The Voice of the Networks

Safety, Health and Environment

Angler Safety

Managing Risks Associated with Angling in Close Proximity to Overhead Electric Power Lines

Guidance produced by Energy Networks Association Angling & Overhead Power Line Working Group.

Contents

Energy Networks Association
6th Floor, Dean Bradley House
52 Horseferry Road
London
SW1P 2AF
T +44 (0) 20 7706 5100
E info@energynetworks.org
W www.energynetworks.org

Executive Summary

Introduction

Electricity is a vital form of energy in today's high technology world. Distribution of this energy requires an extensive network of overhead electric power lines which cross all parts of the United Kingdom.

Electricity is also carried along overhead lines for specific uses such as transport systems, therefore similar principles to those below should be adopted for such apparatus.

This guidance covers angling in close proximity to overhead power lines within the United Kingdom.

The guidance is for stakeholders involved in angling, land ownership and use, and the transmission/distribution of electricity.

The following information has been prepared to reduce the risk to anglers from overhead electric power lines.

Key Facts

- Overhead electric power lines are most commonly supported on wood poles normally at a minimum height of 5.2 metres.
- Overhead electric power lines are often difficult to see, particularly at night and against a dark or very bright background.
- They are normally bare (not insulated) and can be mistaken for telephone wires, with disastrous consequences.
- Overhead electric power lines suspended on wood poles can carry between 230 & 132,000 volts, steel towers can carry up to 400,000 volts.
- Currently the higher voltage lines normally have yellow 'Danger of Death' warning notices fitted to the poles or towers but lower voltage lines may not be marked.
- At higher voltages electricity may jump short distances through the air. This means that it is not necessary to touch an overhead electric power line to suffer an electric shock and burns which could result in death.
- Fishing rods and poles made from carbon fibre and similar materials will conduct electricity. Many other materials will allow electricity to flow along them when they are wet.

The Problem:

Every year cases are reported of angling equipment contacting overhead electric power lines. Some of these have resulted in horrific burn injuries, a number resulting in death. The main cause of these incidents is a lack of awareness on behalf of the angler.

Key Precautions

- It is not easy to estimate the height and distance of overhead electric power lines from the ground, consequently an adequate safe distance ***must*** be kept to avoid accidental contact.
- Anglers ***must not*** fish within the default exclusion distance of 30 metres of overhead electric power lines that cross or run parallel to the water ***unless*** a suitable and sufficient risk assessment has justified a variation of this distance (greater or smaller). This distance must be measured from the outer ***conductor*** at 90 degrees to the direction of the line.
- If you see anglers line or other items of equipment hanging on overhead electric power lines do not try to free it. Inform the local Electricity Company, land or water owner or relevant angling club official. They will arrange for its removal.
- If you own, lease, or make waters available for fishing where overhead electric power lines are present, you must ***ensure*** that anglers are made aware of the dangers. For example, by erecting suitable safety signs and where possible by providing written and/or verbal instructions on where to and not to fish.
- If in doubt contact your local electricity company.

1. Introduction

The Problem

There have been a number of tragic accidents involving anglers when fishing near to overhead electric power lines and with the increasing development of carbon fibre fishing rods and poles, the risks of inadvertent contact with overhead electric power lines has increased. The injuries sustained have either been fatal or permanently disabling.

This guidance covers the risks associated with electricity transmission and distribution networks only – similar risks occur when angling near to 'other' overhead electricity networks i.e. transportation networks for trains and trams. Where these risks exist there will be a requirement to contact the appropriate network owner for advice - although similar principles to this guidance should apply.

This guidance is appropriate for 'managed' and 'unmanaged' sites.

Electricity Companies have a legal duty to report angling incidents involving electricity networks to the Department Of Trade and Industry under the Electricity, Safety, Quality and Continuity Regulations 2002.

Every year throughout the country, fishing line is found hanging from overhead electric power lines with no report of incident or injury.

Findings from inspections suggest that there are considerably more minor incidents or 'near miss' incidents that are occurring that should but never get reported.

Examples of the type of incidents that have been reported are:

- Whilst returning from fishing across fields to parked car, fishing rods came into contact with an overhead electric power line - sustained major injuries.
- Boy aged 13 made contact with 11,000 volt wood pole overhead electric power line with carbon fibre fishing rod. Suffered burns.
- Angler made contact with 33,000 volt overhead electric power line with 13 metre long carbon fibre pole from peg on side of lake - fatal injuries sustained.
- Fishing line became entangled with overhead electric power line - line cut clear from rod - no injuries sustained.

In recent years the number of incidents has been reduced, mainly as a result of high profile campaigns supported by the electricity industry, angling groups, landowners and the tackle trade.

Not all incidents are, of course, the result of accidental contact. Children in particular are known to have deliberately contacted overhead electric power lines during 'horseplay'. In either case, the consequences can be horrific, with electrical burns causing extensive tissue damage resulting in amputations, permanent disablement and death. Even low voltages are sufficient to interfere with heart rhythms, which again may result in a fatality.

Electricity Companies and the major stakeholders associated with Angling have established a Working Group which has met on a regular basis for more than 15 years. This Working Group is managed and facilitated by the Energy Networks Association (ENA).

The objectives of the Working Group are:

Aim

- To seek to prevent, as far as reasonably practicable, incidents, injuries or death caused by angling activities in close proximity to overhead electric power lines.

Method

- Facilitate the exchange of information, problems and solutions amongst interested parties involved with Angling and overhead electric power lines.
- Recommend publicity initiatives to the ENA Public Safety Task Force.
- Inform, educate and advise on the dangers of angling near to overhead electric power lines.
- To promote and encourage incident reporting and data capture.

Membership of Working Group

The following organisations are represented on the Working Group.

National Federation of Anglers
Environment Agency
British Waterways
Country Land and Business Association
Salmon and Trout Association
Angling Trades Association
National Association of Fisheries and Angling Consultatives
Energy Networks Association member companies
Energy Networks Association
Royal Society for the Prevention of Accidents

Recognised National Standards

The Working Group had previously established guidance in the form of a Look Out! Look Up! Information sheet, which established the need to conduct risk assessments, the 30 metres default exclusion zone and warning and prohibition signage systems. This information has been updated and is now embedded in this guidance document.

Examples of existing warning and prohibition signage are shown in Appendix 4.

The specification for the revised signage is shown in Appendix 5.

NOTE: Gradually over the next few years, signs are being brought to this national standard. In the meantime, slightly different signage may be observed on-site to that included in this guidance.

Legal Obligations

The Electricity Safety Quality and Continuity Regulations 2002, the Health and Safety at Work Act 1974 and the Occupiers Liability Act 1957 and 1989 are the primary pieces of legislation that relate to public safety. This includes the safety of anglers in close proximity of overhead electric power lines.

There is also a common law 'duty of care' to ensure that all reasonable steps are taken to minimise the risk of inadvertent contact with overhead electric power lines - this includes the anglers themselves.

2. Existing Fisheries

Guidance to Fishery Owners, Fishery Managers, Local Authorities, Angling Clubs, Angling Licensees, Anglers, Water Owners and Internal Drainage boards.

Management of risks associated with angling in close proximity to overhead electric power lines relies on water owners and managers having awareness of these risks.

This section of the guidance has been prepared to assist land/water owners, angling clubs and others who own or operate fisheries, to manage the risks.

The information below will assist those assessing the risks and deciding on what controls are required adjacent to overhead electric power lines.

This section should be read in conjunction with Appendix 1 - Risk Assessment.

Legal obligations on fishery owners

The legal responsibility for taking reasonable steps to prevent harm to visitors is widely recognised.

As previously stated the main pieces of legislation controlling owner's responsibilities are:

- Section 3 - Health and Safety at Work Act 1974 - which covers people conducting an undertaking
- Occupier's Liability Act 1957 which covers liability of occupiers of premises to visitors

Although the legal responsibility (Health & Safety at Work Act and the Electricity, Safety, Quality and Continuity Regulations) for overhead electric power lines rest with the owner of the apparatus, section three of the Health & Safety at Work Act places a duty on businesses to conduct their undertakings in such a way as to ensure the safety of visitors to the site so far as is reasonably practicable. Further more the Occupiers Liability Act 1957 places a duty of care on owners and operators to take reasonable steps to see that those visiting their site are reasonably safe. Consequently it is their responsibility to take reasonable steps to manage the risks associated with angling adjacent to overhead electric power lines that cross or run parallel to their waters.

Where angling takes place on waters affected by overhead electric power lines those operating the facility owe a duty of care to those participating. All water owners and managers should be aware of the risks and management controls that should be in place to minimise those risks.

What can I do to manage the Risk?

Assessing the risk

A simple system has been developed within this guidance to allow owners, fishery managers and angling clubs to assess the risks from overhead electric power lines.

Refer to Appendix 1 on Risk Assessment in this guidance for further information, but remember:

- The risk assessment should be carried out as a group process.
- The assessment should be carried out on site.
- Those contributing should have appropriate skills and local knowledge.
- Seek guidance from the local electricity company.

How do I recognise the Hazard?

Overhead electric power lines are normally bare (not insulated) and can carry 230 to 400,000 volts. Overhead electric power lines are commonly mounted on wooden poles or metal towers. It is not possible to provide guidance on how to tell electricity lines from telephone wires as both can be supported on wooden poles and look the same to the untrained eye.

At the higher voltages, electricity can jump short distances through the air, this means that it may not be necessary to touch an overhead electric power line with a fishing rod or pole to suffer an electric shock and severe burns that could lead to death.

Consequently we recommend owners treat all 'overhead lines' as electrically live conductors to minimise the risk of an incident.

If there are overhead electric power lines crossing your land but you are unsure whether they may affect your water, contact your local electricity company. They have staff trained to assist you and will provide advice free of charge.

Controlling the Risk

Historically the recommended minimum default exclusion distance from overhead electric power lines affecting a fishery is 30 metres, however modern legislation has moved away from fixed rules and has been replaced by site specific risk assessment which could reduce or increase this clearance to allow fishing. The default distance of 30 metres should be observed in all circumstances where rods, poles or fishing lines could contact overhead electric power lines that cross or run parallel to the water – unless a risk assessment determines a change.

Management controls can be as simple as signs at entry points, car parks and adjacent to overhead electric power lines to denote no fishing areas or as extensive as re-directing lines away from the water.

In many cases signage will be the most cost-effective option; it may however not be practical to rely on signage alone. At some locations a mix of signage and verbal instruction from the site owner, manager or bailiff should minimise the risk to those using the facility.

Where extensions to existing fisheries are planned:
– refer to Section 3 New/ Proposed Fisheries of this Guidance document.

Warning and exclusion signage can be obtained from local Electricity Companies at no cost. Post mounted signage installation must not be carried out before checks are made for buried services e.g. gas, electricity, oil, water, sewers, drains, telecommunications and with the owner for work on canals and reservoirs or flood embankments. After installation, signage should be routinely checked, defects made good and records maintained by the person responsible for the site.

Under the Electricity, Safety, Quality and Continuity Regulations, local Electricity Companies will also inspect the overhead electric power lines, including warning signage.

Undergrounding or diversion of overhead electric power lines is very expensive and alternate routes can be difficult to obtain. Generally removal of overhead electric power lines cannot be justified on a risk / cost basis and consequently education and the use of warning signage is considered ‘good practice’.

Diagrammatic example of the ‘Minimum exclusion zone’ is detailed in Appendix 2a.

3. New / Proposed Fisheries

Guidance to Planning Authorities, Landowners and Developers

Although angling is generally regarded as a safe sport, there have been a number of instances where anglers have suffered serious and fatal injuries due to contacting overhead electric power lines whilst fishing. The increasing length of carbon fibre fishing poles has often been a factor in these unfortunate incidents.

This guidance has been prepared to provide information to Landowners intending to establish new or extensions to existing fisheries and to Planning Authorities considering applications for new commercial fisheries. By providing clear guidance the Angling and Overhead Power Line Working Group believes that the welcome trend of reduced accident numbers can be maintained.

Legal Obligations

There are a host of significant legal responsibilities that apply to both the Electricity Companies that own overhead electric power lines and the landowners intending to develop a commercial fishery.

Electricity Companies must ensure that their overhead electric power lines meet certain minimum height requirements, that in most circumstances they are marked with appropriate 'danger' notices, and that precautions are taken to prevent structures being climbed.

Owners of fisheries are covered by the terms of the Health and Safety at Work Act. This requires them to consider the safety of not only their own employees, but also members of the general public and to conduct their undertakings in such a way as to ensure the safety of visitors to the site so far as is reasonably practicable. In most circumstances they will be subject to the regulatory powers of Local Authority inspectors. Landowners are also subject to the Occupiers Liability Acts which require that reasonable steps are taken to see that visitors to their land are reasonably safe. A similar duty of care **can** be owed to non-visitors (e.g. persons gaining access/use without permission) where the occupier is aware or has reasonable grounds to believe that the entrant is getting into the vicinity of a hazard.

Planning Authorities considering 'change of land use' applications must consider the safety implications of new fisheries developments in addition to the more usual environmental concerns considered under the Town and Country Planning Act.

Designing the Fishery

A range of incidents associated with angling and overhead electric power lines have been detailed in previous sections within this guidance. Most result from accidental direct contact with overhead electric power lines when using carbon fibre rods and poles. However, incidents have also occurred with other types of equipment, with fishing gear coming into close proximity with overhead electric power lines causing 'flashovers' and from individuals trying to retrieve fishing gear caught in overhead electric power lines.

Ideally, fishing waters should be designed to be at least the default minimum distance of 30 metres from overhead electric power lines or are separated from the overhead electric power lines by a substantial barrier such as a building.

Landowners should also carefully consider access to the site. Car parks and pathways in proximity to overhead electric power lines should also be avoided wherever possible as anglers may assemble equipment and carry tackle to the fishing waters.

In circumstances where it is not possible to avoid infringing the default '30 metre rule', landowners should consult with their local Electricity Company at the earliest possible opportunity about possibility of diverting the overhead power lines or using other safety measures such as barriers, 'goal posts' and safety signs.

When planning a fishery, it is also useful to consider the people that it is likely to attract. Juveniles and individuals not affiliated to particular angling clubs may pay less heed to the safety requirements of the site than adults and club members. Control of the site is therefore an important planning consideration.

There are statutory requirements under the Electricity, Safety, Quality and Continuity Regulations for Electricity Companies to be consulted regarding developments taking place in proximity to existing overhead electric power lines, Planning Authorities may wish to consider the safety implications of new sites that do not adhere to the default '30 metre rule'. In particular, good practice would require such sites to prepare a suitable risk assessment outlining remedial measures with the application (see Appendix 1 of this guidance).

Advice and Information

Whenever Landowners or Developers have any doubts about the development of new fisheries they should contact their local Electricity Company as soon as possible. They will be able to provide useful advice on many of the matters outlined above. Further advice can be obtained from the organisations associated with this guidance.

Links to the UK Electricity Companies can be found through the Energy Networks Association (ENA) website on www.energynetworks.org

Moving the Lines

In certain circumstances it may be possible for Electricity Companies to divert overhead power lines that will be affected by the development of a new fishery. The ease with which a change can be made will depend upon the voltage of the equipment concerned and the number of customers that it serves. Generally, the higher the voltage (e.g. lines carried on steel towers) the more expensive and time consuming it will be to divert the line.

Whenever diversion is considered as part of the Landowner's development plans they should contact the Electricity Company concerned at the earliest possible opportunity. Early consultation is essential. This is particularly important in cases where diversion of high voltage overhead electric power lines may require planning permission.

4. Tackle Trade / Manufacturers

The Problem

The development of long carbon fibre fishing rods and poles has increased significantly the risks of inadvertent contact with overhead electric power lines which could cause serious injury and possibly death.

This section of the guidance has been prepared to raise awareness of manufacturers and suppliers of angling equipment, of the risks associated with angling in close proximity to overhead electric power lines.

Legal obligations of manufacturers/ suppliers

Manufacturers and suppliers have a legal duty under the Health and Safety at Work Act 1974 to ensure 'so far as reasonably practicable' the equipment they supply to the end user is safe to use.

Once a carbon fibre rod/pole or a conducting fishing line is in close proximity to an overhead electric power line a current will flow down the fishing equipment and possibly through the angler to 'earth'. This may cause death or serious burns both internal and external to the body.

Manufacturers should ensure, as a minimum, that permanent warning notices are applied to the equipment to raise awareness of the angler and to fulfil their duties under legislation.

Examples of warning material available

Manufacturers can design and attach permanent warning signs onto their fishing poles to provide anglers with a safety message but care should be taken to place the signs in positions where they can be clearly seen when using the equipment.

The Angling and Overhead Power Line Working Group has produced stickers for poles/ rods and also for tackle boxes and these are available through the Energy Networks Association.

Examples of the stickers are shown in Appendix 3 of this document.

Education

It is currently common practice for manufacturers to place a warning on the butt section of rods & poles. This may not provide sufficient warning to the angler as poles are frequently used at shorter lengths without utilising the butt section.

Manufacturers should consider additional means of educating anglers while they are using equipment manufactured by them.

5. General Angling Guidance

Introduction

This section of the guidance is for reference for all parties concerned with angling and anglers' safety in the vicinity of overhead electric power lines. Factual information is provided for all organisations and personnel who may have an interest, concern or responsibility for angling in locations affected by overhead electric power lines.

This guidance is for the benefit of land owners, fishery owners or prospective developers, fishery managers, angling licensees, overhead electric power line owners/ operators, Local Authorities and Planning Authorities.

Freshwater Angling

Angling with rod, line and baited hook, artificial fly or spinner is a long established bona-fide activity carried out throughout the British Isles. Angling differs from all other forms of fishing where the fish has a choice of taking or leaving the anglers bait and may avoid capture. Modern coarse angling practice is generally to return fish alive to the water after capture.

Angling for coarse fish for example, roach, perch, bream, carp, pike, chub, dace, barbel etc is carried out on rivers, streams, lakes, ponds, reservoirs, canals and drains. In England and Wales, a close season for coarse fish applies on rivers but on enclosed waters angling is permissible throughout the year at the fishery manager's discretion. It must be recognised that angling is often carried out during the hours of darkness.

Angling for game fish for example salmon, sea trout and brown trout is carried out mainly on rivers and to which a close season applies. Angling for rainbow trout on enclosed reservoirs and pools is permissible throughout the year. Angling methods include artificial fly and spinning.

The Environment Agency regulates and licences angling in England and Wales in accordance with the Salmon and Freshwater Fisheries Act, the primary purpose of which is to protect fish health and diversity of fish stocks. In 2002 - 2003 the Environment Agency sold a total of 1,181,962 rod licences. Young anglers under 12 years old do not require a rod licence. Research reported by the Environment Agency in 2002 revealed that there were some 3,800,000 anglers in the United Kingdom

Angling in Scotland is under the general jurisdiction of the Scottish Executive Rural Affairs Department and the Salmon Act 1986 provides for the formation of District Salmon Fishery Boards. Consent of the riparian owner is required to fish for salmon. Data on the population of anglers in Scotland using rod licence information is not readily available.

In Northern Ireland, the Department of Agriculture is the ultimate authority responsible for fisheries. There are two angling licensing authorities, the Fisheries Conservancy Board for Northern Ireland and the Loughs Agency. In 2001 the FCBNI sold a total of 14,833 game and course fish rod licences, inclusive of short term licences. The Loughs Agency issues rod licences for game fish but information on sales has not been obtained.

Sea and seashore angling is unlicensed.

All anglers may be at risk of accident involving overhead electric power lines, for instance experienced anglers visiting waters for the first time or on holiday and not noticing overhead electric power lines; young people and newcomers to the pastime who may be unaware of the dangers and anglers with poor eyesight and learning difficulties.

Angling Techniques and Equipment

Coarse angling equipment and techniques include long pole fishing with fixed length of line and float fishing or ledgering using a rod, reel and running line.

Modern poles and rods are invariably manufactured from carbon fibre which is a good conductor of electricity. This material enables the use of longer and lighter weight equipment compared to earlier materials such as glass fibre, natural canes or metal tube.

Proprietary carbon fibre poles are available with assembled total length in excess of 17 metres comprising individual pole section lengths of 1 to 1.8 metres approximately. The depth of water being fished usually influences the fixed length of line used, but in some situations equal length of pole and line may be used up to 10 metres approximately. Normal pole handling technique is to push a partially assembled pole length out over the water and to add additional sections to the butt end until the desired length out over the water is achieved. A reverse procedure is adopted to bring the line to hand by passing the butt of the pole over land behind the angler and dismantling pole sections as required.

A technique has recently been developed for use on some enclosed waters using parallel jointed pole butt sections to create pole lengths exceeding 25 metres and to float the pole out on the surface of the water. In this type of situation, the weight of the fully assembled pole prevents it being lifted in the air.

Rods, reels and running lines are used for float fishing or ledgering to cast distances, depending upon the size of the water, of 70 to 100 metres approximately. During flight the weighted line may reach a height of about 25 metres above the water surface. Rod lengths may vary from 3.5 to 7 metres approximately. Nylon monofilament or braided lines are used with line diameter selected to withstand casting stresses. Whilst pike fishing, anglers may use a short length of fine wire trace attached to the hook to prevent a hooked fish from biting through the line.

Fly fishing for game fish is carried out using fly rods usually of carbon fibre and fly lines of flexible plastic which may either float on the water surface or sink when the casting is complete. Some fly lines have internal fine lead wire cores to achieve casting distance and to sink below the water surface when cast is completed. Fly rods may vary in length from 2.5 to 5 metres approximately. Fly lines may vary in length from 20 to 30 metres approximately and backing line may be used the achieved greater casting distance or for playing hooked fish. Fly casting technique is to cast the line out over the water and back over the land behind the angler, progressively increasing the length of line and fly is allowed to fall onto the water surface. Casting distances of 30 metres can be achieved and line height during false casts may be 2 to 3 metres above rod tip height.

General

It should be noted that the default recommended safety clearance distance of 30 metres from where an angler fishes or assembles his tackle is based upon a safety margin beyond carbon fibre rod or pole length. The safety clearance does not include for casting distance.

The approximate casting distances quoted are based upon practical angling equipment and reasonable casting skills. Much greater distances can be achieved by skilled competitors when taking part in demonstrations or tournament casting which may take place remote from fisheries. Tournament casting and demonstration sites should also be clear of overhead electric power lines.

Sea Angling

Sea Angling and Overhead Electric Power Lines

Sea anglers are not exempt from the effects of overhead electric power lines. Piers, promenades and other such seafront locations have cables supplying power for lighting and business such as amusements, navigation systems and other uses.

Whilst considering the risks to sea anglers it must be recognised that unlike coarse and game fishing a high proportion of the angling practised from the shore is carried out at night increasing the risk to the unwary. In addition anglers preparing to visit the waterfront can also inadvertently be injured whilst removing rods from car roof racks etc if adjacent to overhead electric power lines.

The main areas to consider are set out below:

- Piers and Promenades
- Car Parks and on/off street parking
- Urban estuaries, docks and harbours

As materials for fishing rod construction have improved there has been a move for anglers to cast vast distances using 3.6 to 5.5 metre carbon fibre rods and 150 to 200 gram leads attached to monofilament or braided fishing lines.

During the cast the trajectory of the lead could allow it to fly up to 100 metres into the air before landing. Whilst angling those participating can cast distances up to 200 metres. In areas affected by overhead electric power lines this could lead to contact with these lines if the user is not aware of their presence.

Distance casting has also developed as a sport and has led to the formation of casting clubs around the country. The current UK and world record for casting is over 300 yards (270 metres). To reach such distances those participating have to continually practice. This practice sometimes takes place on a beach but more often it is carried out in isolation on playing fields, inland waterways arable land or public open space. Although no incidents have been recorded the risk of an incident occurring must be recognised.

The sport's governing body is the United Kingdom Surfcasting Federation they organise casting events around the country throughout the year. These events are only a small proportion of those held by individual clubs at many contrasting locations.

As with coarse and game angling it is not always possible for individuals to recognise the difference between overhead electric power lines and telephone wires.

Risk assessment should be a regular part of the organiser's duties and carried out prior to major events. Small groups and individuals must recognise this need and the risks associated with their sport.

To minimise the risk of an incident, any organisation planning casting competitions or practice sessions adjacent to overhead electric power lines should contact their local electricity company prior to the event taking place.

Landowners and casting event organisers should be aware of the risks associated with overhead electric power lines and should not cast on land affected by or adjacent to them. Where landowners know such activities take place signs should be erected to warn of the dangers.
Tell tale signs of casting taking place near overhead electric power lines could be fishing line hanging from the overhead electric power lines. If found contact your local electricity company

6. Emergency Procedure

Although inadvertent contact of fishing equipment with overhead electric power lines is rare, it is important that when an incident does occur that the appropriate action is taken.

Precautions to be taken

Any contact with overhead powerlines and associated equipment can be fatal to the person holding the fishing equipment and there is a serious risk that any person trying to rescue, or attend to, the injured person could also receive a fatal electric shock.

Therefore the following actions should be taken:

- **DO NOT ATTEMPT TO MOVE THE FISHING EQUIPMENT OR PERSON IF STILL IN CONTACT WITH OR CLOSE TO THE OVERHEAD ELECTRIC POWER LINE**
- **PREVENT THIRD PARTIES FROM ENTERING THE INCIDENT AREA**
- **CONTACT THE EMERGENCY SERVICES THROUGH 999 AND REQUEST AN AMBULANCE AND THE LOCAL ELECTRICITY COMPANY**
- **MAINTAIN A 5 METRE CLEARANCE.**

It is important to recognise that electric conductors may stay 'live' after contact or may be re-energised through automatic reclosure switches without warning.

APPENDIX 1 -

Risk Assessment

Introduction

This Appendix of the guidance considers the assessment of the risk presented by electricity carried in overhead electric power lines and associated equipment which forms part of the electricity transmission and distribution networks and private networks in the UK. It provides practical guidance on assessment of the risks to anglers and others, and how to reduce them.

You may wish to utilise the methods outlined to help you consider any other non electrical risks at your location which could then enable you to develop a fully integrated 'Visitors Safety Plan'.

Historically the recommended minimum default exclusion distance from overhead electric power lines affecting a fishery is 30 metres, however modern legislation has moved away from fixed rules and has been replaced by site specific risk assessment which could reduce or increase this clearance to allow fishing. The default distance of 30 metres should be observed in all circumstances where rods, poles or fishing lines could contact overhead electric power lines that cross or run parallel to the water – unless a risk assessment determines a change.

Understanding the hazard

The nature and effect of electricity

By its nature electricity will seek any conductive path to the ground.
At higher voltages, electricity will 'jump' short distances through air to anything conductive nearby, it is therefore not necessary to actually touch overhead electric power lines to be in danger, just being too close may cause a 'flashover'.

Modern carbon fibre fishing poles and rods are good conductors of electricity as is the human body and if brought close to overhead electric power lines, will offer a good path for electricity to conduct to 'earth'.

Electricity, at the voltages carried in the transmission and distribution network, will cause harm to the human body if contact is made. Effects may include interruption of the heart rhythm, damage to the nervous system and internal and external burns following the path of electric current passing through the body. Death is commonly the outcome. Resulting injury may vary depending on a number of factors including the voltage of the supply, how well any object held conducts electricity, the moisture on the skin, duration of contact and ground conditions. Rubber soled shoes or Wellingtons **cannot** be relied upon for protection.

UK Overhead Electric Power Lines

UK overhead electric power lines and their supports vary greatly, depending on age, the environment and the voltage carried. They may be supported by steel towers (pylons) or smaller wood, concrete or steel poles.

As stated previously within the guidance, to the layman it is difficult to distinguish between some overhead electric power lines and telecommunication lines. Many overhead electric power line supports will be identified with a yellow and black 'Danger of Death' warning sign, however this is not always the case as many low voltage line supports are currently not marked in this way.

The Risk Assessment Process:

Definitions

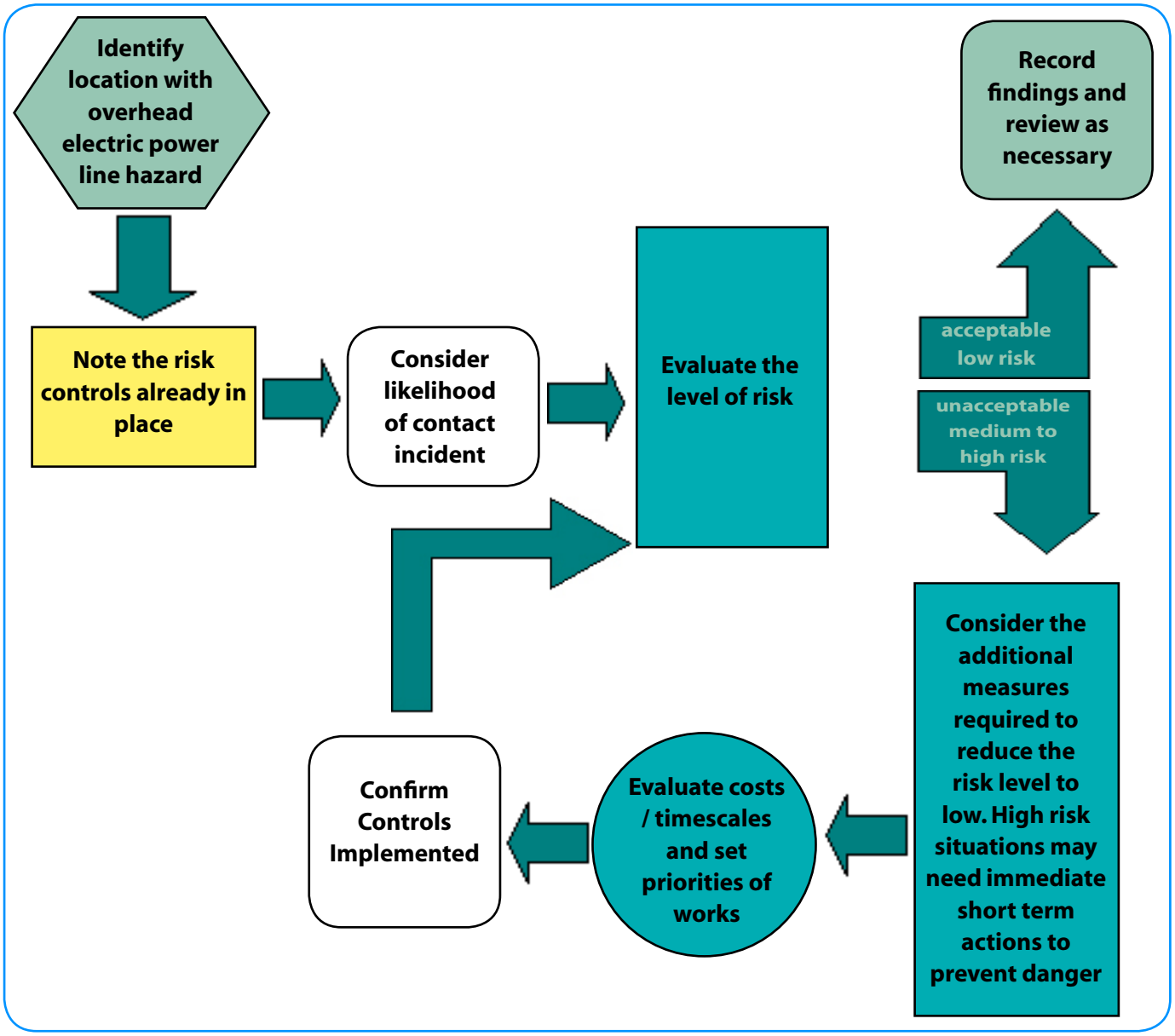
In considering the risks presented by electricity, it is important to clarify a number of the terms used.

1. ***Hazard:*** **is anything which has the capability of causing harm or loss. This guide will concentrate on the hazard presented by electricity in overhead electric power lines.**
2. ***Risk*****: is the likelihood that harm or loss is realised, taking into account such factors as the type and position of the overhead electric power lines, the number of people exposed, the age and experience of visitors, the probability of an incident occurring and the severity of the outcome. Risk can be categorised by the assessment as HIGH, MEDIUM or LOW.**
3. ***Control Measures*****: are the steps that you may take in order to eliminate or reduce the level of risk to LOW.**
4. ***Risk Assessment Team*****: A small group brought together to prepare a site specific risk assessment, see page 18/19 for make-up of the team.**

Always seek the advice of the equipment owner to identify the dangers associated with overhead electric power lines that encroach on your watercourse and access routes - never make assumptions. These organisations should be able to provide useful information and advice regarding specific equipment or overhead electric power lines in the area.

In many locations additional equipment such as transformers or switches are connected to overhead electric power lines, and at these positions there are likely to be additional connections and cables at a reduced height to that of the rest of the line. These situations require special attention when considering the risks to anglers in the area.

Overview



Who should be involved in a Risk Assessment

For a risk assessment to be suitable and sufficient it is essential that people with the appropriate knowledge and experience are involved and that all necessary information is available.
In considering the risks to anglers from overhead electric power lines the risk assessment team should make reference to and involve the following:-

- An individual who has experience of the methods of fishing used at the location and who is familiar with the various types of tackle available on the market. This person is likely to be a

regular experienced angler familiar with local practices at the site and the typical age profile of users. (e.g. are they mostly retired anglers or do children/youths commonly fish there).

- Consultation should be made with a representative of the Electricity Company (or other overhead electric power line equipment operator) who has expert knowledge of the type of overhead electric power line involved and can provide advice on the risks presented by overhead electric power lines at a specific location. Copies of plans showing the location of overhead electric power lines can be requested from the Electricity Company.

- Representatives of the Fishing Club or Association who use (or intend to use) the location for fishing. These should include those who have an understanding of the club's legal obligations and of constraints in terms of cash or resources.

- A Representative of the landowner (if this is not the fishing club or association).

- A person who has an understanding of the risk assessment process and who is competent to co-ordinate and record the process and to identify and implement any actions identified. This person should be a representative of the Angling Club or landowner.

Carrying out a Risk Assessment

Step 1 – Identify the Problem

Consider all of the watercourse that is likely to be fished and also the access routes and car parking areas where anglers are likely to walk to reach fishing pegs.

Confirm that any overhead electric power lines observed, are electricity lines by contacting the relevant Electricity Company as appropriate. These organisations will also be able to provide competent advice on the type and voltage of the overhead power line.

The position of the overhead electric power line in relation to the water and bankside is also important. For example, if the line crosses a watercourse (greater then 10 metres) at right angles in mid span with minimum clearance on either side it is likely that angling should be restricted for a full 30 metres (default exclusion distance) either side of the line as the use of long carbon fibre poles would be likely.

However, if a small watercourse was crossed in similar circumstances the restriction could be substantially reduced either side of the line as it would be unlikely that carbon fibre poles would be used.

If the same watercourse ran in a valley with the crossing conductor at a height of over 30 metres (see Appendix 2b) then in certain circumstances angling could take place under the line with no potential difficulties.

In some circumstances the line may not actually cross the water but may run parallel behind or to the side of the angler, this situation could be equally as dangerous depending again on the type of angling taking place.

On some waters (lakes and reservoirs predominantly) the line may cross a large part of the actual water and this could result in not only rods or poles coming into contact with the line but also people casting over the line in an effort to gain long distances. These situations could result in large areas of bankside being restricted or restricting the actual type of angling which could take place. With the points identified above it is clear that any risk assessment should take into account a number of different issues not just electrical clearance.

Where possible avoid having too large a group of people involved in the assessment process as it may become difficult to manage and to secure agreement.

On completion the original risk assessments should be held by the land owner but controlled copies should be made available to the operators of the site.

Step 2 - Identify the activity

What sort of activity is likely to be carried out at the location – coarse, sea or game fishing? What type of equipment could be used, poles or rod or line, this could affect the likelihood that contact might be made with overhead electric power lines.

So far as any risk assessment is concerned, primarily the main two types of angling which will be encountered will be:

A. Coarse - This involves the use of carbon fibre rods and poles (poles offer probably the greatest risk of coming into contact with overhead electric power lines). With the use of a rod (up to 6 metres in length) the angler is normally casting a distance (up to 70 metres) using a monofilment (or similar) line which could conduct electricity when wet.

Carbon poles can be up to 18 metres in length and are used predominantly on ponds, lakes and canals but are still used in certain circumstances on rivers. Line is attached to the end of the pole and the pole is "shipped" out to the required length before lowering the line into position. Poles are made up of numerous sections of approximately one metre in length and it is also quite common to see poles being raised straight up in the air with a view to "swinging" the line into position.

B. Game - Game angling is adopted for trout and salmon fishing and again is practised on rivers, lakes, ponds and reservoirs (not usually on canals).

The method is known as 'fly fishing' and predominantly involves the use of carbon rods with a length of between 2 and 5 metres where a "heavy" plasticised fly line is released by constant "false" casting to achieve distance before allowing the line and flies to land on the water, distances achieved by this method rarely exceed 30 metres. The use of normal rod and line tactics as in coarse angling is also adopted on certain waters, mostly rivers and streams but occasionally on lakes also.

It is also important to understand where such types of angling are likely to take place and what may be used. For example, on small streams or rivers with a width of up to say 10 metres it is unlikely that long carbon poles would be used, it is more likely that rods with a length of up to 4 metres would be common and long casting will be unnecessary. However, on a canal of similar width it would be predominantly carbon fibre poles which would be used.

It is clear from the above that any risk assessment needs to take into account the type of angling taking place and the possible effects of restricting angling on that particular stretch of water.

Step 3 – Consider existing Controls

At each identified location, look at what is in place already to reduce the risk of contact. These might include: warning signs prohibiting fishing within an exclusion zone or warning of the presence of overhead electric power lines on access routes; physical barriers such as buildings or structures or dense foliage which would prevent or significantly reduce the likelihood of contact; height restrictions such as 'goal posts' or barriers. (Beware though that overhead foliage may also increase risk in some circumstances as it will make overhead electric power lines more difficult to see). Also consider the area as it would be in different seasons (i.e. with and without foliage).

Step 4 - Making the assessment

Having considered all of the above factors, you will now need to arrive at a risk level for the location. This may be:

- **HIGH** — Clear danger to anglers, urgent immediate action required.
- **MEDIUM** — A significant risk exists and actions may be undertaken to reduce it, however, this is lower priority and it is acceptable that the current situation presents no imminent danger to anglers. However, an action plan with timescales for measures to reduce the risk further would be appropriate.
- **LOW** — The risk is as low as is reasonably practicable and the measures in place are deemed suitable and sufficient.

See Figure 1 for an example extract of a risk assessment form for a typical riverbank.

Step 5 - Turning your words into actions

Where your assessment has shown that the risk is high or medium, it is then necessary to identify what measures are necessary to reduce or eliminate the risk. This could mean further restriction or prohibition of fishing at this position, which may be as a temporary measure until changes can be made to the overhead electric power line, or in some circumstances it may be a permanent prohibition.

This is likely to mean that work is necessary on site, for example; to make an area inaccessible to anglers, which could include the erection of fencing or planting close growing shrubbery, or to erect warning or prohibition signs. Make sure that within your assessment; someone is accountable for carrying out the identified work within a timescale and that someone is charged with following up to ensure the actions happen.

An action plan may be appropriate for this purpose, so that work in progress is programmed and monitored and reasons for any delays or deviations from the assessment can be documented.

See figure 2 for example of an action plan

Step 6 – Review

Make sure that you have a process to review your risk assessments over a reasonable period of time and particularly after things have changed on site that could affect the risk level, for example tree clearance or altered access routes.

Always clearly record and keep your risk assessments safe.

A sensible approach to managing risks can mitigate your liabilities and more importantly it can save lives.

On - Site Risk Assessment

In addition to the generic risk assessments as detailed above it is also important that anglers carry out on – site risk assessments to identify any hazards before they commence angling.

To assist anglers in this, Appendix 6 contains an example of a Guidance Card that could be issued or developed by angling clubs as required.

Figure 1

Fishery Affected by Overhead Power Line *Risk Assessment Form*		Date of Assessment	MARCH 21st 2005	
Assessment recorded by	A. N. OTHER	Date of next assessment	MARCH 21st 2006	

LOCATION	NATURE OF HAZARD	POSSIBLE ACCIDENT	EXISTING RISK CONTROL MEASURES IN PLACE	EXISTING RISK LEVEL	URGENT ACTIONS REQUIRED TO PREVENT DANGER	ADDITIONAL CONTROL MEASURES REQUIRED TO REDUCE RISK	RESIDUAL RISK LEVEL
Hogthorpe peg34 nearest to foot bridge	11,000V overhead electric power line 15m at rear of peg	Movement of extended roach pole could touch wires during fishing or whilst walking on footpath away from river under wires	Warning sign at entrance to footpath by roadside	HIGH	Remove fishing peg and fit 'no fishing' sign	Promote river weed growth at the peg site and also allow bramble / shrub growth at bank side to prevent access (note - peg cannot be reinstated unless overhead electric power line is removed - contact electricity co. to discuss feasibility cost and timescales)	LOW
Hogthorpe peg33 adjacent to old hut.	11,000V overhead electric power line 34m at rear of peg	Possibility that vertically carried extended roach pole could touch wires whilst walking from peg to roadside following footpath under overhead electric power lines - unlikely though as tree growth would make this difficult	None	MEDIUM	Fit 'danger look out - look up' signs at the footpath on each side of approach to the overhead electric power lines.	Consider installation a height restriction barrier to prevent poles being carried upright along the path.	LOW

Figure 2

Fishery Affected by Overhead Power Line *Risk Assessment ACTION PLAN*		Date of Assessment	MARCH 10th 2005	
Assessment recorded by	A. N. OTHER	Date of next assessment	MARCH 21st 2006	

LOCATION	URGENT ACTIONS *(FROM RISK ASSESSMENT FORM)*	ADDITIONAL CONTROL MEASURES (*FROM RISK ASSESSMENT FORM)*	WHO IS RESPONSIBLE FOR ENSURING THE ACTION IS COMPLETED	AGREED DATE THAT ACTION IS COMPLETED	REVIEW / COMMENTS	DATE ACTION IS CONFIRMED COMPLETE	RESIDUAL RISK LEVEL
Hogthorpe peg34 nearest to foot bridge.	Remove fishing peg and fit 'no fishing' signs	None	John Smith (Hogthorpe fishing club)	01 April 2005	Sign obtained from electricity co. and erected by us at positions agreed with land owner.	26 March 2005	LOW
Hogthorpe peg34 nearest to foot bridge.	None	Promote river weed growth at the peg site and also allow bramble / shrub growth at bank side to prevent access	Fred Bloggs	01 October 2005	Access is obstructed by cut brush - Bramble and weed growth now established.	01 October 2005	LOW
Hogthorpe peg33 adjacent to old hut.	Fit 'danger look out - look up' signs at the footpath on each side of approach to the overhead electric power lines.	None	Bill Jones (Hogthorpe fishing club)	01 April 2005	Signs obtained from electricity co. and erected by us positions agreed with land owner.	28 March 2005	LOW
Hogthorpe peg33 adjacent to old hut.	None	Install a height restriction barrier to prevent poles being carried upright along the path.	Tom Brown (land owner)	01 June 2005	Barrier erected across main access path with integral warning signs 18m each side of where overhead electric power line crosses the path.	20 May 2005	LOW

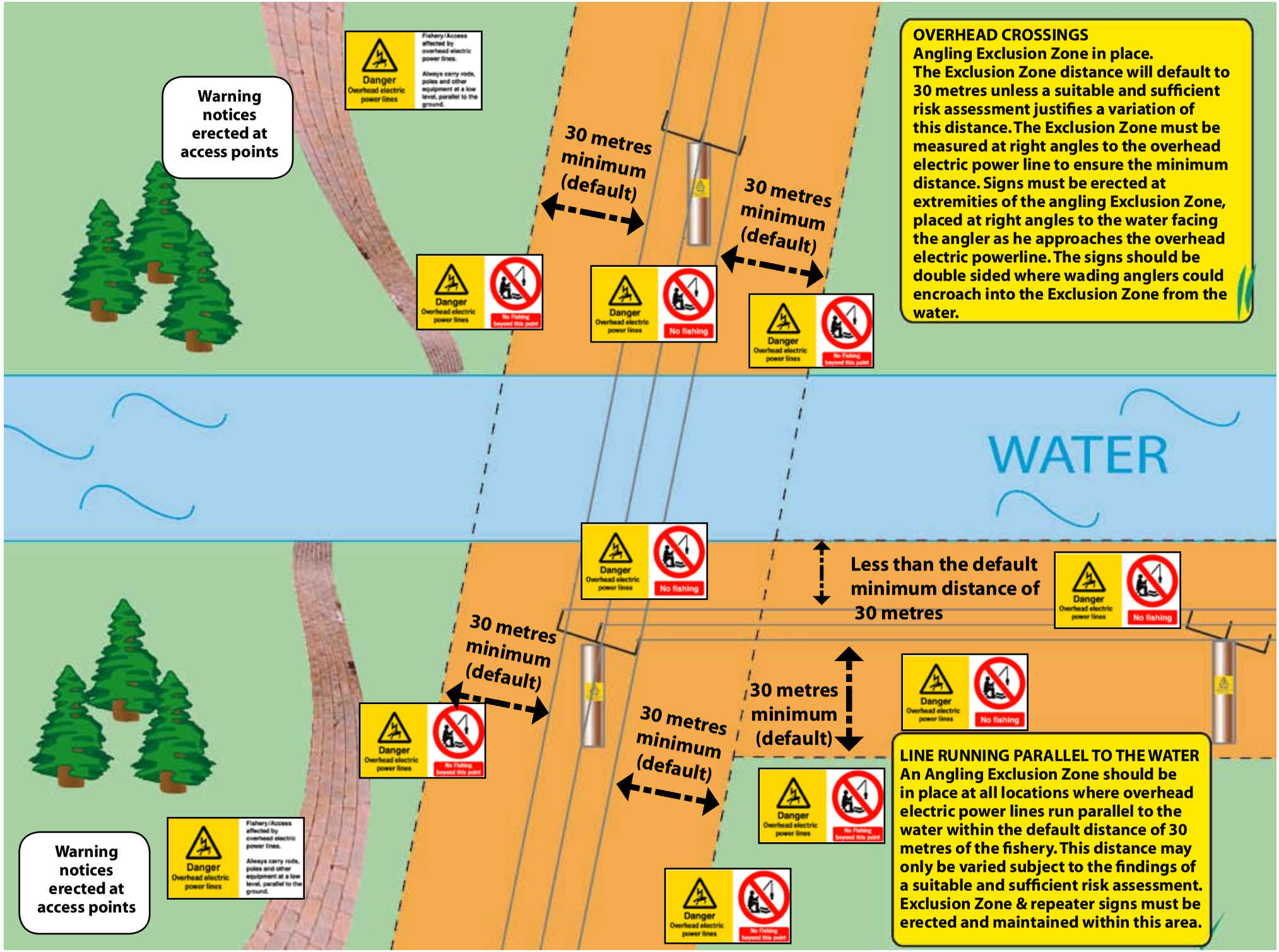
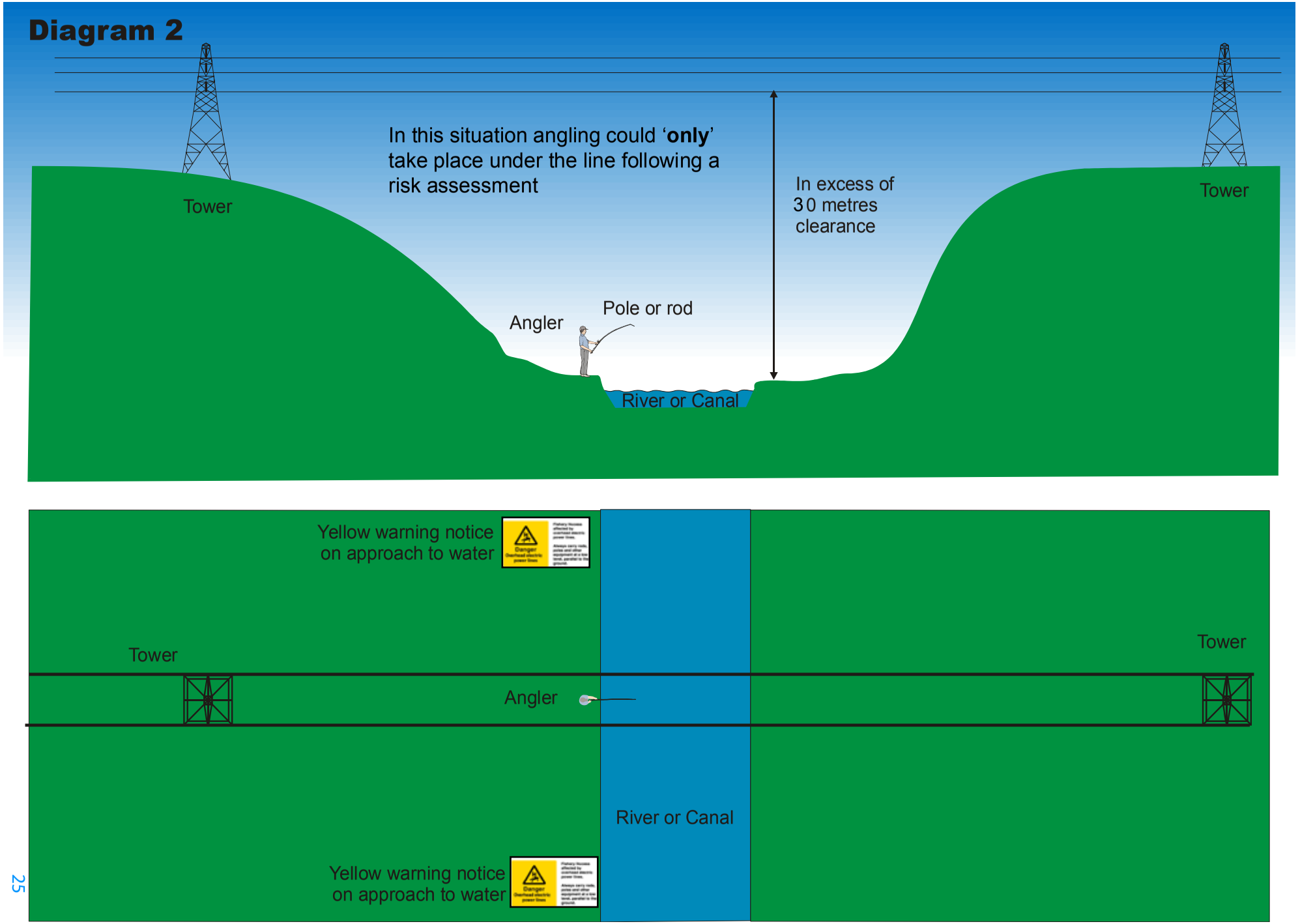

Warning notices erected at access points
Danger Overhead electric power lines
Fishery/Access affected by overhead electric power lines.
Always carry rods, poles and other equipment at a low level, parallel to the ground.
30 metres minimum (default)
30 metres minimum (default)
No fishing
No Fishing beyond this point
OVERHEAD CROSSINGS
Angling Exclusion Zone in place.
The Exclusion Zone distance will default to 30 metres unless a suitable and sufficient risk assessment justifies a variation of this distance. The Exclusion Zone must be measured at right angles to the overhead electric power line to ensure the minimum distance. Signs must be erected at extremities of the angling Exclusion Zone, placed at right angles to the water facing the angler as he approaches the overhead electric powerline. The signs should be double sided where wading anglers could encroach into the Exclusion Zone from the water.
WATER
Less than the default minimum distance of 30 metres
30 metres minimum (default)
30 metres minimum (default)
30 metres minimum (default)
LINE RUNNING PARALLEL TO THE WATER
An Angling Exclusion Zone should be in place at all locations where overhead electric power lines run parallel to the water within the default distance of 30 metres of the fishery. This distance may only be varied subject to the findings of a suitable and sufficient risk assessment. Exclusion Zone & repeater signs must be erected and maintained within this area.
Warning notices erected at access points

Diagram 2


In this situation angling could '**only**' take place under the line following a risk assessment
Tower
Tower
In excess of 30 metres clearance
Angler
Pole or rod
River or Canal
Yellow warning notice on approach to water
Tower
Tower
Angler
River or Canal
Yellow warning notice on approach to water

APPENDIX 3

ROD AND TACKLE BOX STICKERS

Dimensions
37mm x 20mm

Dimensions
70mm x 95mm

APPENDIX 4

EXAMPLES OF EXISTING SIGNAGE INSTALLED

APPENDIX 5

WARNING AND PROHIBITION SIGNAGE SPECIFICATION

Overhead Electric Power Line Warning Signs

How and where warning signs should be used

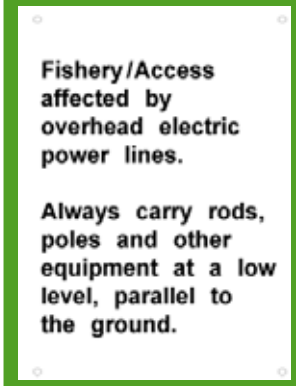
These are the three types of warning sign:-

Warning Notices

Warning notices should be used at access points to provide a general warning of the presence of overhead electric power lines on approaches to the fishery and/or affecting the fishery itself.

SIZE: 170x170 Colours: Black onto Yellow (RAL 1023

Lowercase letter: 9mm Readable distance: 18M



SIZE: 170x230 Colours: Black onto White

Lowercase letter: 9mm Readable distance: 18M

Angling Exclusion Zone Sign

Exclusion Zone Signs should be used at the extremities of the angling exclusion zone. This type of sign is designed to warn anglers as they approach the overhead electric power lines and should be erected in a prominent position, at right angles to the water, to face the anglers as they approach the exclusion zone.

SIZE: 170x170 Colours: Black onto Yellow (RAL 1023

Lowercase letter: 9mm Readable distance: 18M

SIZE: 170x230 Colours: Red (RAL 3020) and Black onto White

Lowercase letter: 9mm Readable distance: 18M

Repeater/Under Line Signs

At some locations overhead electric power lines may run parallel to the water for long distances, where this occurs it is recommended that 'repeater signs' are erected at frequent intervals in line of sight but not exceeding 200 metres.

These signs can also be used as a reminder sign directly below the overhead crossing.

Note: This type of sign should be used in addition to the Angling Exclusion Zone signs.

SIZE: 170x170 Colours: Black onto Yellow (RAL 1023

Lowercase letter: 9mm Readable distance: 18M

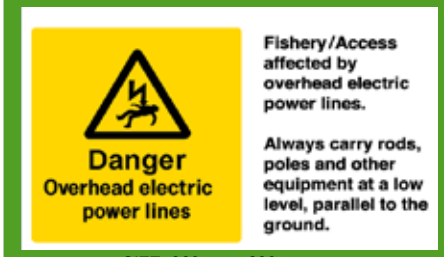
SIZE: 170x230 Colours: Red (RAL 3020) and Black onto White

Lowercase letter: 9mm Readable distance: 18M

At high risk locations individual tiles with the wording "Always carry rods, poles and other equipment at a low level, parallel to the ground" can also be incorporated alongside the Exclusion Zone signs and/or the Repeater/Under Line Signs.

Specification Note: Due to the effects of weathering, notably the fading of the printed message caused by the sun's UV rays it is advisable to check with your sign supplier the life expectancy of the signs. Sign life can be increased by overlaminating the panel with a clear UV inhibiting film.

The Exclusion zone & under line signs are supplied as units for use in a vertical format as displayed above, or side by side on one sign panel as shown below.
This allows those purchasing the signs to decide on the most suitable layout/design style for the location to be signed.



SIZE: 360mm x 230mm

SIZE: 360mm x 230mm

SIZE: 360mm x 230mm

APPENDIX 6

ANGLERS GUIDANCE CARD

LOOK OUT!

Fishing near overhead electric power lines

Too many anglers have been killed or very seriously injured through contact or near contact with overhead electric power lines with fishing rods or poles

Remember:

L*ethal electric currents can pass through almost all fishing rods and poles*

O*verhead electric power lines are often uninsulated (bare) and can carry high voltages*

O*verhead electric power lines on wood poles often look like telephone wires*

K*eep a careful look out for overhead electric power lines and keep well away*

O*bserve warning signs and instructions even in the car park or roadside*

U*npack, set up and put away your rod or pole at the waters edge*

T*ell the fishery owner of any dangerous situation or near miss that you see*

Don't risk being injured
LOOK UP AND LOOK BEHIND YOU
Follow a few simple rules and stay safe.
Have a great day fishing

Emergency Procedure

Although inadvertent contact of fishing equipment with overhead electric power lines is rare, it is important that when an incident does occur that the appropriate action is taken.

Precautions to be taken

Any contact with overhead powerlines and associated equipment can be fatal to the person holding the fishing equipment and there is a serious risk that any person trying to rescue, or attend to, the injured person could also receive a fatal electric shock.

Therefore the following actions should be taken:

- **DO NOT ATTEMPT TO MOVE THE FISHING EQUIPMENT OR PERSON IF STILL IN CONTACT WITH OR CLOSE TO THE OVERHEAD ELECTRIC POWER LINE**
- **PREVENT THIRD PARTIES FROM ENTERING THE INCIDENT AREA**
- **CONTACT THE EMERGENCY SERVICES THROUGH 999 AND REQUEST AN AMBULANCE AND THE LOCAL ELECTRICITY COMPANY**
- **MAINTAIN A 5 METRE CLEARANCE.**

Local Electricity Company Contact

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