

# **Engineering Technical Report**

## **136**

**Issue 1 – June 2007**



### **Vegetation Management Near Electricity Equipment- Principles of Good Practice**



All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written consent of Energy Networks Association. Specific enquiries concerning this document should be addressed to:

**Engineering Directorate  
Energy Networks Association  
18 Stanhope Place  
Marble Arch  
London  
W2 2HH**

This document has been prepared for use by members of the Energy Networks Association to take account of the conditions which apply to them. Advice should be taken from an appropriately qualified engineer on the suitability of this document for any other purpose.

## CONTENTS

VEGETATION MANAGEMENT NEAR ELECTRICITY EQUIPMENT – PRINCIPLES OF GOOD PRACTICE .....	3
1. BACKGROUND .....	3
2. PURPOSE .....	3
3. SCOPE .....	3
4. DEFINITIONS .....	4
5. LEGISLATION & GUIDANCE NOTES .....	5
5.1. General .....	5
5.2. Electricity Legislation.....	5
5.3. Planning legislation (Town and Country Planning Act 1990 & related regulations and standards) .....	6
5.4. Forestry Act 1967, felling licences, Plant Health Act 1967 & subsequent orders.....	7
5.5. Wildlife & environmental legislation & good practice.....	8
5.6. Protection of birds (Schedule 1) .....	8
5.7. Protection of other animals (Schedule 5).....	8
5.8. Protection of plants (Schedule 8).....	9
5.9. The Conservation (Natural Habitats, &c.) Regulations 1994.....	9
5.10. The Countryside and Rights of Way Act 2000 (England and Wales) .....	9
5.11. Good Practice - Veteran Trees.....	9
5.12. Site Safety and Occupier's liability.....	9
5.13. Waste Management .....	10
6. CLEARANCES .....	10
7. WAYLEAVES AND EASEMENTS / SERVITUDE .....	10
8. VEGETATION SURVEYING .....	11
8.1. Information collected / included in the survey .....	11
9. LAND OWNER APPROVALS AND COMMUNICATION .....	11
9.1. Planning and liaison .....	11
9.2. Land Owner Approvals.....	12
10. ACCESS TO LAND / PROPERTY .....	12
10.1. Conduct Whilst on Site .....	13
10.2. Single Farm Payment Scheme .....	13
11. STANDARD OF WORK .....	13
11.1. Integrated vegetation management.....	13
11.2. Pruning.....	14
11.3. Woodland management .....	14
11.4. Design of line clearance corridors (See also [14.1] Wildlife corridors) .....	15
11.5. Managing the risk of Wind blow .....	15
11.6. Crown raising mature trees along lines.....	15
11.7. Line Clearance Corridor Harvesting & Thinning Operations .....	15
11.8. Hedgerow management .....	16
11.9. 11.9. Herbicide treatment and growth regulators .....	17
11.10. Vegetation obstructing & infesting the bases of pylons, poles and ground mounted equipment.....	17
12. DISPOSAL OF ARISINGS .....	17
12.1. Cut and stack on site.....	17
12.2. Cut and removal from site .....	17
12.3. Chip and spread on site .....	17
12.4. Chip and remove from site .....	17
12.5. Burning.....	18
12.6. Recycling of Arisings .....	18
13. PLANTING / REPLANTING .....	18

13.1. Planting of New Woodland .....	18
13.2. Replanting.....	18
14. WILDLIFE .....	19
14.1. Wildlife Corridors.....	19
15. TRAINING AND QUALIFICATIONS.....	20
16. CONTRACTORS (INCLUDING CONTRACTOR PROFILE) .....	20
16.1. Service Provider Selection .....	20
16.2. Service Provider Management .....	21
17. RESOURCES .....	21
18. DISPUTE RESOLUTION – USE OF STATUTORY POWERS .....	21
REFERENCES .....	23
BIBLIOGRAPHY .....	24
GLOSSARY OF TERMS.....	25
ANNEX A EXAMPLES OF PROTECTED SITES .....	26

## FIGURES

Table 1 - Examples of suitable tree species .....	19
---	----

## **VEGETATION MANAGEMENT NEAR ELECTRICITY EQUIPMENT – PRINCIPLES OF GOOD PRACTICE**

### **1. BACKGROUND**

This ETR has been developed following the publication of ETR 132, ‘Improving Network Performance Under Abnormal Weather Conditions by Use Of A Risk Based Approach To Vegetation Management Near Electric Overhead Lines’. External stakeholders were consulted and invited to comment on the draft of ETR 132, these included Government Departments, Environmental Groups, relevant Trade Associations and landowners. From the comments received, and noting the comments received by the DTI on their consultation on the draft of the ESQC (Amendment) Regulations 2006, many stakeholders expressed a desire for the Network Operators to have a ‘Good Practice Guide’ for site works undertaken on vegetation management.

The scope of ETR 132 did not include a ‘Good Practice Guide’. However; the Network Operators recognise the benefit of such a document to all stakeholders in this activity including ENA member companies, landowners, customers etc. Hence this document has been developed in order to meet the reasonable aspirations of stakeholders.

### **2. PURPOSE**

The aim of this ETR is to present generic principles of good practice for Vegetation Management in the vicinity of electricity networks and network equipment when in pursuit of compliance with the statutory obligations that are placed on Network Operators. It explains why Vegetation Management is necessary and how good co-operation can benefit all stakeholders.

### **3. SCOPE**

This report provides non-prescriptive guidance for Network Operators and their Site Staff when engaged in Vegetation Management. The report covers all phases of work from the planning stage through to completion and leaving site.

There is guidance on how to manage the liaison between Network Operator and Landowner, including data exchange and management of any agreements between the two parties. This guidance is aimed to ensure good relationships between Network Operators and Landowners but it also provides advice on how to resolve disputes should they occur.

This report covers all areas of Vegetation Management in the vicinity of electricity equipment and not just tree cutting. The report recognises that Vegetation Management is a cyclic process which needs to be repeated after a period of years dependent upon growth rates. Alternative Engineering solutions may be considered (Ref ETR 132 section 6.2.3).

There is guidance on the standard of Vegetation Management required and how to deal with Arisings etc.

This ETR is applicable to all public electricity Networks in the UK from 230V to 400,000V.

Guidance on safety related matters, such as safe working around Overhead Lines, is outside the scope of this report. Guidance on such matters can be found in ENA ER G55/1 [Ref 1] and ENA-TS 43-8.

## 4. DEFINITIONS

For the purposes of this Engineering Technical Report the following definitions apply.

### **Arisings**

All vegetation waste resulting from line clearance activities.

### **Network Operator (NO)**

The organization that owns and/or operates a distribution Network and is responsible for keeping Vegetation clear of Overhead Lines. A NO might also be referred to as a Distribution Network Operator (DNO) or Transmission system operator (TSO).

### **Voltages**

#### **Low voltage (LV) – taken from ESQCR 2002[Ref 2]**

Means - in relation to alternating current, a voltage exceeding 50 volts measured between phase conductors (or between phase conductors and earth), but not exceeding 1000 volts measured between phase conductors (or 600 volts if measured between phase conductors and earth), calculated by taking the square root of the mean of the squares of the instantaneous values of a voltage during a complete cycle.

#### **High voltage (HV) – taken from ESQCR 2002[Ref 2]**

Means any voltage exceeding 1000V.

#### **Extra High Voltage (EHV)**

Means any voltage exceeding 20,000V.

### **Landowner**

Means a person who either owns or is in actual occupation of the land.

### **Line Conductor**

A conductor used, or to be used, for conveying a supply of electricity. A line conductor is deemed to include a through jumper.

### **Network**

Means all those elements of the NO's electrical infrastructure associated with the transmission and distribution of electrical energy. This includes, but is not limited to, Overhead Lines, Overhead Line supports, stay wires, pole mounted transformers and switchgear.

### **Overhead Line (OHL) – taken from ESQCR 2002[Ref 2]**

Means any electric line which is placed above ground and in the open air.

### **Protected Sites**

This is an all encompassing term used to describe those areas that because of the flora and/or fauna present or other feature, carries some form of statutory protection that may affect, or be affected by, Vegetation Management. Examples of Protected Sites are shown under Annex A to this ETR.

### **Safety Distance**

Distance from nearest exposed conductor or from an insulator supporting a conductor which is maintained to avoid danger.

*NOTE: This definition has been taken from ENA-TS 43-8 [Ref 1], therefore it should be seen in the context of that document and not confused with safety clearances that are described in other safety literature.*

### **Span**

The overhead lines between two adjacent supporting poles or structures.

### **Utility Arborist**

An individual who is knowledgeable about the needs of trees and is trained and equipped to provide proper care, also to carry out the specialist management techniques associated with vegetation in proximity to power lines and who holds the appropriate certification credentials and qualifications. In addition the individual will have sufficient technical knowledge or experience in basic electrical safety to avoid danger.

### **Vegetation**

All plant life including, but not limited to, trees, shrubs, hedges and grasses but excluding lawns.

### **Vegetation Management**

An all encompassing term which includes, but is not limited to: tree felling and pruning, herbicide application, hedge and ground maintenance and coppicing.

### **Wayleave / Easement - Servitude**

A legally enforceable agreement between a Landowner and a NO for placing electricity Networks over the land.

## **5. LEGISLATION & GUIDANCE NOTES**

### **5.1. General**

Vegetation management by NOs is driven by Electricity legislation, which requires and enables the maintenance of clearances from Networks to adjacent vegetation. However the nature of the work means that other legislation such as planning, forestry and wildlife law, health and safety law and common law all have a bearing.

This section describes the main legislation and standards which apply.

### **5.2. Electricity Legislation**

#### **Electricity Act 1989**

#### **Schedule 4, Paragraph 9 – ‘Felling and lopping of trees etc.’**

Generally, the owner of the land where the lines are situated is responsible for managing trees and can reclaim costs from the NOs. However, cutting trees in close proximity to live electricity overhead lines can be very dangerous if persons are not trained in this work. Consequently it is common for most NOs to offer to undertake the necessary work on the landowner's behalf. In cases where landowner's are unwilling to allow works to be undertaken the NO has powers under Schedule 4 para 9 to give notice to the Landowner requesting work to be carried out. If necessary the NO will carry out the work 21 days following the notice, subject to an objection procedure. Disputes are referred to the Secretary of State. The NO is required to:-

- Give notice to both the occupier and the landowner, if the two are different.
- Work in accordance with obligations under schedule 9 of the Electricity Act (Preservation of Amenity) observing good arboricultural practice and so as to do as little damage as possible to trees, fences, hedges and growing crops.
- Cause felled trees, lopped boughs or root cuttings to be removed in accordance with the directions of the landowner or occupier.
- Make good any damage done to the land.
- For Safety reasons given above the NO will usually offer to undertake the work specified in the notice.

(see- [www.dti.gov.uk/files/file34072.pdf](http://www.dti.gov.uk/files/file34072.pdf))

### **Electricity Safety, Quality and Continuity Regulations (ESQCR 2002) as amended.**

NOs have a duty under the Electricity Safety, Quality and Continuity Regulations (as amended) to keep sufficient distance between vegetation and overhead lines both to safeguard public safety and to ensure continuity of supply. This should help the network to be more resilient to the effect of severe weather. It may result in more extensive tree cutting to be carried out than before, with trees that pose a high risk being removed (Refer to DTI statement – Management of vegetation near overhead power lines)

### **Electricity at Work Regulations 1989**

These Regulations impose a duty of care on all employers (including landowners employing their own labour or using third parties) to ensure safe working practices for employees and others with regard to electricity at work. In practice this implies landowners seeking the advice of the NOs and having regard to HSE advice when planning vegetation management near overhead conductors.

### **5.3. Planning legislation (Town and Country Planning Act 1990 & related regulations and standards)**

Vegetation management by NOs often involves work to protected trees. These may be the subject of a tree preservation order, or be protected because of their inclusion in a planning conservation area, or as a condition of a planning consent. Often they will be the subject of intense public interest and concern.

#### **Tree Preservation Orders**

The law on TPOs in England and Wales is set out in the Town and Country Planning Act 1990 and Statutory Instrument 1999 No. 1892, the Town and Country Planning (Trees) Regulations 1999. In Scotland, TPOs are governed by the Town and Country Planning (Scotland) Act 1997. A TPO prohibits the cutting down, uprooting, topping, lopping, wilful damage or wilful destruction of trees without the consent of the Local Planning Authority (including, in the Secretary of State's view – the cutting of roots).

*Also see 'Tree Preservation Orders: A guide to the law and good practice', chapter 6. (Published by Department for Communities & Local Government. [www.communities.gov.uk](http://www.communities.gov.uk))*

NOs have clear exemptions with regard to TPO's. Exemptions from the need to obtain the Local Planning Authority's consent or give them notice are in each TPO. TPOs usually include an exemption allowing NOs to carry out works on trees which interfere with the maintenance of electric lines or in the interests of the safe operation of the network. Operators should always follow industry codes of practice:-

- National Joint Utility Group - Guidelines for the planning, installation and maintenance of utility services in relation to trees.

- Tree Preservation Orders: A guide to the law and good practice, Annex 4. (Published by Department for Communities & Local Government. [www.communities.gov.uk/treesandhedges](http://www.communities.gov.uk/treesandhedges))

### Trees in Conservation Areas

Anyone proposing to cut down, uproot, top or lop a tree in a Conservation Area is required to give the Local Planning Authority six weeks notice before doing so. This gives the authority an opportunity of making a TPO in respect of the tree. This applies to all trees of 7.5 cm diameter or above, measured at 1.5m height above ground level.

### Trees on development sites

BS 5837 (Trees in relation to construction - recommendations) provides guidance on how to protect against damage and integrate trees, shrubs and hedges into new development, covering the planning stages of the project through to implementation.

### Hedgerow Regulations 1997 (*Not Scotland*)

It is unlawful to remove most countryside hedgerows without written consent from the Local Planning Authority. Coppicing, laying and the removal of dead and diseased trees are regarded as normal management, not requiring permission.

Permission to remove a hedgerow is not required to comply with a statutory notice for preventing interference with electric lines and equipment. (Reference The Hedgerow Regulations 1997; Statutory Instrument 1197 No. 1160).

*See also The Hedgerow Regulations 1997: a guide to the law and good practice chapter 4.14 published as PDF document by DEFRA at [www.defra.gov.uk](http://www.defra.gov.uk)*

### 5.4. Forestry Act 1967, felling licences, Plant Health Act 1967 & subsequent orders.

Forestry (Exceptions from Restriction of Felling) Regulations 1979 (SI1979, No. 792), as amended, protects forests and woodlands against losses from human activities such as felling, development and inappropriate planting, and natural agencies which may be spread by man (pests including fungi, mammals and invertebrates). NOs working in woodlands may be affected by felling licence requirements and plant disease orders.

*Also see 'Tree Felling - Getting Permission' PDF document published by Forestry Commission; [www.forestry.gov.uk](http://www.forestry.gov.uk)*

### Felling Licence requirements

A felling licence is required for cutting more than five cubic metres per 3 month time period for the owner's use (of which two cubic metres per quarter can be for sale). Exemptions include felling trees essential to maintain electricity services. However any felling carried out beyond the minimum clearance specification might affect the woodland owner's quarterly allowance or require a felling licence.

### Legal Rights and Interests of Others in Woodlands

Others may have interests and controlling rights in woodlands, and may need to be consulted about proposed work. Woodland may be the subject of a commercial sporting lease, hunting rights, water extraction rights, mineral extraction rights, rights of way, or the subject of a planning condition or TPO, or classified as a SSSI or local nature reserve.

### Disease & Invertebrate orders

Work may involve vegetation subject to a disease order – for instance the Plant Health Phytophthora ramorum order SI 2004 no 3213, or where a notifiable invertebrate such as the Great Spruce Bark Beetle (*Dendroctonus micans*) is detected. It is a legal duty to inform the Forestry Commission when a notifiable pest is detected, or when working in an area covered by a restriction imposed by an order.

### 5.5. Wildlife & Environmental legislation & good practice

The major legal instrument for wildlife protection in the UK (excluding Northern Ireland, the Channel Islands and the Isle of Man) is the Wildlife and Countryside Act 1981 (as amended), although other significant legislation has followed; notably the Environmental Protection Act 1990, the Protection of Badgers Act 1992, the Countryside and Rights of Way Act 2000 (England and Wales), the Conservation (Natural Habitats &c.) Regulations 1994 and Nature Conservation (Scotland) Act 2004. The Wildlife and Countryside act itself has been significantly amended and the schedules of protected species are subject to five yearly statutory review.

It is the means by which the Convention on the Conservation of European Wildlife (the ‘Bern’ convention) and European Union Directives on the Conservation of Wild Birds (79/409/EEC), Natural Habitats, Wild Fauna and Flora are also implemented in all parts of the UK.

NOs have a duty under the Natural Environment and Rural Communities Act 2006 to have regard, so far as is consistent with the proper exercise of their functions, to the purpose of conserving biodiversity.

Also related to NO tree work, the Wildlife and Countryside Act 1981 requires surveying authorities to maintain up to date definitive maps and statements, for the purpose of clarifying public rights of way. (Reference - Joint Nature Conservation Committee / UK legislation / Wildlife & Countryside Act 1981: [www.incc.gov.uk](http://www.incc.gov.uk))

Work affecting protected species may require a license.

The main issues under the Wildlife and Countryside Act relating to NO vegetation management are set out below:-

### 5.6. Protection of birds (Schedule 1)

Under the act, it is an offence to kill, injure or take any wild bird, or to take, damage or destroy the nest or the eggs of a wild bird while in use or being built. (Authorised people may take or disturb pest species in special circumstances). There are additional penalties relating to disturbing listed (schedule 1) nesting birds at nest.

Areas of special protection are designated where access is restricted and disturbance prohibited (see Annex A).

### 5.7. Protection of other animals (Schedule 5)

Under the act, the intentional killing, injuring or taking of listed (schedule 5) wild animals is prohibited. In addition places used for shelter and protection are safeguarded against intentional damage, destruction and obstruction and protected animals must not intentionally be disturbed while occupying those places.

Examples of currently listed mammals relevant to NO vegetation management include all Bats, Dormouse, Red Squirrel, Wild Cat and Pine Marten, Smooth Snakes, Sand

Lizards, Great Crested Newts, Natterjack Toads and several invertebrates. All reptiles are protected from deliberate harm or destruction” .

Badgers are protected by The Protection of Badgers Act 1992, under which it is a criminal offence:

- to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or attempt to do so;
- to interfere with a sett by damaging or destroying it;
- to obstruct access to, or any entrance of, a badger sett;
- to disturb a badger when it is occupying a sett.

### **5.8. Protection of plants (Schedule 8)**

The act prohibits the unauthorised intentional uprooting of any wild plant species and forbids any picking, uprooting or destruction of certain listed plants (schedule 8).

The Wildlife and Countryside Act lists exemptions covering NOs.

### **5.9. The Conservation (Natural Habitats, &c.) Regulations 1994**

These regulations implement a register of important wildlife sites in Britain, creating powers to make special nature conservation orders. They allow management agreements to be created to control potentially damaging operations, creation of bylaws, compulsory purchase of sites, a requirement to give notice of proposed works and set out fines for offences.

The regulations afford special protection to a range of wildlife species and the places that they inhabit, for example Otters, Red Squirrels, Dormice, and Great Crested Newts

### **5.10. The Countryside and Rights of Way Act 2000 (England and Wales)**

Among other changes this strengthens protection for Sites of Special Scientific Interest, provides greater recognition for Areas of Outstanding Natural Beauty, and requires certain bodies to have regard for AONB's when doing anything which would affect the land. It also makes it an offence to recklessly disturb a place of rest or shelter of a protected animal or a nest site and increases penalties for offences.

### **5.11. Good Practice - Veteran Trees**

“A veteran tree can be defined as a tree that is of interest biologically, aesthetically or culturally because of its age, size or condition.” Reference – Veteran Trees: A guide to good management (English Nature).

Where veteran trees are in proximity to overhead electricity lines good practice is – where practicable - to actively seek management solutions that remove unacceptable risk to the overhead line but retain the distinctive value of the tree. An example might be to consider crown reduction rather than automatic felling.

### **5.12. Site Safety and Occupier’s liability**

The Occupier’s Liability Act 1984 (amended) (England and Wales only) places a duty of care on the landowner towards visitors and other persons. Good practice is where work is completed to good safety standards, sites are always left in a safe condition, and that unfinished work is signed and guarded, in a manner which allows landowners to fulfil their duty of care in relation to work carried out by the NO on their behalf.

### 5.13. Waste Management

Waste Management is a complex area of legislation. Specific guidance should be sought regarding any proposed waste management, carriage or disposal activity.

In England and Wales the Environment Agency (EA) enforces regulations and issues licences and exemptions for a range of waste management activities (tel helpline – 08708 506506). In Scotland the Scottish Environment Protection Agency (SEPA) tel 01786 457700 is the regulator, or the Environment and Heritage Service (EHSNI) in Northern Ireland; tel 028 90569370.

In general commercial businesses need to be licensed to manage waste or need to register for an exemption for a specific waste management, carriage or recycling activity (for instance: carriage, storage and recycling of wood chips).

## 6. CLEARANCES

Individual NOs need to adjust their particular clearance specifications to reflect their own operating conditions under ESQCR, in terms of safety and resilience and the nature of the vegetation heritage, public interest and risk in different areas.

NOs must add to the safety clearances given in ENA-TS 43-8 reasonable allowances for expected re-growth of vegetation over the period between scheduled maintenance visits (“the cutting cycle”). In addition to this clearance, NOs must also allow for swaying of vegetation in storms, sag of electricity conductors in high temperatures, and the operational risk of airborne debris, snow loading of branches, branch breakages and wind blown trees hitting the overhead lines in major storms.

Cutting to a specified set clearance from the overhead line looks aesthetically poor and often damages plant health because the tree or shrub’s natural internal injury repair mechanisms have been impaired. Good arboriculture and forestry practice also requires formative pruning and selection of trees for felling or retention outside the immediate engineering clearance to allow the development of strong, attractive and healthy vegetation which will greatly lessen the risk to overhead lines.

### Permanent Clearances

Under certain circumstances the NO may consider terms for the sterilisation of permanent clearance areas in return for the grant of an easement/servitude.

## 7. WAYLEAVES AND EASEMENTS / SERVITUDE

The majority of a NO’s assets are held on private land and in most cases this is by virtue of long-standing relationships which are valued by NOs. Legal rights exist between the parties in the form of formal or implied wayleaves, or formal easements which are registered against the title of the property. In all cases:

- In relation to the exercise of existing rights, it is important for a NO (or its contractor) to ensure that good communications and agreements are in place with the Landowner in accordance with the Land owner approvals and Communication section below.
- It should be considered reasonable by both parties for a NO to look to its existing legal rights in respect of the maintenance and operation of its network in accordance with its statutory and operational obligations.
- A NO is obliged to discuss and negotiate with a landowner any activities which are beyond the scope of its legal rights.

- Where a NO's legal rights provide a restriction on the type of planting which a Landowner can undertake in the vicinity of a line, it is reasonable for the NO to seek to enforce the restriction as a means of managing the growth of vegetation in accordance with its statutory obligations.
- In respect of the purchase of new rights over land it is good practice for a NO's negotiations to seek standard terms for Easement / Servitude and Wayleave which are capable of restricting inappropriate planting by Landowners beneath the line. This will eliminate any uncertainty for both parties in the future.
- Where existing legal wayleaves / easements / servitude are unsuitable for the NO's statutory obligations and where agreement with a landowner cannot be reached, regard should be given to the Escalation Procedure section of this document at section 18.

## 8. VEGETATION SURVEYING

The survey is critical to the success of the operation and requires the surveyor to be equipped with a range of skills including:

- Safety Knowledge
- Arboricultural knowledge / Vegetation management expertise
- Environmental awareness
- Electrical knowledge
- Customer care
- Negotiation skills

The Surveyor should be able to demonstrate adequate knowledge in these varied skills through appropriate training or qualifications.

### 8.1. Information collected / included in the survey

It is vital that the survey collects all relevant data that will support the request to the landowner to carry out work and to enable the surveys and completed work to be auditable. The information collected may include, but not restricted to, the following:

- Location (Pole No. From/ To)
- Risk rating
- Shutdown Requirements / Interruption to supply
- Species of Tree Involved
- Tree Defects
- Work Required
- Clearance to conductors.

## 9. LAND OWNER APPROVALS AND COMMUNICATION

### 9.1. Planning and liaison

Good planning and clear communication of plans are essential for a successful cyclic management programme to achieve compliance with statutory requirements and meet the expectations of customers and landowners. The communication process must be actively managed by the NO.

NO's may consider discussing the following:

- Programme planning across a number of years.
- It is the fundamental basis of good customer information to share with landowners and major stakeholders the NO's long term plans for the site.
- Sharing the programme plan with major stakeholders at the forming stage.

- The inclusion of major stakeholders and landowners at the programme forming stage will improve resolution of issues that are bound to develop.

Communication items recommended to be included are:

- The statutory obligation on the NO's to deliver safety clearances and continuity of supply to assets in accordance with ESQCR.
- Commitment to customer consultation and information from plan concept through to delivery.
- Commitment with respect to the environment.
- Explain the need for regular repeat cutting unless "clear fell" solutions are permitted.
- Permanent / clear fell solutions.

## 9.2. Land Owner Approvals

Effective communication is an important issue for a NO to consider in relation to any vegetation management which it wishes to undertake on private land. This is relevant with regard to both the short-term success of its project and also its important long-term relationship with the landowner.

Detailed discussions with the landowner are necessary to ensure an understanding and agreement exists under a number of headings - both in terms of basic detail such as the proposed timing of the works and also more specific technical issues such as the nature of the work to be undertaken.

The following are all examples of good practice:

- During pre-work discussions, it is important for the NO to explain to the landowner the statutory / operational reasons for its proposed works.
- No work should be carried out without written consent. However, If a written consent is not forthcoming the details of the verbal agreement should be recorded on the consent form and the circumstances noted.
- The consent should include details of the specific work to be undertaken at each location in addition to detailing the agreed vehicular and pedestrian access arrangements to and from the site and agree disposal of arisings.
- The consent form should describe the work at each site using well defined arboricultural terms. Use of illustrative diagrams and photos could also be considered.
- A copy of relevant paperwork should be left with the Landowner.
- A definition of the terms used on the Consent form could be provided to give clarity.
- Care should be taken to consider the impact of the NO's proposals in relation to any cultivations / husbandry or bio security which the landowner may wish to carry out and how the NO sought to minimise the environmental impact.
- Landowners should inform NOs if they are members of any Assurance Schemes (i.e Organic, Forest Certification etc) that may affect methods of working
- The NO should provide the landowner with (named) contact details.

## 10. ACCESS TO LAND / PROPERTY

Land access may be required at any time during the course of the year but should be taken with due regard to the nature and usage of the land. Prior to access being taken and cutting taking place, appropriate agreements with the affected Landowners should be in place as described above.

The following should be observed by the NO:

- Site staff should be aware of the landowner details and should have copies of the relevant consent forms.
- Access should be taken in accordance with consent forms and Wayleave agreements (where appropriate).
- Site staff should endeavour to communicate with the Landowner before accessing work areas.

A number of areas require additional precautions (for example)

- Protected sites (including SSSI's). Permission to access such sites must be obtained from the managing authority e.g. English Nature, Local Authorities.
- Consultations should be made with other appropriate bodies in conjunction with the landowner / tenant.
- Network Rail Sites can only accessed with the consent of and under the supervision of Network Rail.
- Access to Forestry Commission land must be in accordance with the National Agreement.

### **10.1. Conduct Whilst on Site**

A professional and courteous attitude by all site staff is important to maintaining good relations and to ensure that accidents do not arise in relation to stock management and site safety. The following are examples of good practice:

- A rigorous approach to site safety management should be maintained.
- The NOs conduct and works should comply with its published policy.
- Staff to conduct themselves in a professional manner at all times.
- Take access only along agreed routes.
- Ensure that gates are left as found. Unless specifically agreed with the landowner.
- Ensure that appropriate provision is made to exclude stock from the working area.
- Comply with statutory disease control measures.
- Leave the site in a tidy and workmanlike state at the end of each day.
- Make good on a timely basis in respect of any surface damage.
- All staff should carry personal identification.
- Consideration of neighbours & the public.
- No dogs to be allowed on site

### **10.2. Single Farm Payment Scheme**

This type of work would normally be treated as being beyond the Farmer's control, so the farmer would not be held responsible for damage and it would not be perceived as a non-compliance. However farmers should make every effort to discuss with the NO the work to be done and minimise damage as a result of the work (*Source: Defra document PB10763, FAQ111*)

## **11 STANDARD OF WORK**

### **11.1. Integrated vegetation management**

Good vegetation management is based on an understanding of the inter-relationships between plants and their environment. This 'holistic' understanding can be effectively used to manage species composition, tree stability, and competition between plants, levels of light and predation levels on plants. Chainsaw cutting is only one available tool; use of herbicides and naturally occurring growth hormones (subject to label approvals), natural interactions between plants, machine mulching treatments and planting low growing species may also be considered.

## 11.2. Pruning

The aim of pruning should be to achieve vegetation clearances in ways which minimise the aesthetic and physical impact on retained trees and shrubs.

Reasonable care should be taken to avoid unnecessary damage to flora and fauna and to access ways.

Work should comply with BS3998 (Recommendations for tree work as amended). Pruning is a skilled job which should be undertaken by appropriately trained and experienced staff.

Given constraints often imposed by others it is not always possible to prune in an aesthetically pleasing way. However an effective Utility Arborist adjusts the work carried out for each plant to achieve the best possible standard, given the prevailing constraints.

- Ideally vegetation is left well balanced with natural crown shapes.
- Pruning must also take into account the vegetation re-growth expected in the interval between cuts. This will vary widely between plant species and sites.
- Vegetation management: tree selection for retention and replanting at an early stage can be used to prevent the need for much more intrusive and damaging work in the future when the vegetation grows closer to the overhead line. Good practice often involves interventions over a number of cutting cycles to manage trees and shrubs so that future conflict with overhead electricity lines is minimised.
- Where reasonably possible avoid recognised injurious practices such as:-
  - Topping or lopping to an arbitrary height or branch length
  - Unbalancing a tree crown by excessive one-sided pruning
  - Pollarding. Unless pollarding is the existing recognised management technique.
  - Inappropriate use of flailing.
  - Climbing damage - Care should be taken to avoid injuring thin and weak barked species by inappropriate use of rope access techniques.
  - Access damage - Vehicle access and treatment of arisings should avoid injury to low branches, stems, root buttresses and feeder roots.
  - Spreading Disease - Appropriate regard should be given to avoid spreading fungal diseases.
- If the only pruning option is to severely reduce or unbalance a tree, then coppicing, or felling and replacement planting are often better options.

## 11.3. Woodland management

Management of line clearance corridors in woodlands should aim to create adequate clearance around overhead lines while encouraging healthy growth and stability of surrounding retained trees. It is often possible to manage a line clearance corridor in a way that also benefits the woodland manager's wider objectives and responsibilities. In order to be sustainable woodlands need a diverse mix of habitat edges, plant diversity, wildlife glades and areas of open sunlit space, as well as good points of access. The growing reality of climatic change also reinforces the importance of good fire breaks. Managed correctly, electricity clearance corridors provide these. The NO's aim of creating a wind firm crop around a corridor can complement the woodland manager's need to manage a thinning programme in that part of the wood.

A key consideration for any woodland manager must also be to safeguard the health and safety of the woodland thinning and harvesting workforce, by avoiding a situation where tree growth camouflages the position of overhead electricity conductors. The

NO can provide advice on issues such as felling and machine access around overhead lines, safety signing and goal posting access routes in order to comply with HSE publications AFAG 404, 804 & GS6.

#### **11.4. Design of line clearance corridors (See also [14.1] Wildlife corridors)**

Forestry Commission guidelines (*See references*) state that “the aim should be a corridor of varying width and character”. Woodland edges can be often be scalloped. Low growing native trees or shrubs such as Hazel, Hawthorn, Elder, Blackthorn, Guelder Rose, Rowan, Wayfaring Tree, Privet and Gorse can be maintained in an irregular coppice matrix in order to break up the corridor into more natural looking glades. Hedgerows can be maintained at woodland edges.

#### **11.5. Managing the risk of Wind blow**

Different techniques will be appropriate in different situations; for instance:

- Early felling of unstable crops around overhead electricity lines.
- Side prune rather than fell an exposed wind-firm conifer edge to avoid exposing unstable crop trees.
- Carefully thin an existing crop to favour and develop new edge trees in advance of widening a corridor in order to improve the stability of the remaining crop.

Forestry Commission advice is that intervention when crops are young and small will greatly reduce the risk. Where feasible felling should always be to a windfirm edge.

#### **11.6. Crown raising mature trees along lines**

Crown raising of mature trees alongside an overhead line (by removing lower branches which may encroach on the line) may sometimes be considered by a NO to be an appropriate management technique on circuits when retention of the trees is considered essential. This is only considered appropriate where trees are considered “windfirm”. Retaining mature trees may help reduce available light to vegetation growing underneath a line. However network safety, security and storm clearance constraints will often necessitate the removal of mature trees close to the line.

It is unacceptable for weak vegetation to be leaning towards or overhanging electricity circuits, which may be important distribution circuits serving hundreds or thousands of customers. [Reference ETR132].

#### **11.7. Line Clearance Corridor Harvesting & Thinning Operations**

Work carried out by tree teams on behalf of NOs should comply with good forestry practice:-

- Presentation of produce should be in neat, safely stacked and signed piles ready for forwarder / tractor pick-up.
- Cut and present material as agreed with the woodland manager.
- Sites should be left tidy, with brash and stumps cut low and neatly with any hinge or jagged spikes removed, to prevent them becoming a trip hazard or an obstacle to vehicles. Remove litter.
- Stack brash neatly and maintain good access for line inspection along the length of the span.
- Leave water courses, culverts and ditches undamaged and clear of arisings.
- Avoid damaging those standing trees which are to be retained.
- No fires should be lit without permission, or close to retained trees.
- Tracks should not be allowed to become heavily (excessively?) rutted. Tracks which become rutted as a result of NO activities should be made good.

- Safety - Cooperate with the Forest manager's own risk management framework as set out in the HSE publication 'Managing Health and Safety in Forestry'. Forest operations are particularly hazardous so only use staff qualified in the particular task. Machinery operations must meet the standards set out in the HSE publication "Management of Electricity at Work: Forestry and Arboriculture". Warning signs should be posted at the main access points during work.
- Where required by the Landowner. Conifer stumps may be treated for the decay fungus *Heterobasidion annosum* (formerly known as *Fomes*). Brash should be clear of stumps and dye should be added to render the treatment clearly visible after application. *Phlebiopsis gigantea* based biological treatments, such as Rotstop and PG Solution, are currently licensed only for use on Pine plantations.

## 11.8. Hedgerow management

Good hedgerow management under electricity lines should preserve the function, aesthetics and cultural value of hedgerows, by reflecting their character and complementing (and informing) the management objectives of the Landowner or occupier. At its best, hedgerow management under electricity lines using traditional regional styles can be a benchmark for others to copy. Poor hedgerow management remains a major cause of vegetation management related landowner complaints.

Many hedges will be subject to specific management schemes (eg Countryside Stewardship Scheme). NOs should have due regard to any requirements which the landowner may request in this respect

The most common method of management is hedge trimming by machine flailed methods.

Other methods which may be considered in exceptional circumstances include:

- Hedge Laying (*syn. 'Layering', 'steeping', 'plashing'*) is the traditional practice of regenerating stock hedges at their base, for the purpose of retaining or improving stock-proofing. Laying is only appropriate for the right context, material availability, condition of bank or ground and available light levels and will only be achieved by staff who are appropriately trained and experienced.
- Coppicing is a very useful technique for regenerating hedges from the base. In a very wide hedge, or where a hedge runs both sides of a lane or track, it may be possible to set up a coppice rotation which allows permanent screening or stock-proofing to be retained. Problems arise when coppice cuts are positioned too high above ground level, since re-growth occurs largely just below the cutting point, leaving gaps at ground level. Good practice is to cut coppice as low as stock proofing requirements and rabbit browsing pressures will permit.
- Hedgerow regeneration depends on the re-growth being protected from browsing by stock or wild animals. Hedgerow management which inadvertently results in gaps may necessitate fencing to prevent stock escaping. Any work carried out should not hinder the landowner from carrying out essential bank in-filling, fencing and drain restoration works. NOs' teams must exercise great care in ensuring the security of farm stock (see 9 Landowner Approvals and Communications).

### **11.9. Herbicide treatment and growth regulators**

Herbicide control of stumps and re-growth can be a useful management tool for selective species control, allowing fast or tall growing species to be replaced with lower and slower growing species (See table 1 for examples). Growth regulators based on naturally occurring plant hormones may in future provide a much less damaging alternative to cutting for the maintenance of selected amenity trees. Application of herbicides and growth regulators must be in accordance with the landowners preferences and appropriate Code of Practice published by HSE.

### **11.10. Vegetation obstructing & infesting the bases of pylons, poles and ground mounted equipment**

It is important for NOs to maintain good access to towers, poles, stay wires and around ground based or pole mounted equipment. Ivy, Clematis, other climbers, or saplings and branches interfering with poles and towers, equipment and fencing must be removed as they can become serious safety hazards and provide unauthorised climbing aids. Good vegetation management around such equipment will achieve a neat appearance. Arisings should not be left scattered.

It may not be appropriate to completely clear around poles located in stock proof hedgerows, other than maintaining the normal hedge height. However good access should be maintained to pole mounted switches, control boxes, or other equipment which is normally operated from ground level. Where a hedge is normally tractor flailed by a landowner, any growth which has been left uncut around the equipment should be reduced to hedge maintenance height.

## **12. DISPOSAL OF ARISINGS**

Effective communication should take place between site staff and the Landowner. Written consent should be obtained prior to any tree management work taking place, documenting the Landowner's requirements for the disposal of arisings.

The disposal of Arisings should comply with good arboricultural and environmental practice. All relevant environmental legislation should be complied with at all times.

Any toxic arisings such as Ragwort, Blackthorn, Yew & Rhododendron should be made safe in respect of livestock.

Common options include:

#### **12.1. Cut and stack on site.**

Cut Wood should be delimbed and stacked to a specification agreed with the landowner. Cut arisings should be stacked in tidy heaps as agreed with the landowner to provide wildlife habitat sites which will naturally decompose.

#### **12.2. Cut and removal from site**

All arisings should be removed from site by the contractor for disposal. The methods of disposal should be compliant with current waste management legislation.

#### **12.3. Chip and spread on site**

Any agreement to chip and spread on site should record the area and depth to be used.

#### **12.4. Chip and remove from site**

All arisings will be removed from site by the contractor for disposal. The methods of disposal should be compliant with current waste management legislation.

## **12.5. Burning**

Burning should be the least favoured option and may require an appropriate license / restriction. Any onsite burning should be with the express consent of the landowner with no risk of spread and the smoke not likely to cause a nuisance to neighbours, paths, roads or bridle ways. No accelerants are to be used.

## **12.6. Recycling of Arisings**

Consideration will need to be given on the recycling of arisings that are removed following the Landowner's agreement. There are several options that may be considered. eg Fuel for heating or power generation / Mulching. / Composting.

# **13. PLANTING / REPLANTING**

## **13.1. Planting of New Woodland**

Landowners considering planting trees in the vicinity of overhead lines must seek advice from NOs. Consultation between the NO and landowner at an early stage will help in the development and design of planting schemes that fulfil the Landowners' objectives and also avoid the requirement for future tree cutting.

## **13.2. Replanting**

Supply of replacement trees for replanting may be offered in cases where trees are felled in order to achieve the objective of a permanent clearance. The following key points should be considered when replanting.

- Replanting of Trees/Shrubs in an area away from the line where there is no possibility that they will affect the line at any future time.
- Replanting where trees have been removed adjacent to the line. If a landowner requests replanting adjacent to the line then the species chosen will be low growing trees or shrubs which will never attain a height or spread that will affect the line any time in the future. This approach can be adopted where Landowners have agreed to allow removal of trees to a greater distance from the line than the falling distance of the tree to enable a graded corridor suitable for wildlife conservation or game cover to be established, by replanting with low growing species.
- Provision of advice on major landscaping design plans for planting / replanting schemes.
- Provision of replacement trees may be made as a means of mitigating losses to the landowner.

**Table 1 - Examples of suitable tree species**

<p><b>Examples of common trees and shrubs which are generally suitable for retention or planting under or close to electricity lines - While pruning or other management may be required in some circumstances these plants can usually be maintained below line clearance height.</b></p> <p><b>Native trees &amp; shrubs</b> Hawthorn, Blackthorn, Rowan, Wild Service Tree, Holly, Hazel, Guelder Rose, Wayfaring Tree, Privet, Elder, Buckthorns, Spindle, Crab Apple, Dogwood, Gorse, Broom.</p> <p><b>Ornamental broadleaves</b> Thorns, smaller ornamental Sorbus varieties, Judas tree, many fruit trees on dwarf or low vigour root stocks, Medlar, ornamental Malus species, Strawberry Tree, small ornamental Maples, Laburnum, Eleagnus, Pittosporum, Magnolia, Bay, many ornamental shrubs including some Ornamental Rhododendrons &amp; Azaleas.</p> <p><b>Conifers</b> Dwarf conifer varieties (e.g. Junipers), Yew</p> <p>Christmas Tree Crops are only suitable where a maximum 3-4m height attainment (involving a usual rotation length of 5 – 8 yrs) can be maintained.</p>	<p><b>Examples of common trees and shrubs which are generally unsuitable for retention or planting under or close to electricity lines - Due to their speed of growth, ultimate height attainment and/or the way they react to pruning.</b></p> <p><b>Native trees &amp; shrubs</b> Alders, Willows, Poplars, Ash, Birches, Oaks**, Wild Cherry, Hornbeam, Limes, Elm, Field Maple**.</p> <p><b>Ornamental broadleaves</b> Eucalyptus, American Oaks, Turkey Oak, Evergreen Oak, Beech, Sycamore, most Maples (except low growing ornamentals), Horse Chestnut, Italian Alder, Poplars, Laurel, Planes, Walnut, Catalpa, Acacias, False Acacia, taller growing fruit trees and most ornamental Pear and Cherry species, Turkish Hazel, Southern Beech.</p> <p><b>Conifers</b> All plantation conifer &amp; hedging species (Spruces, Larches, Pines, Firs, True &amp; false Cypresses (including Leylandii) &amp; Western Red Cedar) Redwood, Wellingtonia, Cedars, Dawn Redwood, Monkey Puzzle, Maidenhair tree.</p> <p>** Note that Oaks and Field Maple should not be planted under lines, but where native Sessile or English Oaks or Field Maple already occur under lines they may often be maintained by crown height reduction techniques.</p>
---	--

## **14. WILDLIFE**

### **14.1. Wildlife Corridors**

Land beneath overhead lines can often form wildlife corridors particularly in urban areas, where open space is at a premium.

Wildlife corridors allow the movement of animals and plants from one place to another. They can link a number of areas of habitat or provide a wildlife habitat (shelter, food and breeding sites) within themselves. Routes along which wildlife may 'travel' vary a great deal. They range from ditches and hedgerows to rivers or river valleys. Corridors can link up to form a complex network. If a certain habitat becomes

scarce corridors can provide wildlife with the means to find a suitable area in which they can survive. Migratory animals may also use corridors to aid their movement between areas where they reside.

Examples of good practice for the creation of wildlife corridors are:

- Use of feathered edges.
- Avoiding straight linear lines/swathes.
- Leave some areas of low growing plants uncut to allow movement of species across the corridor.
- Stacking of cut material on site for animal refuge.
- In woodland areas the area cleared beneath the OHL can lead to the development of more diverse habitat and wildlife.

## 15. TRAINING AND QUALIFICATIONS

NOs should ensure that only appropriately qualified and competent individuals undertake vegetation management works.

The following training requirements are particularly relevant in this respect:

- Electrical hazard awareness qualification
- Electrical certification in competency
- Electrical authorisation (live line operations)
- Arboriculture Utility clearance qualification
- Arboriculture Utility site management and control
- Arboriculture Utility access and consent
- Customer care and management
- Programme communications cascade.

## 16. CONTRACTORS (INCLUDING CONTRACTOR PROFILE)

### 16.1. Service Provider Selection

The NOs are subject to the Utility Sector Directive that ensures open competition and opportunity in the ‘market place’.

These recommendations provide a framework suite of prequalification standards that the NOs, engaging a utility arborist organisation, can use to ensure consistency across the customer and service provider base.

The majority of NOs utilise a common vendor database product in the procurement arena. This provides the common standard required to ensure a minimum service provider standard in key performance areas such as Safety, Environmental and Quality delivery at a submission of interest stage.

The subsequent stage of filtration can involve prequalification measurement in the following areas:

- Safety performance. Service providers are required to demonstrate their safety policy and application with evidence of effective safety plan delivery.
- Environmental. Service providers are required to demonstrate their environmental policy and application with evidence of effective plan delivery.
- Insurance performance. Service providers are required to demonstrate their insurance validity and application with evidence of effective application.
- Financial performance. Service providers are required to demonstrate their financial security and viability.
- Functional good practice. Service providers are required to demonstrate their utility arboriculture policy and application with evidence of plan delivery.

## 16.2. Service Provider Management

The NO can choose to utilise the selection criteria as the structure for service provider delivery performance management. Key performance indicators may be used for the following areas:

- Safety performance
- Environmental performance
- Customer Service performance
- Financial performance
- Functional good practice performance

## 17. RESOURCES

The provision of the necessary resources requires longer term planning to ensure sufficient staff with the correct skill sets, from Wayleave officers to site workforce.

The following are relevant in relation to the efficient management of resources on site to ensure quality and safety needs are met.

- Use of External Contractors
- Use of Specialists
- Manpower/Workload prediction
- Training lead-time
- Site management (size of team)
- Equipment and machinery.

## 18. DISPUTE RESOLUTION – USE OF STATUTORY POWERS

The successful operation of equipment on private land is, by its very nature, dependent on a good working relationship between the NO and the Landowner. Relationships are, in many cases, longstanding arrangements of mutual cooperation. It is incumbent on a NO to make a positive effort to maintain its relationship with a Landowner and it is reasonable for a landowner to be expected to respect a NO's requirement to manage and maintain its assets pursuant to its statutory obligation to operate a safe and operationally secure network.

However, it is fair to say that there will be situations where a dispute arises between the two parties. Although the circumstances of the dispute will be specific, the following guidelines are proposed:

- A positive effort should be made by both parties to resolve the dispute on an amicable, negotiated basis.
- The Landowner should be given a full explanation of the reasons for and details of the works, and should be made aware of the NO's Statutory / Regulatory obligations. In this respect, reference should be made by the NO to the DTI statement which describes the context of the ESQCR amendments.
- Each NO should operate a dispute escalation procedure, only after considering alternative engineering solutions (ref ETR132 section 6.2.3)
- The escalation procedure should preferably involve at an early stage a responsible officer (eg Wayleave officer). It would be normal for that person to lead any negotiations with the landowner relating to a re-imbursement of any losses as may be appropriate

- In certain cases, where a disagreement is not capable of being resolved by normal negotiation and where the circumstances are suitable, consideration should be given to the use of alternative dispute resolution (ADR) methods. Whether by mediation or determination by a third party, a suitably qualified expert (e.g. Arboricultural or Forestry consultant, Land Agent, qualified mediator) could be agreed by the parties to facilitate a settlement. The purpose of using an ADR method would be to avoid the cost, time delay, disruption and damage to goodwill which is associated with the use of the NOs statutory powers.
- As a method of very last resort, in the event of a landowner continuing to refuse entry for necessary vegetation management, the NO will have to resort to its statutory powers under schedule 4 paragraph 9 Electricity Act 1989.

## REFERENCES

- Engineering recommendation G55/1:** safe tree working in proximity to overhead electric lines
- ENA-TS 43-8:** ENA technical standard for overhead line clearances
- ENA ETR 132:** Improving network performance under abnormal weather conditions by use of a risk based approach to vegetation management near overhead electric lines
- The Electricity Safety, Quality and Continuity Regulations 2002** - Statutory instrument number 2665 -HMSO ISBN 0-11-042920-6 abbreviated to ESQCR
- ESQCR Amendment to regulations - 2006**
- Electricity at Work Regulations 1989**
- Electricity Act 1989**, as amended
- BS 3998:** Recommendations for tree work British Standards Institute
- BS5837:** , Trees in relation to construction. Recommendations
- DTI statement** - Management of Vegetation near overhead Power Lines
- National Joint Utilities Group:** Guidelines for the planning, installation and maintenance of utility services in relation to trees
- Annex 4. Tree preservation orders:** a guide to the law and good practice. Department of Communities and Local Government.
- Health and Safety Executive Publications**
- AFAG 404 – Electrical Utility Arboriculture**
- AFAG 804 – Electricity at work: forestry and arboriculture.** General guidance on the prevention of danger from work in proximity to overhead lines and underground cables
- GS6** - Avoidance of danger from overhead electrical lines
- DEFRA Document PB10763, 2005** – Single Payment Scheme, Frequently asked questions
- Forestry Commission Practice Guide Hazards from trees** – A general guide. Author David Lonsdale Forestry Commission ISBN 0-85538-514-6 (Available from website)
- How can we control Fomes Root and Butt Rot?** A decision support system. Jim Pratt Forest Research (available as PDF download from Forest Research website)
- Hedging, BTCV (2002 edn)**
- HSC the safe use of pesticides for non-agricultural purposes** – approved code of practice HSE books
- Lowland Landscape Design Guidelines** - Forestry Commission Publications
- The Design of Forest Landscapes W.R.Lucas, 1991**, Chapter 9 *Design of Open Space* includes a section *Power Line Corridors*, which includes comprehensive text and illustrations regarding their design. Oxford University Press, ISBN 0-19-854280-1.
- Forest Landscape Design Guidelines** - Forestry Commission HMSO
- Surveying Badgers** - Harris, S., Cresswell, P. and Jefferies, D.J. (1989). Occasional Publication No. 9. Mammal Society, London.
- Veteran trees:** a guide to good management. Author Helen Read. Natural England 2000 ISBN 1 85716 474 1

## BIBLIOGRAPHY

Proposals for Improved Storm Performance for Electricity Distribution Networks. DTI Report, December 2003

Engineering Recommendation G55/1: Safe Tree Working in Proximity to Overhead Lines, July 2000

Engineering Recommendation G70: Vegetation control near Overhead Lines, 1989

Engineering Recommendation P2/6: Security of Supply, July 2006

The Environment in your Pocket 2004 – DEFRA page 7

Town and Country Planning Act 1990

Town and Country Planning (Scotland) Act 1997

National Parks and Access to the Countryside Act 1949

The Countryside and Rights of Way Act 2000

National Parks are designated under the National Parks (Scotland) Act 2000

Ancient Monuments and Archaeological Areas Act 1979

Wildlife and Countryside Act 1981

Nature Conservation (Scotland) Act 2004

## Useful Websites

Energy Networks Association [www.energynetworks.org](http://www.energynetworks.org)

Department of Trade and Industry [www.dti.gov.uk/energy](http://www.dti.gov.uk/energy)

Department of the Environment and Rural Affairs [www.defra.gov.uk](http://www.defra.gov.uk)

Health and Safety Executive [www.HSE.gov.uk](http://www.HSE.gov.uk)

British Standards Institute [www.bsi-global.com](http://www.bsi-global.com)

Forestry Commission [www.forestry.gov.uk](http://www.forestry.gov.uk)

Forestry Research [www.forestresearch.gov.uk](http://www.forestresearch.gov.uk)

Arboricultural Association [www.tree.org.uk](http://www.tree.org.uk)

National Farmers Union [www.nfuonline.com.uk](http://www.nfuonline.com.uk)

Country Land and Business Association [www.cla.org.uk](http://www.cla.org.uk)

Royal Institute of Chartered Surveyors [www.risc.org](http://www.risc.org)

Central Association of Agricultural Valuers [www.caav.org.uk](http://www.caav.org.uk)

## Glossary of terms

ADR	Alternative Dispute Resolution
DTI	Department of Trade and Industry
ENA	Energy Networks Association
ENA-TS	ENA Technical Specification
ESQCR	Electricity Safety, Quality and Continuity Regulations
ETR	Engineering Technical Report
HSE	Health and Safety Executive
NFU	National Farmers Union
NO	Network Operator
SSSI	Site of Special Scientific Interest
TPO	Tree Preservation Order

## **ANNEX A EXAMPLES OF PROTECTED SITES**

This Annex provides a list of examples of Protected Sites, note that this list is not meant to be exhaustive.

### **Conservation Areas**

Under the Town and Country Planning Act 1990, the local planning authority must be given six weeks' notice of intent before carrying out work on certain trees which are located in a Conservation Area but are not yet the subject of a tree preservation order (TPO). Broadly, these controls apply to trees with a stem diameter greater than 75mm, measured 1.5 metres above the ground.

### **Local Wildlife Site**

Local Wildlife Sites are defined areas selected locally for their substantive nature conservation value. They are considered to be vital to securing and sustaining the future of biodiversity. Their significance is recognized in national planning policy and NOs need to be mindful of their importance.

### **National Parks and Areas of outstanding natural beauty (AONB)**

These are areas created by the National Parks and Access to the Countryside Act 1949. The Countryside and Rights of Way Act 2000 added further regulation and protection in support of AONBs. In England, these are designated by the Countryside Agency, and, in Wales, by the Countryside Council for Wales.

In Scotland, National Parks are designated under the National Parks (Scotland) Act 2000 – responsibility for these rests with the Scottish Executive and Scottish Parliament.

The purpose of the designation AONB is the conservation and enhancement of the natural beauty of the areas concerned. In particular Part IV of the Act Places a duty on public bodies, Ministers, statutory undertakers and those holding public office, when doing anything so as to affect land in an AONB, to have regard to the purpose of conserving and enhancing the natural beauty of the AONB.

### **Natura 2000 sites**

These are Special Protection Areas under the EU Wild Birds Directive and Special Areas of Conservation under the EU Habitats Directive. There are stringent legal obligations relating to the protection of these sites, over and above those for Sites of Special Scientific Interest.

### **Scheduled Monuments**

These are nationally important archaeological sites scheduled under the Ancient Monuments and Archaeological Areas Act 1979. Under the terms of the 1979 Act Scheduled Monument Consent (SMC) is required for all works on or affecting a Scheduled Monument, including demolishing, destroying, damaging, removing, repairing, altering, adding to, flooding or tipping material onto the monument. Designated by the relevant Secretary of State, Scheduled Monuments are administered by English Heritage in England, Cadw in Wales and Historic Scotland in Scotland.

### **Sites of Special Scientific Interest (SSSI)**

These are sites that are notified under Section 28 of the Wildlife and Countryside Act 1981 as areas of special interest by reason of their flora, fauna, geological or physiographical features: they are the best examples of our natural heritage. Part III of the Act improves the protection and management of SSSIs and also places public bodies under a statutory duty to further the conservation and enhancement of SSSIs.

In England, SSSIs are designated by English Nature tel. 01733 455000  
In Wales, SSSIs are designated by the Countryside Council for Wales tel. 01248 385500  
In Scotland, SSSIs are designated by Scottish Natural Heritage tel. 0131 4474784 [under Nature Conservation (Scotland) Act 2004].

*NOTE 1: A number of SSSI are also designated under International or European legislation. These include Special Areas of Conservation (SAC) and Special Protection Areas (SPA). Relevant legislation includes the Habitat Regulations (1994) which may place a requirement of assessments of plans or projects that affect the above sites.*

*NOTE 2: The Countryside and Rights of Way Act (2001), specifically Schedule 9 – section 28 (G to I), amends the Wildlife and Countryside Act (1981) in relation to SSSI management and may affect the activities of NOs.*

### **Sites with Protected Species**

It should be noted that environmental considerations are not confined to protected sites. In addition to designated sites, a number of species have legal protection. Work which might affect a protected species might require licensing. The relevant legislation includes the Wildlife and Countryside Act (1981 and amendments) Part 1, Habitat Regulations (1994), and the Countryside and Rights of Way Act (2000) Section 74 - List of Species and Habitats of Principal Importance for the Conservation of Biological Diversity. In Wales this is the responsibility of the Welsh Assembly Government and information is available on their website.

### **Tree Preservation Order (TPO)**

Tree preservation orders are made by local planning authorities under the Town and Country Planning Act 1990 in England and Wales; and in Scotland under the Town and Country Planning (Scotland) Act 1997. In general, such Orders make it an offence to cut down, top lop, uproot, wilfully damage or wilfully destroy the trees in question without the local planning authority's consent. TPOs can cover anything from a single tree to woodlands but not bushes or shrubs.