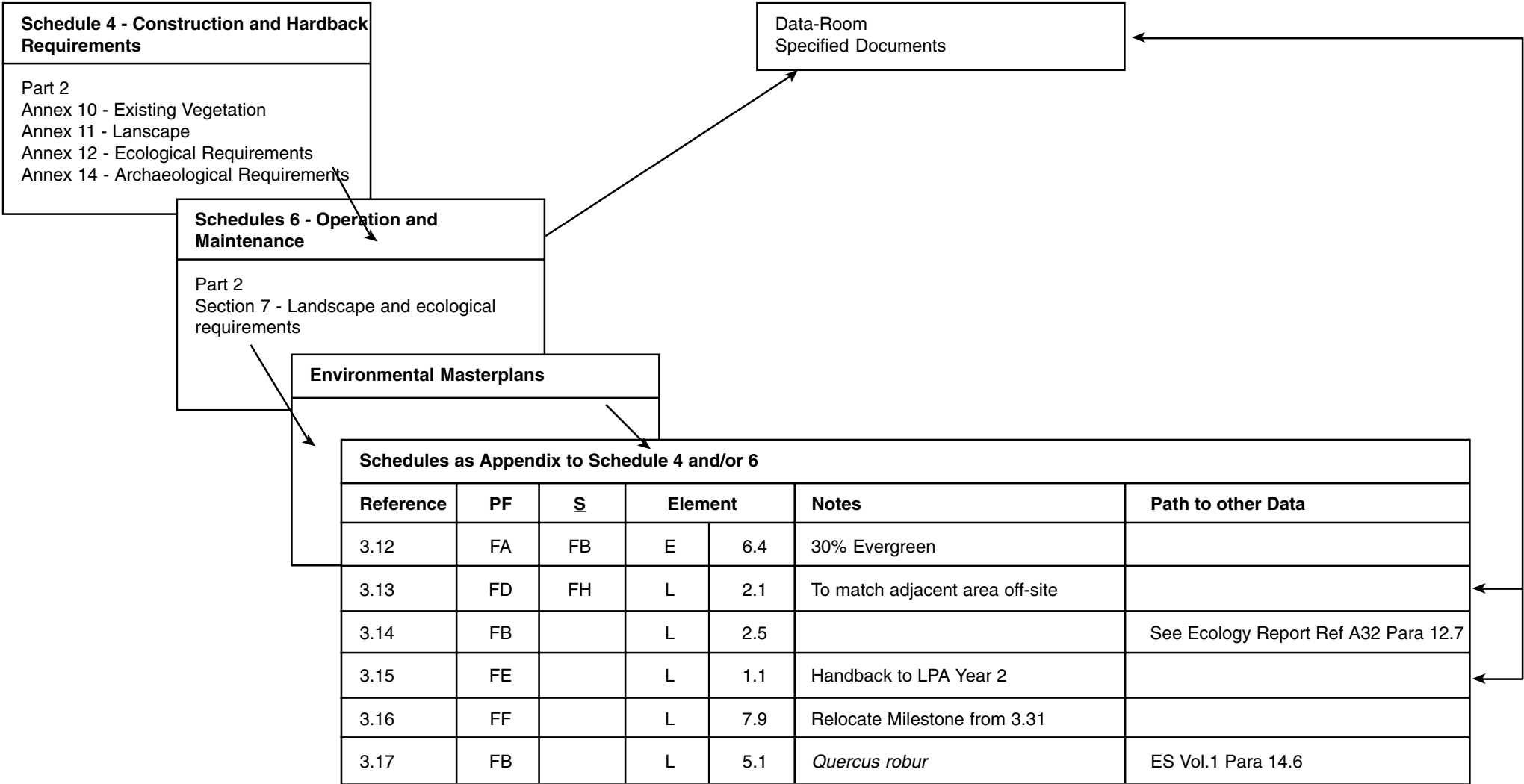
1.0.8 The DBFO Co Landscape Management Plan is prepared and updated based on the Drawings and Database, utilising the Unique Feature Reference.

The Handback requirements should be Plans linked to a Database, complying with Part 6 of this Advice Note, describing the scheme as approved and completed, and with cross-references to supplementary documents.

1.0.9 A 5-year Environment Management Plan for all the environmental features of the scheme should be prepared by the DBFO Co and updated every five years with the final Management Plan issued to cover the 5-year period after Handback, issued with the Database as described in 1.0.8 above.

In certain circumstances, such as ecological habitat reconstruction on or off-site, the Environment Management Plan may need to cover longer periods, to advise the receiving organisation more fully.

1.0.10 The illustration below indicates the linkage between the sections of the Employer's Requirements that may be useful.



1.1 EFA VISUAL SCREENING

- Thinning, coppicing or other maintenance of planted areas shall be carried out:
 - in such a way as to not open up views of the Project Road and the traffic on it; and
 - By light thinning on a regular basis rather than heavy thinning on an irregular basis.
- Screening structures and earthworks shall be maintained to minimise their visual impact on the landscape.
- Landscape Function Period: by Year 15

1.2 EFB LANDSCAPE INTEGRATION

- Planting, grassing, ground modelling, fencing or structural treatments shall be carried out so as to soften the appearance of the earthworks, environmental barriers and engineering features of the Project Road in views (i) from the surrounding landscape, and (ii) by Users on the Project Road.
- Landscape Function Period: by Year 10

1.3 EFC ENHANCING THE BUILT ENVIRONMENT

- Grassed and planted areas adjacent to pedestrian areas in town centres and on important approaches to towns shall be maintained so as to create a neat and tidy appearance.
- Hard landscape and materials shall be selected and maintained to suit local character and retain visual amenity.
- Landscape Function Period: by Year 10

1.4 EFD NATURE CONSERVATION AND BIODIVERSITY

- Highway and landscape maintenance shall be undertaken by means that conserve, and where possible enhance, the development of species and their habitats which are protected or of high nature conservation interest in or adjacent to the site.
- Land drainage characteristics necessary to support a diverse flora and fauna or particular species of interest already found on the site shall be conserved
- Habitats, including without limitation native woodland, woodland edge, wetlands, species rich grasslands and heathland, rock and scree, shall be managed so as to conserve, and where possible enhance, their nature conservation value
- All maintenance shall comply with the relevant legislation and the overseeing organisation's 'Biodiversity Action Plan'
- Landscape Function Period: Immediately and continuing

1.5 EFE VISUAL AMENITY

- Shape, form and colour of planting to provide interest for the User shall be designed using species appropriate to the local landscape character and maintained to enhance visual amenity.
- Landform structural finishes and highway furniture shall be designed and maintained to provide visual interest
- Landscape Function Period: by Year 10

1.6 EFF HERITAGE

- Where trees or other vegetation or physical features of local importance have to be removed or altered for safety reasons they shall, where possible prior to removal, be replaced by similar features in an appropriate safe location.
- Viewpoints across from the road of local landmarks or particular landscape settings shall be retained.
- Landscape Function Period: Immediately and continuing

1.7 EFG AUDITORY AMENITY

- Road surfaces shall be designed to generate significantly less tyre noise than hot rolled asphalt, as well as meeting operational requirements.
- Additional noise attenuation measures shall be designed to avoid the need to provide noise insulation of property, where this is achievable within reasonable costs.
- Landscape Function Period: Immediate and continuing

1.8 LFH: WATER QUALITY

- Water pollution control measures shall be provided to ensure that pollutant concentrations in receiving waters remain within the limits for the appropriate water quality objective for the watercourse or, if this is not available, for the appropriate current water quality classification.
- Spillage containment and control measures shall be installed where the estimated return period for the probability of the occurrence of a major spillage incident within the catchment is less than the return period relevant to the quality of the receiving waters.
- For discharges to ground water pollution control and spillage containment measures shall be installed as necessary to ensure compliance of the discharge with the Groundwater Regulations 1998.

1.9 LE1: GRASSLAND

- In respect of all LE1.3 and 1.4 the colonisation of grassland by native wildflower species and the regeneration of all native tree and shrub species shall be encouraged where this accords with the area's biodiversity interest, save that the colonisation of Sycamore, Rhododendron, Gorse, Broom and Bramble shall be controlled to ensure that these species collectively form less than 5% of the relevant Landscape Area.
- Areas of LE1.6 shall be maintained free of significant scrub cover unless otherwise agreed.
- Areas of wildflower grassland shall be managed to maintain floristic diversity appropriate to the soil type, aspect and species range existing or introduced. Management of such areas shall be in accordance with DMRB, Volume 10, Section 3, Part 1, HA 67/93 – Wildflower Handbook, as a minimum standard.
- Areas containing injurious weeds shall be maintained by measures that eradicate significant infestations (more than 10% of area coverage), and control recolonisation and/or spread onto adjacent land. The requirement of TRMM and the 1959 Weeds Act shall apply.

1.10 LE2: NATIVE PLANTING

- The percentage cover within a Landscape Area in respect of LE2 shall be in accordance with Table 1 save where:
 - thinning, removal of nurse species or cuttings which form part of a coppice management cycle has been undertaken within the previous two growing seasons;
 - deliberate glades have been created;
 - the development of an ecologically valuable ground flora would be damaged; and
 - natural regeneration of native species will lead to increased landscape or nature conservation value.

LE	Type	By Year 5	Interval – Year 5 until Year 15	Interval – Year 15 until Expiry Date
2.1	Woodland	75%	80%	90%
2.2	Woodland Edge/Linear Edges	80%	85%	90%
2.3	High Forest	50%	65%	75%
2.4	Linear Belts	80%	85%	90%
2.5	Shrubs with Intermittent Trees	80%	85%	90%*
2.6	Shrubs	80%	85%	90%
2.7	Scattered Trees	20-75%	20-75%	20 to 50 ha

Table 1 *Percentage Cover Requirements*

Notes to Table 1: - All percentages are minimum figures and are percentages of the relevant Landscape Areas- * refers to shrub coverage only

- The following shall be achieved in respect of all LE2s by Year 15 and maintained until after the Expiry Date:
 - the vegetation shall form or shall be clearly capable of forming groups of similar species, form and height to those in the vicinity, reflecting local vegetation patterns, structure and nature conservation value;
 - there shall be a diversity of age, structure and species; and
 - a native ground flora shall have been allowed to develop and the creation and development of protected species habitats (excluding badgers) shall be encouraged.

1.11 LE3: ORNAMENTAL PLANTING

- Ornamental shrubs shall attain growth rates and a form typical to the relevant species under good growing conditions, be free from other vegetation and shall not encroach upon or overhang footpaths or carriageways.
- Individual shrubs shall be allowed to grow into one another.
- Climbing shrubs shall be attached securely to and cover their supporting structure. Trailers shall be trained to achieve their Function.
- Ornamental shrubs and ground cover shrubs shall cover (i) at least 80% of the relevant Landscape Area at Year 5 and maintained thereafter until Year 10, and (ii) 97.5% of the relevant Landscape Area at Year 10 and maintained thereafter until the Expiry Date, except where the area is to be cleaned and replanted in accordance with the agreed Landscape Management Plan, in which case the replanting date becomes Year 1 for compliance with the Performance Requirements.

1.12 LE4: HEDGES

- Tops of hedges and hedgerows shall not be trimmed until they reach the appropriate height and side-branching of hedges shall be encouraged by trimming the sides.
- Ornamental hedges shall be pruned in a manner suited to the relevant species and location.
- At Year 5 and thereafter until the Expiry Date, save where natural regeneration of native species and ground flora enhances landscape or ecological value, hedges and hedgerows shall cover at least 80% of their basal area.
- The following shall be achieved in respect of hedges and hedgerows by Year 10 and maintained thereafter until the Expiry Date:
 - they shall be broadest at the base and form a dense visual screen with vegetation to ground level: and
 - they shall cover at least 95% of their basal area.
- Management of hedges, including, without limitation, hedge laying, shall be consistent with local practice where it contributes to the landscape character of the relevant area.

1.13 LE5: TREES

- The following shall be achieved in respect of individual trees by Year 5 and maintained thereafter until Year 15:
 - they shall form or be clearly capable of forming individual features or groups of similar species, form and height to those in the vicinity reflecting local vegetation patterns;
 - LE5.2, and LE5.1 where performing a visual amenity function, shall have a single leader except where multi-stemmed plants are appropriate to the location;
 - LE5.2, and LE5.1 where performing a visual screening function, shall retain their lower branches and have a well-balanced crown with no closely spaced branches or weak or tight forks; and
 - where they are less than 1m in height and located in a grassland area, the area within a radius of 600mm of such trees shall be maintained so as to be vegetation free.

- The quantity of individual trees within a Landscape Area shall be maintained.
- Older trees shall be allowed to retain the character and shape they have developed unless other considerations such as safety prevent this. Where such trees are removed they shall be replaced with similar trees in suitable adjacent locations.
- Arboricultural work to trees shall be carried out in accordance with the Forestry and Arboricultural Training Council (FASTCO) Guidelines.
- Semi-mature and mature trees shall be managed to enhance their growth to retain them as long as is practicable while they contribute to the character and quality of the landscape.
- Over mature trees which contribute towards nature conservation value shall be retained unless they pose a danger to Users or others.

1.14 LE6: WETLAND ELEMENTS

- Wetland areas shall be maintained to retain and develop habitats and species of ecological value or importance.
- Existing areas of ecological interest shall be maintained and enhanced.
- Water quality shall be such as to encourage wildlife.
- Pesticides and herbicides shall only be applied in or near water after permission has been obtained from the Environment Agency.
- No more than 30% of emergent or marginal vegetation within a wetland area shall be cut in one year.
- Water levels in reed beds shall be such as to allow and control the reed growth.
- Waterbodies shall be maintained to provide, under conditions of average rainfall, 100% of their water surface clear of weeds, emergent vegetation or blanket algae.
- From Year 5 until the expiry date all wetland species in shallow margins shall cover at least 70% of their margin, with woody wetland species covering no more than 30% of their margin.
- Banks and ditches shall have no more than 20% of shrub or tree species covering the area above water level.

1.15 LE7: HARD LANDSCAPE FEATURES

- Scheme specific requirements to be inserted by compiler.

2.1 INTRODUCTION

2.1.1 This chapter of the Advice Note provides guidance to both compilers of Employer's Contractors' Designers, on the application of Functions and Elements for describing Environmental Requirements, and the model text for each Function and Element, to be amended as necessary for individual schemes and inserted/referred to in the relevant Annex to the Employer's Requirements.

2.1.2 The contract references relate only to the Highway Agency's Model Document, and do not apply to Scotland, Wales, and Northern Ireland.

2.1.3 The Employer's Requirements, will describe the General Requirements of the Scheme, procedures to be followed, and related documents and drawings – such as the Environmental Statement – which set out the scheme – specific objectives and commitments.

2.1.4 The Employer's Requirements in respect of landscape and ecological works are generally to be illustrated on the scheme's Environmental Masterplan drawings. Guidance is given on content in Part 7 of this Advice Note. The plans will be at suitable scale to adequately illustrate the areas requiring treatment, areas of existing vegetation or ecological interest to be protected, and other Environmental Elements or Planning Features that are relevant.

The features are described by attaching Functions and Elements to each area on the Masterplan.

2.1.5 Whilst not essential, compilers may decide to also provide a numerical 'Unique Feature Reference' to each area of feature, and create a tabular schedule as an appendix of these, including any location-specific requirements or variations to the core element description or performance specification. An example is provided below.

The need or otherwise for the referenced schedules within the Employer's Requirements will be determined by the complexity of the scheme, the extent to which the illustrative design has been developed, and the adequacy of other documentation describing location-specific requirements, and thus whether the transfer of risk with the ability to be innovative during design can be safely passed to the Contractor without prejudicing the environmental objectives and commitments made for the scheme.

2.1.6 The principle is that the Function(s) and Element attached to each feature adequately describe the expected result, in terms of physical nature, and performance by the date of handback. Additional descriptive notes or references to other documents amplify any location-specific constraints or objectives.

The Employer's Requirements thus operate in the same manner as the Environmental Database system described in Part 6. They provide the Contractor with a framework of necessary information from which the Design and Management can be developed using the appropriate professional skills.

2.1.7 The Contractor's Designer prepares the detailed design and materials choice/specification based on the Environmental Masterplan, the Functions/Elements shown thereon, and any supplementary data provided in the relevant Annex.

2.1.8 The Employer's Requirements should oblige the Contractor to prepare his Design – and Outline Management Strategy, using the procedures described in this DMRB Vol 10 Section 0, utilising the Function/Elements, and the core requirements of the Environmental Database.

The Drawings should therefore be produced in electronic format, with all features being described by Function/Element, and with a Unique Feature Reference.

The accompanying schedules will be in the form of a skeleton Database, including all the core datasets in the prescribed format. Additional design/specification information (species, size, construction details etc) will be contained within additional documentation, cross-referenced by the Unique Feature Reference and/or "Path" column within the Database. Planting schedules etc may of course be shown on the Drawings if preferred.

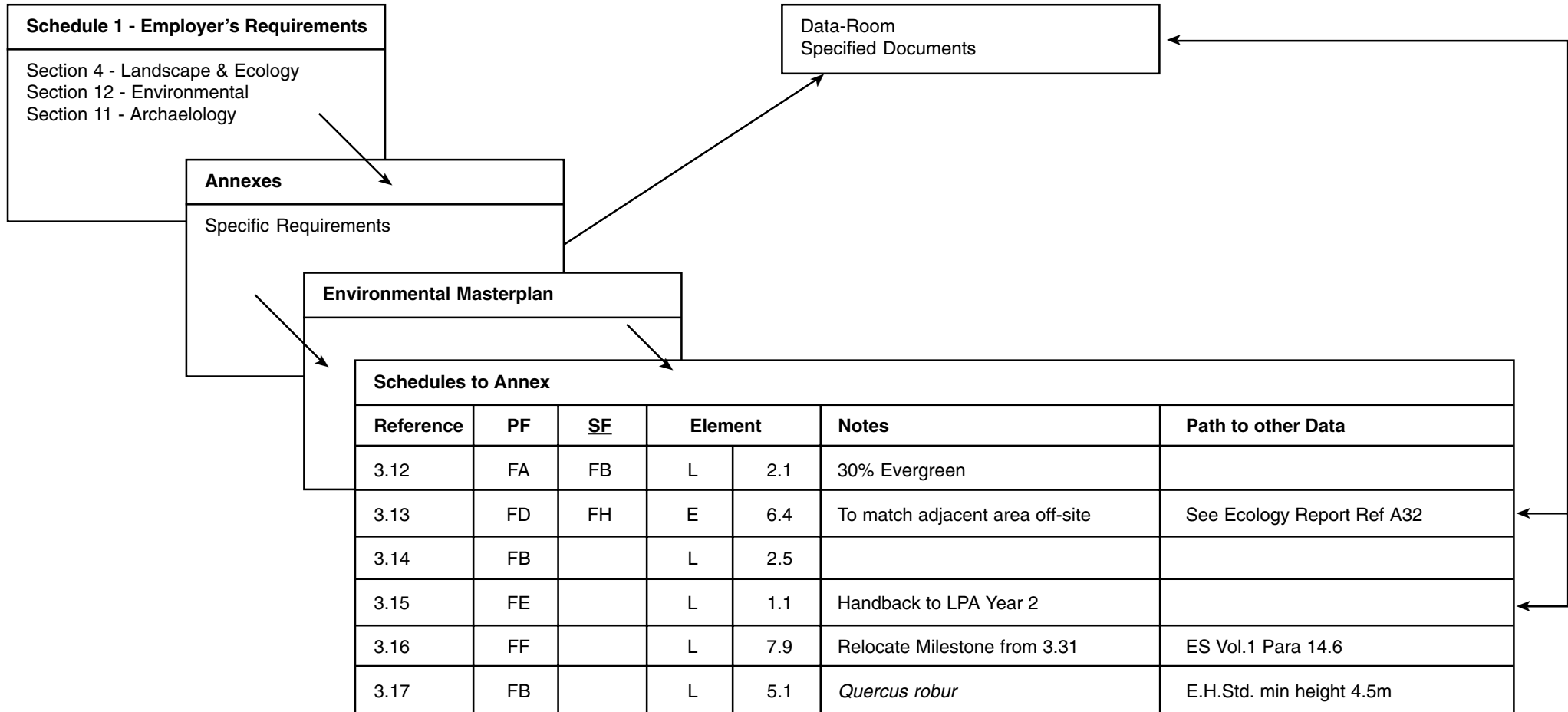
2.1.9 The Contractor's Landscape Management Plan is prepared and updated based on the Drawings and Database, utilising the Unique Feature Reference.

The 'As-Built' requirements should be Plans linked to a Database, complying with Part 6 of this Advice Note, describing the scheme as approved and completed, and with cross-references to supplementary documents.

2.1.10 A 5-year Management Plan for all the environmental features of the scheme should be prepared by the Contractor and included in the Handback requirements to cover the 5-year period commencing on the date the Maintenance certificate is issued.

In certain circumstances, such as ecological habitat reconstruction on or off-site, the Landscape Management Plan may need to cover longer periods, to advise the receiving organisation more fully.

2.1.11 The illustration below indicates the linkage between the sections of the Employer's Requirements that may be useful.



2.1.12 The following Chapters of the Advice Note provide the basic model text for the “Function and Element Requirements”, which compilers should amend, adapt and extend to suit the specific scheme, by expanding the range and description of Elements, or by describing site-specific variations in more detail within the Schedules.

2.1.13 Parts 2, 3 and 4 of this Advice Note provide the core text describing the Functions and Elements, with explanatory notes on usage and objectives.

2.1.14 Existing vegetation may also be attributed Functions and Elements for the purposes of protection, management and improvement during the Contract Period, with supplementary detail for specific locations where necessary.

The Contractor develops a specification and management plan for the Landscape and Ecological Works, which is submitted for comment and approval, and sets out in more detail his proposals for achieving the minimum requirements described in Chapters 2 and 3.

3.1 EFA VISUAL SCREENING

- Planting size spacing and species shall be selected to provide a dense screen to an appropriate height, for as long a season as is practicable. The planting specification and maintenance standards shall be selected to maximise growth and establishment to achieve screening as soon as possible, and in any event no later than Year 10.
- Visual barriers or earthworks mounding shall be designed to provide visual amenity to both adjacent properties and the road user, and to integrate as much as possible with the surrounding landscape features.
- Noise species where utilised within the planting, shall be selected and managed such that the long-term viability and screening capability of the overall mix is not prejudiced, by competing-out the slower-growing species.

3.2 EFB LANDSCAPE INTEGRATION

- Planting, grassing, ground modelling, and structure treatments shall be carried out so as to soften the appearance of the earthworks, environmental barriers, and engineering features of the road in views from (i) the surrounding landscape, and (ii) the road user.
- Landscaping, earthworks, fences, structural design, and the location and type of highway furniture shall be designed to integrate with surrounding landscape features and character.
- Maintenance of landscaping shall be undertaken using methods that blend the appearance of the landscape areas with adjacent features.

3.3 EFC ENHANCING THE BUILT ENVIRONMENT

- Grassed and planted areas approaching within or adjacent to towns, villages, and other built development, shall be designed to improve the local environment, and maintained to create a neat and tidy appearance, providing visual amenity to residents and road users, and providing a landscape character sympathetic to the adjacent built environment.
- Structural finishes, hard landscape materials, and highway infrastructure shall be designed, located, and maintained to provide visual amenity and suit local character.

3.4 EFD NATURE CONSERVATION AND BIODIVERSITY

- Soils selection, ground preparation, planting, and seeding works shall be designed and carried out to optimise the nature conservation value to the area as appropriate to the locality or specific requirements.
- Drainage characteristics necessary to support a diverse flora and fauna or particular species already existing on or adjacent to the site shall be conserved and measures taken to extend such habitats into adjacent areas within the highway boundary where practicable.
- All existing habitats of all landscape elements shall be managed to both conserve and enhance their nature conservation value, without prejudicing other functions these features may have.
- The design and maintenance of landscape and ecological areas shall be undertaken in compliance with relevant legislation and guidance, and with the overseeing organisations Biodiversity Action Plan.

3.5 EFE VISUAL AMENITY

- Landform, structural finishes, and highway furniture shall be designed and maintained to provide visual interest and pleasing appearance for both road user and surrounding public areas or properties.
- The shape, form, colour and siting of hard landscape, planting or grassed areas shall be designed using species appropriate to the local landscape and maintained to enhance visual amenity.
- Where appropriate landscape or structural features shall be designed to provide a landmark, or sense of place contrasting with the general treatment of the highway corridor.

3.6 EFF HERITAGE

- Where trees or other vegetation of local importance or historical interest have to be removed or altered for construction, or safety reasons, they shall – where practicable prior to removal – be replaced with similar features in an appropriate and safe location.
- Fences, walls, kerbs, structural finishes and paving shall, where appropriate, be designed using materials that reflect the local tradition and character, and conserve and enhance the setting of such existing features on or adjacent to the site.
- Viewpoints from or across the road of local landmarks, or particular landscape settings shall be retained by appropriate design and maintenance.

3.7 EFG AUDITORY AMENITY (NOISE)

- Road surfaces shall be designed to generate significantly less tyre noise than hot rolled asphalt, as well as meeting operational requirements.
- Additional noise attenuation measures shall be designed to avoid the need to provide noise insulation of property, where this is achievable within available land, at reasonable cost, and the measures can be designed without adverse impact on the landscape or adjacent property.
- Physical noise attenuation measures including barriers and earthworks shall be designed to provide visual amenity to adjacent properties and the road user.

3.8 EFH WATER QUALITY

- Water pollution control measures shall be designed and provided to ensure that pollutant concentrations in receiving waters remain within the limits for the appropriate water quality objective for the watercourse, or where this is not available, for the appropriate current water quality classification.
- Spillage containment and control measures shall be installed where the estimated return period for the probability of occurrence of a major spillage incident within the catchment is less than the return period relevant to the quality of the receiving waters.
- For discharges to ground water, pollution control and containment measures shall be designed and installed as necessary to ensure compliance of discharges with the Groundwater Regulations 1998 or succeeding legislation.
- Pollution control or flow attenuation measures that include vegetation or open water shall be designed and maintained to encourage nature conservation and landscape interests, where this can be achieved without prejudicing the maintenance needed to retain the measure's operational capability.

4.1 LE1 Grassland

Amenity Grass Areas (LE1.1 and 1.2) shall be maintained with an appropriate frequency of cutting either as specified by the Overseeing Organisation, or to match adjacent areas. Grass edges against kerbs, footways, planting areas, signs, etc shall be trimmed and edged at least once per year. Fertiliser shall be applied as required – normally annually – to retain uniform colour and vigour, and herb species shall be controlled.

4.2 **LE1.3 Species – Rich Grassland and LE1.4&5 Rock/Scree, Heath and Moor** shall be established on suitable soil substrates that inhibit colonisation by undesirable herb species or aggressive grasses, but enable the sward to achieve an adequate cover for erosion control.

- The colonisation of new and existing areas of LE1.3 4&5 by native wildflower species shall be encouraged where this accords with the biodiversity objectives for the area, and where such species provide habitat for fauna. Colonisation by native scrub shall be encouraged where this would contribute to either biodiversity or visual amenity interest, save that Sycamore, Ash, Broom, Gorse, Rhododendron, and Bramble shall be controlled such that these species collectively form less than 5% of the relevant area.
- Management of LE1.3, 1.4 and 1.5 areas shall be undertaken to maximise establishment and development of floristic diversity appropriate to the locality.

4.3 **LE1.6 Open Grassland** shall be established using species mixtures that provide adequate cover and erosion control, inhibit weed growth, but where practicable integrate with adjacent areas, and capable of developing future biodiversity interest.

- Areas of LE1.6 shall be maintained free of significant scrub cover ruderal weed infestations and injurious weeds, and shall be cut a minimum of two times. The requirements of TRMM shall also apply.

4.4 **LE2 Native Planting** Existing vegetation shall be managed to develop its stated Function, and specific Employer’s Requirements, and to achieve the percentage cover stated in the Table 1 below.

- New plantings shall be established using suitable soil substrates capable of supporting healthy and adequate growth rates, and providing stability within the root zone both during establishment and upon the planting reaching maturity. Except where overriding Nature Conservation functions dictate otherwise, a 1.0m diameter circle free of grass and weed growth shall be established around each plant and maintained clear until at least 48 months after planting/replanting and longer as necessary to achieve the vegetation growth and area coverage as per the Table 1 below.

- The percentage of woody vegetation cover achieved within LE2 Landscape Areas shall be in accordance with the Table 1 below, save where:
 - a) removal of nurse species for new areas, or thinning/coppicing of existing areas that forms part of the agreed Landscape Management Plan has been undertaken in the previous growing season.
 - b) deliberate glades have been created.
 - c) the development of biodiversity interest within the ground flora or woody vegetation would be damaged.

Element	Type	Percentage Cover by Year 5
2.1	Woodland	80%
2.2	Woodland Edge	85%
2.3	High Forest	50%
2.4	Linear Belts	80%
2.5 & 3.1	Shrubs with Intermittent Trees Amenity Tree and Shrub Planting	90%
2.6	Shrubs	90%
2.7	Scattered Trees	20-150/ha
2.8	Scrub	To suit Landscape Management Plan
3.2, 3.3	Ornamental Shrubs, Ground Cover	95%

- The species choice and planting matrices shall be chosen to reflect local vegetation patterns, structure, and nature conservation value shall accord with any specific Employer’s Requirements, and be clearly capable of achieving a diversity of age, layer structure and species mix by Year 10.
- Nurse species shall only be permitted where their usage offers specific benefits to the achievement of the area’s Function, and they can be controlled and/or removed without prejudice to the species selected for the longer-term structure.

4.5 LE3 Ornamental Planting Areas Trees, shrubs, groundcover and climbing plants shall achieve growth rates typical of the relevant species in good growing conditions, and areas shall be maintained clear of grass, weeds and other woody vegetation. Percentage cover shall be achieved as per Table 1 above.

- Plants shall be maintained so as not to encroach upon or overhang footways, carriageways, or other highway infrastructure requiring clearances for safety/operational reasons.
- Individual shrubs shall be allowed to grow into one another, whilst retaining coherent groups of the constituent species within the area.
- Areas of LE3.2 Ornamental Planting and LE3.3 Groundcover shall receive a layer of organic mulch, maintained at a suitable depth for weed inhibition, and moisture retention until the issue of the Maintenance Certificate. Areas shall be maintained free of all grass and weed growth throughout the maintenance period.
- Climbers and trailers shall be securely attached by means appropriate to the species, and encouraged to cover the area or structure for which they are intended.

4.6 LE4 Hedges Existing hedges and hedgerows shall be maintained, trimmed, or laid to suit the location and constituent species, and in accordance with local practice.

- New hedges and hedgerows shall be planted and maintained so as to achieve, by the end of Year 5, an 85% coverage of the basal area. The basal area is defined as the hedge length plus a width of 0.2m either side of the planting row or rows.
- Ornamental hedges shall achieve 95% coverage of the basal area, which shall be maintained, with a covering of organic mulch to an appropriate depth for inhibiting weeds and retaining moisture. The basal area of all new hedges and hedgerows shall be maintained free of grass and weed growth.
- Tops of hedges shall not be trimmed until they reach the appropriate height, the sides shall be managed to encourage branching and the formation of a dense visual screen. Native hedges shall be managed towards being broadest at the base, with vegetation to ground level.

4.7 LE5 Individual Trees Existing trees shall be maintained in a safe, healthy condition and to achieve their stated function. Arboricultural works shall be carried out where necessary in accordance with FASTCO guidelines.

- Individual trees shall be planted in prepared pits with adequate provision for drainage to avoid waterlogging, and topsoil ameliorated as necessary with nutrients and/or organic material.
- Trees shall be supported with appropriate stakes, ties, or guying systems, and where relevant, the lower stems protected from physical damage by grass cutting or other operations.
- Tree stock shall be planted, including any that require to be replanted, at the minimum height/girth stated in the Schedules within the relevant Annex to the Employer's Requirements, and the requirements of paragraph (a) below.

Note: Alternatively, or if schedules are not used, the computer may state here the minimum planting size(s)

- Individual trees shall achieve the following by handover:
 - (a) They shall be free of dieback, and crown size shall have increased by at least 15% over original planting size.
 - (b) They shall form or be clearly capable of forming groups of similar species, form, and height.
 - (c) They shall have a single leader, except where multi-stemmed trees are accepted as being appropriate to the location.
 - (d) They shall retain their lower branches, and have a well-balanced crown with no closely spaced branches, crossing stems, or weak or tight forks.
 - (e) The quantity of individual trees within each Area shall match the Landscape Design, and be capable of maintaining such quantity until Year 15.
- Individual trees shall be watered as necessary to promote early establishment and healthy growth. A 1.0m diameter circle around each tree shall be maintained free of grass and weed growth. Individual trees in urban areas, and trees within amenity grass areas shall have the edge of the 1m circle trimmed and edged at least twice per year, and the mulch topped-up concurrently with this operation.

4.8 LE6 Wetland Elements wetland areas shall be maintained to retain and develop habitats and species of ecological value or importance.

- Where a wetland element also has an engineering function, this shall be taken into account in the management operations within the areas.
- Existing areas of ecological interest shall be maintained and enhanced.
- Water quality shall be such as to encourage wildlife.
- Pesticides and herbicides shall only be applied in our near water after consultation with and permission from the Environment Agency.
- No more than 30% of emergent or marginal vegetation within an individual area shall be cut or cleared in any one year.
- Water levels in reed beds shall be maintained such as to allow and control the reed growth and spread.
- Water bodies shall be maintained to provide, under average rainfall conditions, 100% of the water surface clear of weeds, emergent vegetation, or blanket algae.
- By handover, marginal wetland species shall cover 70% of the design area, with woody species comprising less than 30% of the area. Reed bed species shall cover 90% of the design area by handover.
- Banks and ditches shall have no more than 10% of tree/shrub species or scrub covering the area above water level.

4.9 LE7 Hard Landscape Elements

- Scheme-specific requirements to be inserted by Compiler.

5. ENQUIRIES

All technical enquiries or comments on this Advice Note should be sent in writing as appropriate to:

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