Volume 5

NJUG ON-SITE ENVIRONMENTAL GOOD PRACTICE GUIDELINES

PLEASE ENSURE THAT YOU READ THE LEGAL NOTICE AND DISCLAIMER WHICH APPEARS IN APPENDIX A OF THIS PUBLICATION

Issue 1: 1st July 2009

NJUG has a vision for street works, this vision is simply:

- Safety is the number one priority
- Damage to underground assets is avoided
- Utilities work together and in partnership with local authorities to minimise disruption
- Utilities deliver consistent high quality
- Utilities maximise the use of sustainable methods and materials
- Street Works in the U.K. are regarded as world class

This document forms part of that vision.

Mark Ostheimer
Director, Operations

The following volumes constitute the NJUG Publications. They are living documents and may be amended from time to time. There is no attempt to describe any specific industry process as each utility has its own specifications and procedures. Not all the publications will necessarily be available at one time as individual volumes will be published when available.

NJUG PUBLICATIONS	
Current	*Previous*
VOLUME 1	
NJUG Guidelines on the Positioning and Colour Coding of Underground Utilities' Apparatus	NJUG 4 & 7
VOLUME 2	
NJUG Guidelines on the Positioning of Underground Utilities Apparatus for New Development Sites	NJUG 2, 5 & 6
VOLUME 3	
NJUG Guidelines on the Management of Third Party Cable Ducting	New
VOLUME 4	
NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees	NJUG 10
VOLUME 5	
NJUG On-Site Environmental Good Practice Guidelines	New
VOLUME 6	
Legislation & Bibliography	NJUG 1
VOLUME 7	
NJUG Guidelines for Managing Fixed Penalty Notices	New

The following NJUG publications have not been reviewed and have been completely withdrawn:
NJUG 3 – Cable Locating Devices
NJUG 8 – Performance Guide for the Assessment of Metallic Pipe and Cable Locators
NJUG 9 – Recommendations for the Exchange of Records of Apparatus between Utilities
NJUG 11 – Proposed Data Exchange Format for Utility Map Data
NJUG 12 – NJUG Specification for the Digitisation of Large Scale OS Maps
NJUG 13 – Quality Control Procedure for Large Scale OS Maps Digitised to OS 1988
NJUG 15 – NJUG/Ordnance Survey Service Level Agreement (Technical) for Digital Map Products and Services

CONTENTS

Background

The statutory right of undertakers (utilities) to carry out works within the public highway in order to provide and maintain their apparatus dates from the mid-19th century and is set out in the relevant utility industry primary legislation (see **Volume 6 – 'Legislation and Bibliography'**).

The New Roads and Street Works Act 1991 (NRSWA), as amended by the Transport Act 2000 (TA), the Traffic Management Act 2004 (TMA), the Transport (Scotland) Act 2005 (TSA) together with the Street Works (Northern Ireland) Order 1995 (SWNIO), sets down the legislative requirements to be adopted during the installation, repair and maintenance of apparatus in roads and streets (**see Volume 6 – 'Legislation and Bibliography'**).

However, the above documentation does not deal specifically with the protection of the environment. The following guidelines should be regarded as good on-site practice.

Scope

NJUG believes that there are a number of benefits to the environment that can be achieved by following good on-site practices. These benefits include a reduction in;

- the impact upon the natural environment
- the use of unsustainable resources
- the disturbance to people and wildlife in the vicinity of our activities

The guidance in this document applies primarily to activities associated with the construction and maintenance of utility apparatus. Each organisation should have its own environmental policy that must always be consulted as part of the planning, design and execution of all works.

In addition to individual organisational policies this document supports the NJUG Vision on maximising the use of sustainable methods and materials. It does not constitute an environmental policy but seeks to increase environmental awareness.

NJUG aims to encourage compliance with environmental legislation, sustainability and good environmental working practices.

1. ENVIRONMENTAL MANAGEMENT SYSTEMS

It is good practice for an organisation undertaking utility works to have an environmental management system as part of its quality management profile.

Organisations may consider developing sustainable development site control policies and plans. Risk assessments should be produced for activities which

may impact upon the environment and method statements should reflect the measures required to mitigate these activities.

2. ENVIRONMENTAL ISSUES

Utility activities often impact upon the surrounding environment. The key environmental issues include:

- Water pollution
- Waste management
- Noise, dust, and odour
- Ground contamination
- Changes to the natural environment (landscape, wildlife and flora)
- Rivers, water courses and flood plains
- Archaeological disturbance

2.1 Water Pollution

2.1.1. **Causes of Pollution**
An offence is committed if a person or persons causes or knowingly permits:

- solid waste matter, or poisonous, noxious or polluting matter to enter surface waters or groundwater
- trade and sewage effluent to enter surface waters or groundwater without prior consent from the appropriate environmental regulator.

Additionally, where there is any risk of surface water or ground water being contaminated by;

- discharge from pipes and chambers
- untreated sewage
- hazardous materials (fuel, oil, solvents, chemicals etc.)
- non-hazardous materials (litter, mud, silt, solid waste etc.)
- large obstructions that impede flow (branches, spoil etc.)

Any discharge of contaminated water must have consent from the appropriate environmental regulator.

Note: See also Environment Agency publication 'Pollution Prevention Guidelines'

2.1.2 **Pollution Prevention**

Prior to works commencing the following should be considered:

- The application for the appropriate discharge license, where required, from the appropriate environmental regulator.

- The introduction of separator / settlement tanks and filters.
- An awareness of local geography that will effect the direction of flow from the point of discharge.
- Site meetings with the appropriate environmental regulator to identify surface waters or groundwater that could be at risk.
- Undertaking a risk assessment along with the production of a method statement.
- On-site precautions, for example the correct storage of fuel and materials, the provision of spill bunds and kits, the use of drain blockers, site security etc.
- Undertaking regular inspections of any site discharges to surface waters or groundwater.
- Minimising the risks to health (e.g. Weil's Disease) resulting from any incidents in which a foul sewer or other contaminated water enters an excavation, pit or chamber.

During works the following should be considered:

- All spoil is kept clear of road gullies and gutters wherever reasonably practicable. Where this is not possible a temporary drainage channel should be provided through the spoil and drain covers used to protect vulnerable drains.
- Ensure that drip trays are regularly inspected and emptied. The inspection frequency should be increased during times of frequent rainfall.
- Disposal of any liquids from a drip tray should be carried out in accordance with your company's environmental policy or procedure. If in doubt reference should be made to the appropriate environmental regulator.
- Ensure that any other potential pollutants are not discharged to a watercourse or sewer without the appropriate consent.

2.1.3 **De-watering**

It is an offence to knowingly permit the discharge of pollutants into controlled waters (e.g. rivers, lakes, ditches).

Water in excavations, pits and chambers should be assessed for obvious signs of contamination (e.g. discolouration, odour, signs of oil, liquids from broken gas mains or sewer pipes, etc). Prior to de-watering reference should always be made to your own company environmental policy or procedure.

2.1.4 **Managing Surface Water Run-Off**

Surface water running across a site may cause pollution. To prevent this water from running into excavations or disturbed ground, collection systems should be installed on site. These should be adequate to allow for the controlled release of storm water. In dry weather large quantities of mud and oils may build up on areas of hard standing. If not cleaned frequently, a sudden shower

could wash these deposits into excavations or water courses with the possibility of a high risk of pollution.

When undertaking works or setting up a permanent or temporary site the gradient of the surrounding land in regard to water run-off should be assessed and considered in any risk assessment.

Contamination of drains

2.1.5 **Legislation**
The protection of water resources in the United Kingdom is covered by legislation which includes the following:

Water Industry Act (1991)
Water Resources Act (1991)
Ground Water Regulations
Control of Pollution (Oil Storage) Regulations

2.1.6 **Environmental Enforcement**
The organisations responsible for environmental enforcement regarding the protection and management of all controlled waters are the:

- Environment Agency (England & Wales)
- Scottish Environment Protection Agency (SEPA)
- Environment and Heritage Service (Northern Ireland)

Before undertaking work adjacent to controlled waters or on a flood plain the above organisations should always be consulted.

2.2 Waste Management

In England, Scotland and Wales waste management is subject to the following legislation:

- Control of Pollution (Amendment) Act 1989
- Controlled Waste (Registration of Carriers and Seizure of Vehicles) (Amendment) Regulations
- Environmental Protection (Duty of Care) Regulations

- Waste Management Licensing Regulations

In Northern Ireland waste management is subject to the following legislation:

- Controlled Waste (Duty of Care) Regulations (Northern Ireland)
- Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations (Northern Ireland)
- Waste and Contaminated Land (Northern Ireland) Order 1997
- Waste Management Licensing Regulations (Northern Ireland)

Construction projects in England costing over £300K currently require a Site Waste Management Plan.

The above lists are not exhaustive. For further information contact the environmental regulator or local council.

2.2.1 **Waste Reduction Techniques**

The UK construction and utility industry currently generates around four times as much waste as the average household. In order to limit the amount of waste taken to landfill the following waste management techniques should be considered:

- **Segregation and Identification**
  Hazardous waste (inert, non-inert, hazardous, special such as asbestos)
- **Disposal / Transportation**
  Disposal of waste to a landfill site should always be the non-preferred option. However, where waste cannot be recycled or reused the appropriate legislation and regulations must be complied with.
- **Recycle & Reuse**
  Recycling and reuse of waste materials are the preferred options to minimise disposals. Examples can be found in the HAUC(UK) code of practice 'Specification for the Reinstatement of Openings in Highways (England) – Section 5.2 Alternative Reinstatement Materials & Appendix 9 - Alternative Reinstatement Materials (ARMs) and any other appropriate advice notes e.g. HAUC(UK), Waste Resource Action Programme (WRAP) etc.
- **Storage**
  Safe and correct storage of waste materials

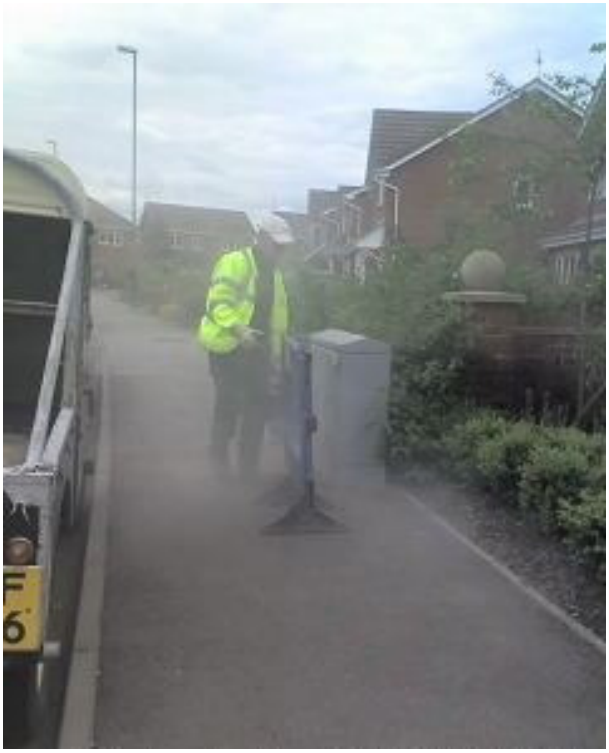
2.2.2 **Waste Disposal**

Waste must be disposed of and transported in accordance with the appropriate legislation and regulations (e.g. European Union Landfill Directive 2007). If in any doubt advice should be sought from the appropriate environmental regulator and / or your company's environmental policy and procedure.

2.3 Dust, Noise and Odour

Dust, noise and odour are a major source of complaint with regard to construction activities. When undertaking works the reduction of annoyance caused by dust, noise and odour can be achieved by:

- Control measures – e.g. damping down with water or chemicals, silencing/baffling of plant, segregation/storage of materials
- Limitation – e.g. timing/phasing of works



Advice should be sought from the Environmental Health department of the relevant local authority. Further advice may be sought from the appropriate environmental enforcement organisation (see 2.1.6).

2.4 Working on Contaminated Land

Working on contaminated land may have health risks and environmental issues. These risks and issues can be minimised by:

- Early identification – awareness of the site history
- Isolation – e.g. correct storage of materials, containment of any existing contamination
- Disposal – e.g. correct treatment of waste
- Control measures – e.g. manage and cover waste stockpiles

- Limitation – contingency planning
- Reference to appropriate environmental regulator
- Reference to your company's environmental policy or procedures

2.5 Natural Environment (Landscape, Flora and Wildlife)

It is essential that the existing natural environment and habitat are protected and that construction activities do not contribute to the expansion of invasive plant species and distress of wildlife through poor site management.

There are several pieces of legislation, which must be adhered to in respect to the natural environment. Legislation such as the Wildlife and Countryside Act 1981 carry criminal penalties for those who contravene the law.

2.5.1 **Plants**

Under the Wildlife and Countryside Act 1981 there are certain invasive and harmful plants that if planted or otherwise distributed constitute a criminal offence.

Examples of invasive plants are:

Japanese Knotweed

Himalayan Balsam

Examples of harmful plants are:

Giant Hogweed (harmful to humans)

Common Ragwort (harmful to wildlife)

Other plants growing wild are protected, and indigenous wild plants such as Orchids, Primroses, and Blue Bells must not be disturbed or removed.

2.5.2 **Hedgerows**

Hedgerows should not be removed without prior consultation with the land owner.

The Hedgerow Regulation 1997 (Statutory Instrument 1997 No. 1160) was made under Section 97 of the Environment Act 1995 and covers England and Wales. This legislation introduced new planning arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification.

Anyone wishing to remove a hedgerow must serve a Hedgerow Removal Notice on the Local Planning Authority if the hedgerow meets any of the following criteria.

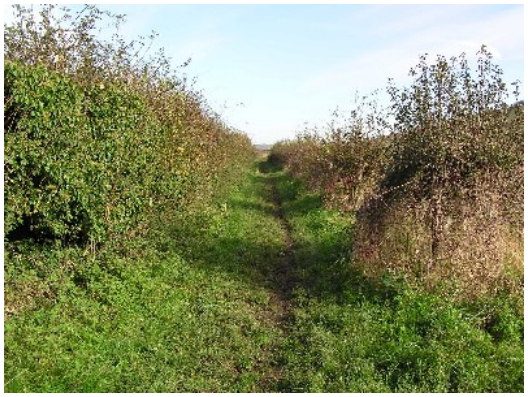
Hedgerows on or adjacent to the following:

- Common land
- Village greens
- Sites of Scientific Special Interest
- Local Nature Reserves
- Land used for agriculture
- Land used for forestry
- Land used for the breeding or keeping of horses, ponies or donkeys

The hedgerow can only be removed if written notice of approval has been received from the authority.

What counts as removal?

Removal is defined as uprooting or otherwise destroying a hedgerow. Excavation of a trench alongside a hedge which damages or removes roots is also classified as removal, regardless of whether the body of the hedge is physically interfered with.



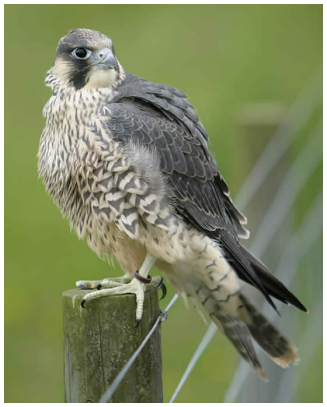
2.5.3 **Wildlife**

Certain species of wildlife are protected and careful site management is essential when planning works likely to affect their habitat. Advice and guidance should initially be sought from the appropriate environmental enforcement organisation (see 2.1.6).

The following are examples of protected wildlife, however the list is not exhaustive:

- Badgers
- Newts
- Toads
- Bats
- Dormouse
- Red Squirrels
- Reptiles
- Birds of Prey and specific species of birds, their nests and eggs

Great Crested Newt



Peregrine Falcon

2.5.4 **Livestock**
Before commencing works, any livestock within the proposed work area should be relocated as agreed with the owner. This should be undertaken during the planning stages of the works, and may involve consultation with both land and livestock owners or their agents.

Always be aware of any livestock adjacent to the work site, and ensure that all fencing, gates and access are secured to prevent escape. New or existing fencing must be installed, protected and replaced at all times to ensure that livestock are contained.

The use of plant and machinery which creates noise in the vicinity of livestock should be kept to a minimum. Where unavoidable, livestock owners should be advised and consulted.

2.5.5 **Landscape**
An awareness of the geography and geology of the landscape is vital in order to prevent damage to the existing environment. This should be taken into consideration during the planning stages of any proposed works. The following are examples of protected landscapes; however the list is not exhaustive:

National Scenic Areas
Natural Heritage Areas
National Trust
Sites of Special Scientific Interest (SSSI)
Areas of Outstanding Natural Beauty (AONB)
National Parks
Nature Reserves
Conservation Areas
Limestone Pavements

2.5.6 **Trees**
Refer to ***Volume 4 – 'NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees'***

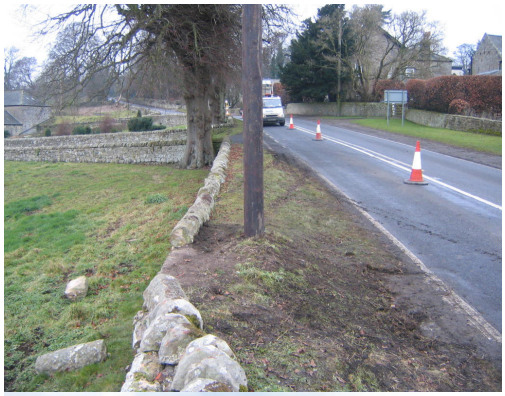
2.6 Rivers, Water Courses and Flood Defences

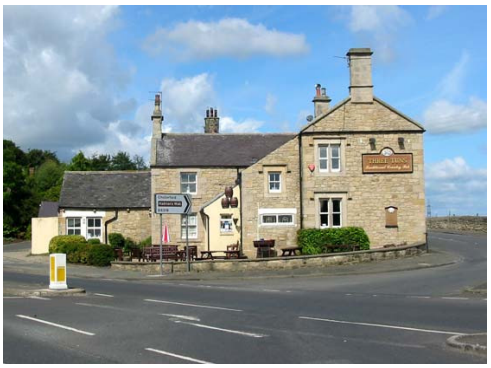
The Environment Agency or the appropriate environmental enforcement organisation (see 2.1.6) must always be consulted prior to commencing any works in, under, over, or in the vicinity of, rivers, watercourses and flood defences.

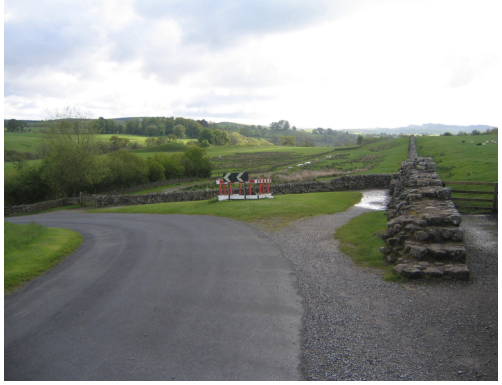
2.7 Archaeology

2.7.1 **Archaeological Sites**
Archaeological sites are governed by legislation (such as the Ancient Monuments & Archaeological Areas Act 1979) and are an important part of our

heritage. They may be found in many forms above and below ground. Protection of these sites is paramount and no work other than emergency work must be undertaken on or in the vicinity of Scheduled Ancient Monuments without the necessary consent.







Examples of ancient monument sites.

These are all locations of Hadrian's Wall above and below ground.

2.7.2 **Archaeological Finds**

Where works uncover potential archaeological sites or relics, works must be immediately suspended and contact made with the local authority. The site should be made secure immediately and protected against further disturbance pending further investigation. No work other than emergency work as referred to in 2.7.1 may continue under any circumstances.

2.7.3 **Architectural Heritage (Listed Buildings)**

Listed buildings are a valuable part of our national heritage. Works must not be commenced on or in the vicinity of listed buildings without prior consultation having been undertaken with the local authority.

A listed building, or any object or structure fixed to it, or forming part of the land is protected in law. Damage to listed buildings must be avoided at all costs.

Attachments and apparatus cannot be installed onto listed buildings without prior consent of the local authority.

3. SITE MANAGEMENT

The approach to site management will have a significant influence on the impact of the environmental control measures. Effective site management will include consideration of the following:

- Planning and consultation
- Storage of materials
- Logistics
- Waste avoidance
- Recycling and re-use
- Litter
- Machinery and plant
- Facilities
- Nuisance
- Reinstatement of site
- Protection
- Storage and use of liquids and hazardous materials

3.1 Planning and Consultation

When planning the establishment of a temporary or permanent works site, consideration should be given to the environmental impact. Consultation should be undertaken with any affected parties or regulatory bodies. An environmental plan may be developed to cover the establishment, maintenance, and decommissioning of the works site.

Consent must be obtained under section 171 of the Highways Act 1980 in England and Wales and section 59 of the Roads (Scotland) Act 1984 from the local highway / roads authority if materials, plant or site compounds are placed or stored on a public highway. In Northern Ireland the Roads Service department should be contacted.

3.2 Storage of Materials

Where materials are to be stored on a temporary work site, consideration should be given to their potential impact on the environment. Materials should always be stored in accordance with their manufacturer's instructions where appropriate. Access to storage areas should be restricted for both safety and security. Certain materials have the potential to affect the environment more than others, and should be stored in such a manner as to prevent any adverse impact on the environment.

3.3 Logistics

To minimise the risk of pollution to the local environment the transportation of plant and equipment to and from a site should be kept to a minimum.

3.4 Waste avoidance

Refer to Section 4 Sustainability.

3.5 Recycling and re-use

Refer to Section 4 Sustainability.

3.6 Litter

Work sites should be kept clear of litter and other debris for the following reasons;

- site safety
- reducing the impact of the works on the surrounding environment
- maintaining a positive public image

.

3.7 Machinery and Plant

To minimise damage to the local environment operators of site vehicles and plant should take into account the following points before parking vehicles and operating equipment;

- utilising hard standing surfaces whenever possible
- the use of drip trays and absorbent material placed underneath vehicles and plant in case of leakage of fuel or oils when stationary for prolonged periods
- temporary track ways should be used to cross grassed areas whenever possible

3.8 Facilities

The placement of storage and welfare facilities such as site offices and portable toilets should be considered as part of any site management plan. The maintenance of welfare facilities should be carried out to prevent any adverse impact on the environment.

3.9 Nuisance

Sites in residential areas have the potential to cause higher than normal levels of nuisance to the local residents and general public. When planning temporary

or permanent work sites in residential areas consideration should be given to minimising the effects of noise, light and dust by considering the following;

- screen the source of noise where possible
- plant and equipment should be turned off when not in use
- the use of temporary lighting should be positioned to minimise its impact
- dust should be kept to a minimum by the use of damping down techniques e.g. mufflers on pneumatic drills, water lubrication on angle grinders, watering site entrances and cleaning vehicle tyres
- works outside of normal working hours should be kept to a minimum to reduce inconvenience to residents and the public.

3.10 Restoration of Site

All temporary works sites should be restored to their original state once all works have been completed and materials and plant removed.

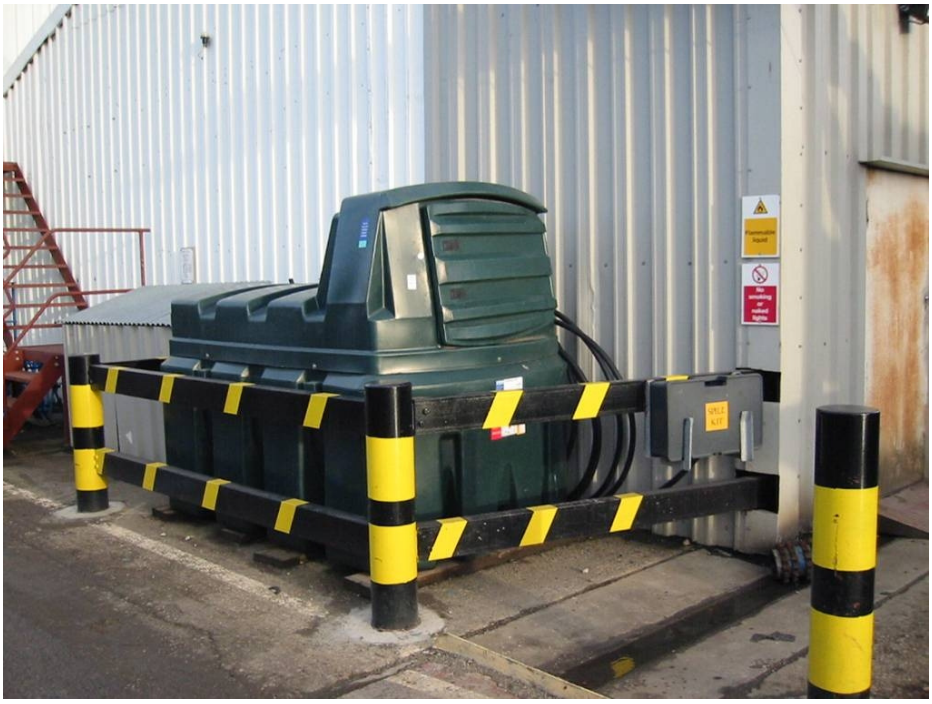
3.11 Protection

Where appropriate, protection should be given to the surrounding landscape and environment of the work site. This can be achieved by the use of protection zones, temporary track ways and other appropriate protected measures.

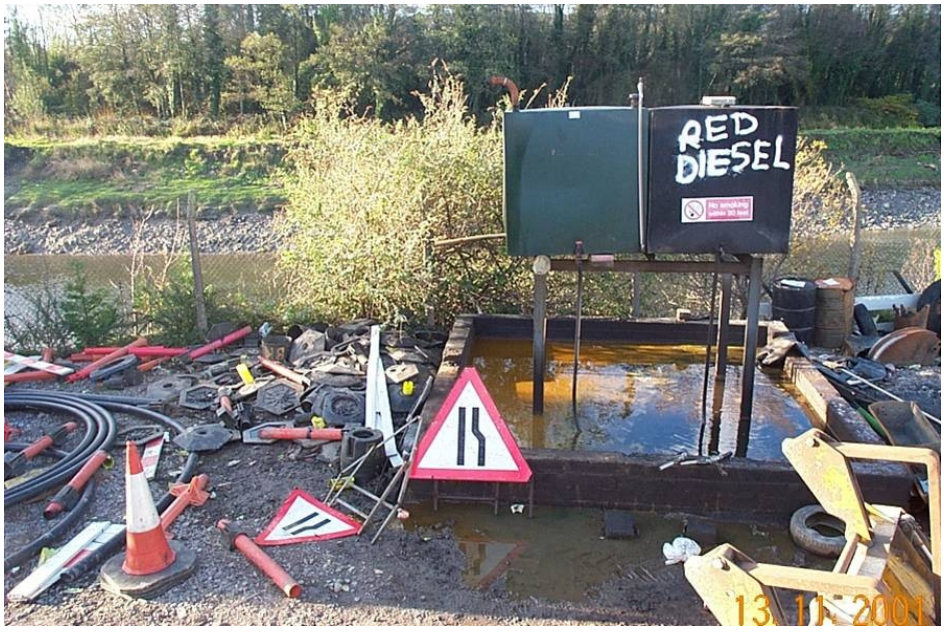
3.12 Storage and use of Liquids and Hazardous Materials

Examples of good practice and bad practice are illustrated below.

Good practice



Bad practice



The storage and use of liquids and hazardous materials such as fuel oils, chemicals, and other contaminants may present a significant risk to the environment if handled or stored incorrectly. Liquids and hazardous materials should always be stored in appropriate containers and suitable holding areas in accordance with the Control of Substances Hazardous to Health regulations (COSHH).

The following examples of good practice should be considered when using liquid and hazardous materials on site:

- Liquids should be stored as far away from drains and watercourses as is reasonably practical
- Spill kits and drip trays should be provided and maintained in close proximity to where liquids are stored, dispensed and used.
- Materials should be stored in accordance with manufacturer's Safety Data Sheets.
- Hazardous substances should be kept secure in site containers or locked in appropriate vehicles when not in use.
- Drip trays or absorbent mats should be placed under filling points during the transfer / dispensing of liquids and any vulnerable drains are protected using drain covers or other suitable means e.g. during the re-fuelling of plant.
- Drip trays should be emptied and fluids disposed of in accordance with COSHH regulations to avoid any form of contamination.

4. SUSTAINABILITY

The potentially damaging effects of disposing of major volumes of waste to landfill can be managed and minimised through careful procurement and site management or through the use of trenchless technology.

Segregation and storage on site will assist in identifying those wastes that can be reused or recycled, whilst careful procurement management will reduce the potential for over ordering of materials in the first instance.

Many materials used in the construction and utility industry have the potential for recycling / re-use in one form or another, whilst energy and fuel resources can be managed more efficiently by careful site management (e.g. switching off idle plant / minimising journeys).

4.1 Recycling

Many materials can be recycled from their original form into reusable derivatives. Material suitable for recycling includes:

Paper
Plastics

Cable
Pipe
Excavated / demolition material (e.g. crushed concrete)
Oil
Wood
Metal / Lead
Reinstatement materials
Signing, lighting and guarding equipment

4.2 Re-use

Many materials can be re-used without any processing or modification. Material suitable for re-use includes:

Pipe caps
Drums
Excavated material (e.g. Type 1)
Ducting
Reinstatement materials
Signing, lighting and guarding equipment

There are various initiatives being undertaken regarding the recycling / re-use of waste materials, for further information refer to the NJUG website at http://www.njug.org.uk

5. SUMMARY OF KEY ENVIRONMENTAL LEGISLATION & GUIDELINES

5.1 Legislation

Several Acts of Parliament and associated regulations serve to protect the environment during the planning, design and construction stages of all projects. Consult your manager or appropriate environmental regulator for detailed advice due to the complexity of the legislation.

5.2 Guidelines

Numerous guidelines and other publications are available on specific environmental topics from appropriate technical associations and regulatory bodies. Examples include or may be found at:

- HSG66 – Health and Safety Guideline 66 – *Concerns the protection of workers and the general public during the development of contaminated land*
- Environmental Good Practice on Site, copyright Circa 1999
- Environment Agency website – e.g. Pollution Prevention Guidelines
- Local Authority websites

5.3 Regulatory and Associated Bodies

5.3.1 **Key Regulatory Bodies**

- Environment Agency
- DEFRA (Department for Environment, Farming and Rural Affairs)
- SEPA (Scottish Environmental Protection Agency)
- Health and Safety Executive
- Local Authorities

5.3.2 **Associated Bodies**

Associated bodies include the following:

- Natural England
- National Trust
- Scottish National Heritage
- Countryside Council for Wales
- Northern Ireland Environmental and Heritage Service
- CADW (Welsh Historic Monuments)
- RSPB (Royal Society for the Protection of Birds)
- Wildfowl Trust
- English Heritage

These lists are not exhaustive. Relevant bodies should always be consulted during planning, design and before commencement of works.

GLOSSARY

Apparatus	Equipment such as valves, stopcocks, chambers, cabinets, transformer chambers etc and includes any structure for the lodging of apparatus.
Chamber	Structure that allows access to apparatus or a container for liquids.
Controlled Waters	Waters controlled by the Environment Agency, Scottish Environmental Protection Agency (SEPA) and Northern Ireland Environment and Heritage Service
HAUC(UK)	Highway Authorities and Utilities Committee incorporating NIRAUC, RAUC(Scotland) and Welsh HAUC.
Main	Longitudinal structure (usually cylindrical) used to convey water or gas or oil generally greater than 50mm diameter.
NJUG	National Joint Utilities Group Limited.
Pipe	Longitudinal structure (usually cylindrical) used to convey water, gas or oil.
Separator / Settlement Tank	A vessel which retains water in an undisturbed state long enough for suspended solids to settled out leaving a clean water discharge
Utility	An undertaker by statute that has a legal right to provide customer services (e.g. communications, electricity, gas, water)
WRAP	Waste Resource Action Programme

APPENDIX A

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