Appendix H-1: Extended Phase 1 Plan
Appendix H-2: Tree Constraints Plan
Appendix H-3: Arboricultural Survey Sheets
Appendix H-4: Target Notes
Appendix H-5: Japanese Knotweed Plan
Appendix H-6: Bat Survey Sheets
Appendix H-7: Pollution Prevention Guidelines 1 and 5

Appendix H-1: Extended Phase 1 Plan

DO NOT SCALE FROM THIS DRAWING

KEY

- SITE BOUNDARY
- 30m ZONE OF INFLUENCE
- 1 TARGET NOTE
- BUILDINGS / STRUCTURES
- HARD STANDING
- TALL RUDERAL
- SI SEMI - IMPROVED GRASSLAND / TALL RUDERAL MOSAIC
- DENSE / CONTINUOUS SCRUB
- AMENITY GRASSLAND
- OPEN WATER
- FENCELINE
- CANOPY COVER

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

SOLUM REGENERATION

PROJECT

TWICKENHAM RAILWAY STATION

DRAWING TITLE

EXTENDED PHASE 1
HABITAT PLAN

DRG No.	SCALE	DATE
LO10145/13-1	1:1250 @ A3	06/07/10
DRAWN BY: SJB	CHECKED BY	APPROVED BY

■ STOKE-ON-TRENT (HEAD OFFICE) TEL 0845 111 7777
□ NEWCASTLE UPON TYNE TEL 0191 232 0943
□ WEST BROMWICH TEL 0121 580 0909
□ LONDON TEL 020 7287 2872
□ CARDIFF TEL 029 2072 9191
□ LEIGH TEL 01942 260101
□ SHEFFIELD TEL 0114 245 6244
□ EDINBURGH TEL 0131 555 3311
□ LIVERPOOL TEL 0151 494 5431

wardell armstrong — your earth our world

Appendix H-2: Tree Constraints Plan

DO NOT SCALE FROM THIS DRAWING

KEY

- SITE BOUNDARY
- I9 TREE REFERENCE NUMBER
- CATEGORY A TREES
- CATEGORY B TREES
- CATEGORY C TREES
- ROOT PROTECTION AREA (RPA)

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

SOLUM REGENERATION

PROJECT

TWICKENHAM RAILWAY STATION

DRAWING TITLE

TREE CONSTRAINTS PLAN

DRG No.	SCALE	DATE
LO10145/13-3	1:1250 @ A3	05/07/10
DRAWN BY	CHECKED BY	APPROVED BY
SJB		

■ STOKE-ON-TRENT (HEAD OFFICE)	TEL 0845 111 7777	CARDIFF	TEL 029 2072 9191
		LEIGH	TEL 01942 260101
NEWCASTLE UPON TYNE	TEL 0191 232 0943	SHEFFIELD	TEL 0114 245 6244
WEST BROMWICH	TEL 0121 580 0909	EDINBURGH	TEL 0131 555 3311
LONDON	TEL 020 7287 2872	LIVERPOOL	TEL 0151 494 5431

wardell armstrong

your earth our world

Appendix H-3: Arboricultural Survey Sheets

APPENDIX 13-3 – Arboricultural survey sheets

KEY
Reference Number is the number given to the tree by a Wardell Armstrong LLP employee.
Maturity is the age class of the tree.
Crown spread is the radius at the cardinal points.
Crown height is the height of the crown clearance.
ERC is the estimated remaining contribution of the tree.
Cat is the category grading (A, B, C or R) as per BS 5837:2005

Reference Number	Maturity, species & *Latin name*	Crown Height (m)	Height (m)	Stem diameter (cm)	Crown spread (m) N W E S	Observations	Physio-logical & Structural condition	Recommendations	ERC (years)	Cat	RPA (m^2)	RPA Radius (m^2)
WA GA	Mature Sycamore *Acer pseudoplatanus*	7	11	51.0	3 3 3 3	Two multi-stemmed trees. Suppressed by ivy. Crown height determined by ivy. Bat roosting potential.	Poor Poor	Control of ivy at base.	10-20	B2	81.7	5.1
	Semi-mature Sycamore	4	9	24.5	3 3 3 3	Suppressed by ivy and competition from larger sycamores to north. Crown height determined by ivy	Poor Poor	Control of ivy at base.	20-40	C2	27.2	2.9
	Semi-mature Ash *Fraxinus excelsior*	4	9	23.0	3 3 3 3		Poor Poor	Control of ivy at base.	20-40	C2	23.9	2.8
WA I1	Mature Sycamore	7	12	52.5	3 3 3 3	Multi-stemmed. Suppressed by ivy – evidence of limbs succumbing to pressure. Bat roosting potential.	Poor Poor	Control of ivy at base.	10-20	C2	86.6	5.3
WA GB	Semi-mature – Mature Sycamore	2.5	9	40.0	3 3 3 3	Six individuals. Competing for space.	Moderate Good	None.	20-40	B2	72.4	4.8
WA I2	Semi-mature Lawson cypress	1	7	12.0	1.5 1.5 1.5	Screening value.	Good Good	None.	40+	C2	6.5	1.4

	Chamaecyparis lawsoniana				1.5							
WA I3	Mature Weeping willow *Salix x sepulcralis*	0.5	7	63.0	4 4 4 4	Multi-stemmed – one stem has recently fell into the River Crane.	Moderate Good	Control of ivy at base. Removal of fallen stem.	20-40	B3	179.6	7.6
WA GC	Mature Sycamore	7	11	51.0	3 3 3 3	Four multi-stemmed trees. Suppressed by ivy. Crown height determined by ivy. Bat roosting potential.	Poor Poor	Control of ivy at base.	10-20	B2	81.7	5.1
	Semi-mature Ash	4	9	23.0	3 3 3 3	Suppressed by ivy and competition from larger sycamores to south.	Poor Poor	Control of ivy at base.	20-40	C2	23.9	2.8
WA GD	Unidentifiable dead stump	N/A	3-5	63.0	N/A	Three stumps all covered by ivy. Bat roosting potential.	Dead	None.	10-20	C3	179.6	7.6
WA I4	Mature Sycamore	7	12	52.5	3 3 3 3	Multi-stemmed. Suppressed by ivy – evidence of limbs succumbing to pressure. Bat roosting potential.	Poor Poor	Control of ivy at base.	10-20	B2	86.6	5.3
WA I5	Young Wild cherry *Prunus avium*	2	4	11.0	2 2 2 2	Screening value.	Good Moderate	None.	40+	C2	5.5	1.3
WA I6	Young Sycamore	2	4.5	9.0	2 3 0 1	Suppressed by false acacia.	Good Moderate	None.	40+	C2	3.7	1.1
WA I7	Mature False acacia *Robinia pseudoacacia*	4	9	900.0	5 5 5 5	Suppressed by ivy. Bat roosting potential.	Good Moderate	Control of ivy at base.	10-20	B3	366.5	10.8
WA I8	Mature Lombardy poplar *Populus nigra Italica*	4.5	8	680.0	2 2 2 2	Suppressed by ivy – evidence of limbs succumbing to pressure. Crown height determined by ivy. Bat roosting potential.	Good Moderate	Control of ivy at base.	10-20	B3	209.2	8.2
WA I9	Unidentifiable dead stump	N/A	2.5	63.0	N/A	Covered by ivy. Bat roosting potential.	Dead	None.	10-20	C3	179.6	7.6

WA GE	Semi-mature Holly *Illex aquifolium*	0.5	5	9.6	4 3 1 1	Screening value. Leaning north.	Good Moderate	None.	40+	C2	4.1	1.1
	Young Holly	0.1	4	8.0	1.5 0.5 0.5 0.5	Screening value.	Good Good	None.	40+	C2	2.9	1.0
	Semi-mature Bay willow *Salix pentandra*	0.5	4	11.0	2 2 2 2	Two multi-stemmed trees. Screening value.	Good Good	None.	40+	C2	3.8	1.1
WA I10	Semi-mature Sycamore	4	9	24.5	3 3 3 3	Screening value.	Good Good	None	40+	C2	27.2	2.9
WA GF	Predominately semi-mature sycamore woodland with ash, wild cherry and weeping willow, butterfly bush (*Buddleia davidii*)	4	9	24.5	3 3 3 3	Screening value. Several (predominantly the mature trees) trees are suppressed by ivy – evidence of limbs succumbing to pressure. Some trees have bat potential.	Moderate Moderate	Control of ivy at base of suppressed trees.	40+	A3	27.2	2.9

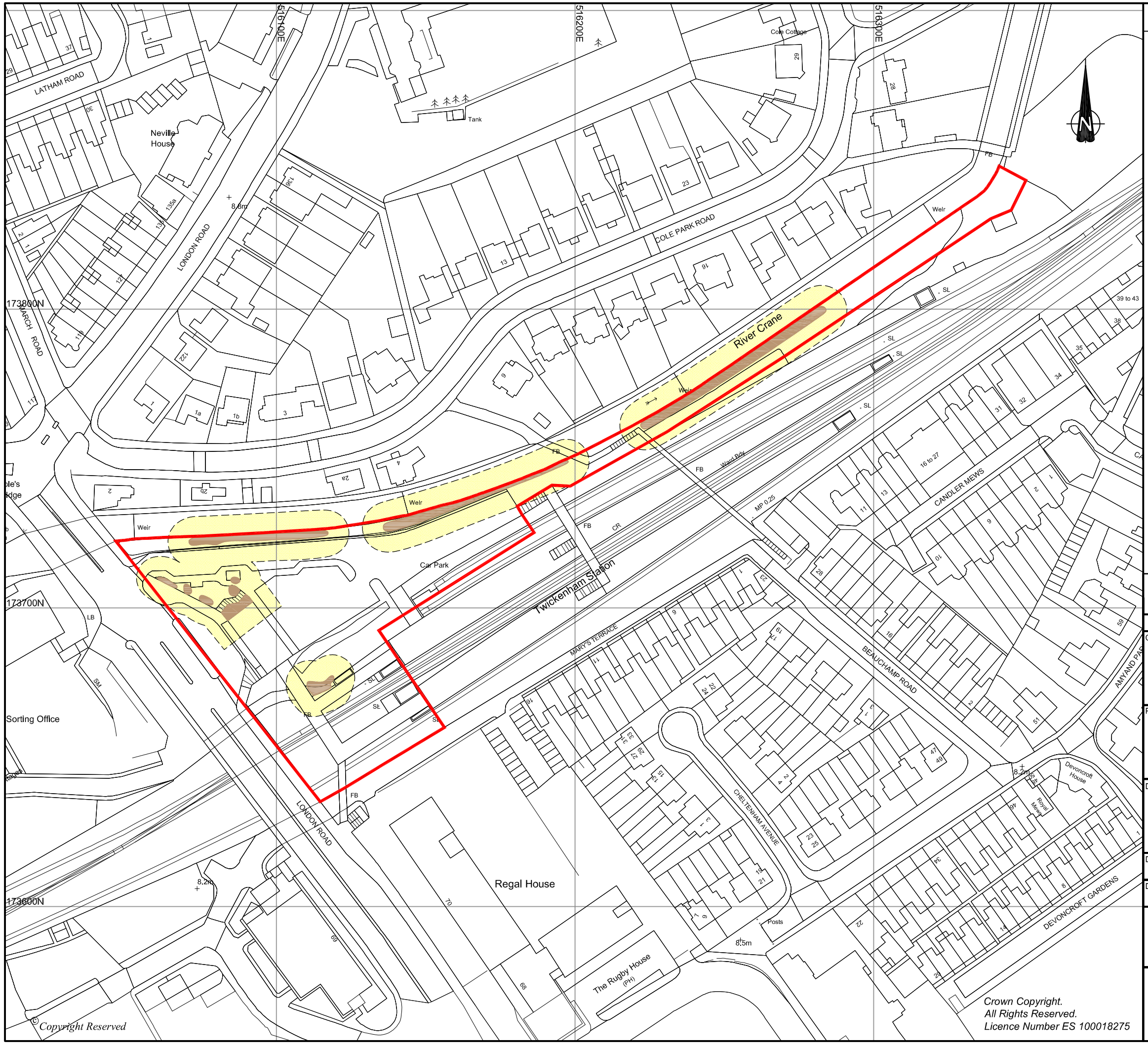
Appendix H-4: Target Notes

APPENDIX H -4 – EXTENDED PHASE 1 HABITAT SURVEY

TARGET NOTES

TARGET NOTE (TN)	FEATURE	PHOTOGRAPH OF FEATURE
1	Small Japanese knotweed stand adjacent to building during 2009 Extended Phase 1 Survey. This stand was not present during 2010. However, unless an eradication scheme has been undertaken, it should be treated as present. Note: see Plate 13-4 for 2010 view.	
2	Approximate location of stag beetle.	No photograph available.

Appendix H-5: Japanese Knotweed Plan



DO NOT SCALE FROM THIS DRAWING

KEY

- SITE BOUNDARY
- JAPANESE KNOTWEED
- POTENTIAL RHIZOME EXTENT

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D

CLIENT

SOLUM REGENERATION

PROJECT

TWICKENHAM RAILWAY STATION

PRELIMINARY

DRAWING TITLE

APPROXIMATE JAPANESE KNOTWEED EXTENT PLAN

DRG No.	SCALE	DATE
LO10145/13-2	1:1250 @ A3	02/07/10
DRAWN BY	CHECKED BY	APPROVED BY
SJB		

■ STOKE-ON-TRENT (HEAD OFFICE)	TEL 0845 111 7777	CARDIFF	TEL 029 2072 9191
NEWCASTLE UPON TYNE	TEL 0191 232 0943	LEIGH	TEL 01942 260101
WEST BROMWICH	TEL 0121 580 0909	SHEFFIELD	TEL 0114 245 6244
LONDON	TEL 020 7287 2872	EDINBURGH	TEL 0131 555 3311
		LIVERPOOL	TEL 0151 494 5431

wardell armstrong

your earth our world

Appendix H-6: Bat Survey Sheets

Bat Detector Survey Sheet

Rain	(None)	Drizzle	Light	Moderate	Heavy	Surveyor: AD, NM
Wind	1	(2)	3	4	5	Location: Twickenham
Cloud	1	(2)	3	4	5	Date: 24/06/10
Start time	21.00		Start temp	27.2°C		
End time	23.30		End temp	24.7°C		

Time	Species	Direction/Notes
21.48		common pipistrelle (H)
22.35 - 22.45		soprano pipistrelle O/H foraging
22.50		" " "
22.52		" " "
23.00		common pipistrelle O/H
23.03		" " "
23.10		" " "
23.15		" " "

Species Abbreviations

P45	Common pipistrelle
P55	Soprano pipistrelle
Psp	Pipistrelle species
Pn	Nathusius' pipistrelle
Nn	Noctule
Nl	Leisler's bat
Mb	Brandt's bat
Mm	Whiskered bat
Mmb	Whiskered/Brandt's bat
Mdd	Daubenton's bat
Mn	Natterer's bat
Mbech	Bechstein's bat
Es	Serotine
Pa	Brown long-eared bat
Paus	Grey long-eared bat
Bb	Barbastelle
Rh	Lesser Horseshoe bat
Rf	Greater horseshoe bat
Un	Unidentified bat
Msp	Unidentified Myotis bat

Bat Detector Survey Sheet

Rain	(None)	Drizzle	Light	Moderate	Heavy	Surveyor: AD, NM
Wind	1	(2)	3	4	5	Location: Twickenham
Cloud	1	(2)	3	4	5	
Start time	03.00		Start temp	15.6°C		Date: 25/06/10
End time	05.30		End temp	15.0°C		

Time	Species	Direction/Notes
–	–	–

Species Abbreviations

P45	Common pipistrelle
P55	Soprano pipistrelle
Psp	Pipistrelle species
Pn	Nathusius' pipistrelle
Nn	Noctule
Nl	Leisler's bat
Mb	Brandt's bat
Mm	Whiskered bat
Mmb	Whiskered/Brandt's bat
Mdd	Daubenton's bat
Mn	Natterer's bat
Mbech	Bechstein's bat
Es	Serotine
Pa	Brown long-eared bat
Paus	Grey long-eared bat
Bb	Barbastelle
Rh	Lesser Horseshoe bat
Rf	Greater horseshoe bat
Un	Unidentified bat
Msp	Unidentified Myotis bat

Appendix H-7: Pollution Prevention Guidelines 1 and 5

ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

POLLUTION PREVENTION GUIDELINES

GENERAL GUIDE TO THE PREVENTION OF POLLUTION: PPG1

These guidelines are an introduction to both pollution prevention and the guidance notes on this subject produced by the Environment Agency for England & Wales, the Scottish Environment Protection Agency and the Environment and Heritage Service in Northern Ireland. These bodies are referred to in these notes as the Agency or Agencies. Each site and potential source of pollution should be assessed individually and we advise you to consult your local Agency office. Contact details are listed at the end of these guidelines.

Note that in these guidelines the term 'oil separator' is used. This has the same meaning as 'oil interceptor'.

1. INTRODUCTION

Businesses and individuals are responsible for complying with environmental regulations and for preventing pollution of air, land and water. Many thousands of pollution incidents occur each year, originating from factories, farms, transport activities and even homes. Each incident is an offence and can result in prosecution as well as environmental damage. However, most cases are avoidable, given careful planning of operations, responsible waste management and suitable facilities to reduce the risk of spillage - along with simple precautions to deal with any spillages, in case they occur.

Responsible waste management can ensure that you comply with the relevant regulations, while minimising waste can reduce the amount of waste produced, which in turn cuts the risk of environmental damage and the costs of waste disposal.

The series of Pollution Prevention Guidance notes (known as PPGs), of which this is the first, provides practical advice that will help you to avoid causing pollution, minimise waste and comply with the requirements of the law. Often the necessary measures cost little, especially if you think about them early on, for example at the design stage, and can save you money, too. In contrast, the fines for failing to comply with the relevant regulations or the costs of cleaning up pollution (which are recovered from the polluter wherever possible) can be very high.

The guidance notes cover either a topic of relevance to many sectors, such as oil storage or the use of pressure washers, or are specific to a particular type of site, such as schools, vehicle-servicing garages or hospitals. In general, they are cross-referenced to reduce repetition; the guidance on hospitals, for example, refers to the guidance on oil storage and does not repeat it in detail. You may therefore need several different guidance notes for any one site or operation. Additional guidance on complying with environmental regulations is available - see Reference 1.

2. AVAILABILITY

The PPGs are published jointly by the three principal environmental regulators in the UK, and appear on the Environment Agency and SEPA web sites. A full list of PPGs and small numbers of them can be ordered, free of charge, from the local Agency offices (listed at the end of these guidelines). Bulk supplies are also available, although a charge to cover printing costs may be made.

3. LEGAL FRAMEWORK

The Agencies are responsible for protecting "controlled waters" from pollution, for preventing waste management from polluting the environment, causing harm to human health and detriment to local amenity and for regulating radioactive substances (except in Northern Ireland). The release of the most seriously polluting substances to water, land or air from prescribed processes may be subject to additional regulation under the system of Integrated Pollution Control introduced by the Environmental Protection Act 1990.

"Controlled waters" include all watercourses, lakes, lochs, canals, coastal waters and water contained in underground strata (or "groundwater"), and it is an offence to pollute such waters - deliberately or accidentally. In addition, the formal consent of the Agency is required for many discharges to controlled waters, including direct discharges and discharges to soakaways. Such consents are granted subject to conditions, and are not issued automatically.

Any other waste produced on a site will be subject to the Duty of Care (Reference 2) and may also be subject to control under the Waste Management Licensing Regulations 1994. In addition, certain wastes are defined as "Special Wastes" and are subject to more rigorous controls (Reference 3). Advice is available from the Agencies.

The Agencies are also responsible for implementing the legislation on packaging, which affects companies with an annual turnover above £2 million and handling more than 50 tonnes of packaging per year (see Reference 4).

All discharges to the foul sewer (see 4a) require authorisation by the sewerage undertaker and may be subject to the terms and conditions of a trade effluent consent.

4. SITE DRAINAGE

a. Drainage

Most existing sites will have two types of drain. Surface water drains, including land drains and most road drains, should carry only uncontaminated rainwater, as they will lead to a local river, stream or soakaway. The foul water drain is designed to carry contaminated waste water safely to a storage lagoon, treatment system or sewage works for treatment. In the case of an isolated house, or a small community biological treatment plant, care should be taken not to overload this by disposing of disinfectant or grease down the foul drain (see PPG4 – Reference 5). Prior agreement from the local sewerage undertaker is required before you connect to the public foul water system. Where significant work is being undertaken on an existing site or a new development, the Agencies encourage the consideration of an alternative approach for surface drainage, which uses a combination of techniques known collectively as **S**ustainable **D**rainage **S**ystems (SuDS). This approach has significant environmental benefits and may also have lower installation costs. See Reference 6 for further details.

b. Surface water treatment

Surface water can be contaminated with silt, heavy metals, chemicals and oil, which can be damaging in watercourses and groundwater. In many cases, it will require treatment by controlling the pollution at its source or just before the discharge point. SuDS may provide a suitable solution (see Reference 6). In areas where there is a high risk of oil pollution, it may be necessary to install an oil separator to protect the surface water system and reduce the risk of pollution. See separate guidelines for details (PPG3 - Reference 7).

c. Wrong connections

Wrongly connected effluents can cause severe pollution problems, which can be difficult to remedy. Sources of dirty water, such as sinks and toilets, should be connected to the foul sewer and the nearest drain. Manhole covers and gullies should be clearly marked, by colour coding, with red for foul and blue for surface water, and site drainage plans should be readily accessible.

d. Garage forecourts and fuel delivery areas

Because of the potential for pollution from these areas, oil separation is required. Effluent resulting from the cleaning of forecourts must not be discharged to surface water drains, watercourses or soakaways. Details of surface water disposal and other potentially polluting activities are included in PPG7 – Reference 8.

e. Cleaning activities

Wash waters from mobile pressure washers should not be discharged to surface water drains, watercourses or soakaways. Even if described as bio-degradable, detergents are not suitable for discharge to surface drains, so such activities should be carried out in designated areas draining to the foul sewer (subject to the approval of the local sewerage undertaker). Alternatively, closed loop vehicle wash recycling systems are available. See PPG13 - Reference 9 for further details.

f. Sewage disposal

All foul sewage should pass to the local foul sewer if possible. If not, other arrangements should be discussed with your local Agency office (see PPG4 - Reference 5). Most alternatives will normally require the formal consent of the Agency.

g. Chemical storage areas

Drainage from such areas presents special problems and you should consult fully with your local Agency office to minimise the pollution risks.

5. WASTE STORAGE AND DISPOSAL

a. Reduce, re-use and recycle

Methods to reduce the amount of waste generated in the first place, together with the re-use and recycling of wastes, must be considered. There is scope for significant savings, as the costs of raw materials and waste disposal continue to rise. Advice on waste minimisation and local initiatives can be obtained from your nearest Agency office. Independent advice on this and on any other environmental problem is available free through the Envirowise Helpline on 0800 585794.

b. Duty of Care and waste legislation

To prevent fly-tipping, producers of waste must ensure that it remains under their control and is passed on only to a registered waste carrier and is accompanied by a full description. Some wastes, such as used mineral oil, are subject to the Special Waste Regulations, which impose additional controls on movement and disposal (Reference 3). Contact your local Agency office for further advice.

c. Storage

All wastes must be stored in designated areas that are isolated from surface drains and bunded to contain any spillages. Rubbish compactors should be covered to prevent the build-up of contaminated rainwater and drained to the foul sewer to prevent polluting liquid entering the surface water drains. Compactor hydraulics should be maintained in good order.

6. DELIVERIES AND SECURITY

a. Deliveries

Special care should be taken during deliveries, particularly when hazardous materials are involved. Deliveries should be supervised at all times, tanks and containers should be labelled with the nature and volume of their contents, and the levels should be checked before delivery to prevent overfilling.

b. Delivery areas

Where possible, loading and unloading areas should be roofed and drained to the foul sewer. If not, they should be clearly marked and isolated from the surface water drainage system, either by catch-pits or sumps with isolating valves. Cut-off valves in the drainage system and raised kerb surrounds may be needed. Delivery pipes should be fitted with automatic cut-off valves to prevent overfilling. You are recommended to consult with the Agency.

c. Security

Vandalism and theft are frequent causes of pollution. Lockable valves should be fitted on all storage tanks, fences should be secure, and doors and gates kept locked. Where possible, materials should be stored under cover and potential pollutants should be transferred into safe storage without delay.

7. OIL STORAGE AND PIPELINES

The storage of oil at industrial, commercial, institutional and institutional residential premises in England is to be the subject of new regulations due to be introduced in late 2000. Similar regulations for Wales and Scotland are under consideration. These will introduce statutory minimum storage standards. PPG2 - Reference 10 covers above ground oil storage, with the key points listed below;

a. Storage

Any oil storage tank and oil stored in drums should be sited on an impervious base within an oil-tight bund with no drainage outlet. All fill pipes, draw pipes and sight gauges should be enclosed within the bund, and the tank vent pipe should be directed downwards into it. Advice is available on the construction of bund walls (References 11 and 12) and the storage and disposal of used oils (PPG8 - Reference 13).

b. Pipelines

Site pipelines in an accessible position above the ground where possible, as underground tanks and pipelines may be subject to damage and corrosion. Where a pipeline has to be laid underground, it should be corrosion resistant and placed in a protective sleeve or a duct with open grating covers for inspection purposes, and should be tested regularly. Underground pipeline connections should be minimised and, where used, should have access points for inspection. Underground tanks and pipelines may be subject to special restrictions where there is a risk to groundwaters.

8. CONTINGENCY PLANS

Spillages and run-off water from fire-fighting may have the potential to cause enormous damage to controlled waters (see PPG18 - Reference 14). It is recommended that appropriate spill kits or absorbent materials are held on site. It is essential that staff know what to do in an emergency. An up-to-date drainage plan should be maintained, hazards identified and a contingency plan drawn up, giving advice on what action to take and who to inform. These plans should be displayed clearly and regular exercises undertaken. Guidance on the development of a pollution incident response plan and a template plan are provided in PPG21 - Reference 15.

9. CONSTRUCTION AND DEMOLITION

Detailed guidance is available on construction and demolition (PPG6 - Reference 16). It is important to note that the prior approval of the Agency must be obtained where site de-watering might result in a discharge to controlled waters. Any discharge must be free from solids in suspension, oil or other polluting materials. Silt is a non-toxic pollutant and, in the absence of other contaminants, silty water may be disposed of by pumping to the foul sewer, a settlement tank or over a grassed area. However, if any other contaminant is present, you should consult the Agency on its disposal.

10. AGRICULTURE

Agricultural activities have resulted in significant water pollution in the past, and continue to have the potential to cause such damage unless properly managed. Detailed guidance on preventing pollution from agricultural activities is available (see Reference 17).

11. GROUNDWATER POLLUTION

Spillage, incorrect storage of chemicals or waste materials or unsuitable disposal activities can result in pollutants seeping through the soil, causing serious harm to groundwater – which is a vital source of drinking water. Chlorinated solvents are the most widespread and severe cause of groundwater pollution, and handling them requires special care. The Agencies have strong powers to take action relating to the storage, handling, use or disposal of certain dangerous substances posing a risk of contaminating groundwaters. The prior authorisation of the Agency is required before you dispose of wastes containing certain dangerous substances into or onto land, and advice on this is available from your local Agency office.

12. REFERENCES

1. NetRegs - www.environment-agency.gov.uk/netregs
2. Waste Management - The Duty of Care - A Code of Practice Revised 1996): ISBN 0-11-753210-X: The Stationery Office Tel. 08706 005522
3. A guide to the Special Waste Regulation: Environment Agency
   A guide to the Special Waste Regulations 1996: SEPA
   A guide to the Special Waste Regulations (Northern Ireland) 1998: Environment and Heritage Service
4. Producer responsibility obligations (packaging waste) Regulations 1997: SEPA/Environment Agency
5. PPG4: Disposal of sewage where no mains drainage is available
6. Sustainable Urban Drainage – an introduction: SEPA/Environment Agency/EHS(NI)
7. PPG3: Use and design of oil separators in surface water drainage systems
8. PPG7: Fuelling stations: construction and operation
9. PPG13: The use of high pressure water and steam cleaners
10. PPG2: Above ground oil storage tanks
11. Masonry bunds for oil storage tanks
12. Concrete bunds for oil storage tanks
13. PPG8: Safe storage and disposal of used oils
14. PPG18: Managing fire water and major spillages
15. PPG21: Pollution incident response planning
16. PPG6: Working at demolition and construction sites
17. Codes of Good Agricultural Practice for the Protection of Water, Soil and Air:
    MAFF Publications, Telephone: 0645 556000

    Prevention of Environmental Pollution from Agricultural Activity:
    The Scottish Executive Rural Affairs Department (SERAD), Edinburgh

    Water - Preventing Pollution, series of 11 leaflets: Department of Agriculture and Rural Development for Northern Ireland

    References 3-16 are available from the Agency

All the Agencies' pollution prevention guidance notes are available on the web sites listed below.

ENVIRONMENT AGENCY

HEAD OFFICE
Rio House, Waterside Drive, , Aztec West
Almondsbury, Bristol BS32 4UD.
Tel: 01454 624 400 Fax: 01454 624 409
World Wide Web: http: //www.environment-agency.gov.uk

REGIONAL OFFICES

ANGLIAN
Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: 01733 371 811
Fax: 01733 231 840

MIDLANDS
Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: 0121 711 2324
Fax: 0121 711 5824

NORTH EAST
Rivers House
21 Park Square South
Leeds LS1 2QG
Tel: 0113 244 0191
Fax: 0113 246 1889

NORTH WEST
Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

SOUTHERN
Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 832 000
Fax: 01903 821 832

SOUTH WEST
Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: 01392 444 000
Fax: 01392 444 238

THAMES
Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: 0118 953 5000
Fax: 0118 950 0388

WELSH
Rivers House
St Mellons Business Park
St Mellons
Cardiff CF3 0EY
Tel: 029 2077 0088
Fax: 029 2079 8555

SCOTTISH ENVIRONMENT PROTECTION AGENCY

CORPORATE OFFICE
Erskine Court
The Castle Business Park
Stirling FK9 4TR
Tel: 01786 457 700
Fax: 01786 446 885
World Wide Web: http: //www.sepa.org.uk

AREA OFFICES

HIGHLANDS, ISLAND AND GRAMPIAN AREA
Graesser House
Fodderty Way
Dingwall Business Park
Dingwall IV15 9XB
Tel: 01349 862 021
Fax: 01349 863 987

SOUTH WEST AREA
SEPA West
5 Redwood Crescent
Peel Park
East Kilbride G74 5PP
Tel: 01355 574 200
Fax: 01355 574 688

SOUTH EAST AREA
Clearwater House
Heriot-Watt Research Park
Avenue North
Riccarton
Edinburgh EH14 4AP
Tel: 0131 449 7296
Fax: 0131 449 7277

ENVIRONMENT & HERITAGE SERVICE

Calvert House,
23 Castle Place,
Belfast
BT1 1FY
Tel: 028 9025 4868
Fax: 028 9025 4777

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water in England, Wales, Scotland and Northern Ireland.

EMERGENCY HOTLINE
0800 80 70 60

SEPA scottish environment protection agency
ENVIRONMENT AGENCY
ENVIRONMENT AND HERITAGE SERVICE

ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

Printed on Cyclus TCF Recycled Paper.

HO-5/01-20K-C-BFOX

ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

WORKS IN, NEAR OR LIABLE TO AFFECT WATERCOURSES: PPG5

POLLUTION PREVENTION GUIDELINES

These guidelines have been drawn up to assist all those who may have cause to work in or near watercourses. They have been jointly produced by the Environment Agency for England and Wales, the Scottish Environment Protection Agency the and the Environment and Heritage Service in Northern Ireland, referred to as the Agency or Agencies. Compliance with this guidance should minimise the risk of pollution occurring. Every site is different and will need to be considered individually. Consultation with your local Agency office is advisable before any work is started. Contact details can be found at the end of these guidelines.

1. LEGAL FRAMEWORK

a. The Agencies are responsible for both the protection of "controlled waters" from pollution and for the prevention of pollution of the environment, harm to human health and detriment to local amenity by waste management activities.

"Controlled waters" include all watercourses, lakes, lochs, coastal waters and water contained in underground strata (or "groundwater") and it is an offence to pollute such waters, either deliberately or accidentally. In addition, the formal consent of the Agency is required for many discharges to controlled waters, including both direct discharges and discharges to soakaways. Such consents are granted subject to conditions and are not issued automatically.

b. All discharges to the public foul sewer require authorization by the sewerage undertaker and may be subject to the terms and conditions of a trade effluent consent.

c. Any other waste produced on a site will be subject to the Duty of Care (Reference 1) and may also be subject to control under the Waste Management Licensing Regulations 1994. In addition, certain wastes are defined as "Special Wastes" and are subject to more rigorous controls (Reference 2). Advice is available from the Agencies.

d. In England and Wales, the Environment Agency also has powers and responsibilities for flood defence. Under the Water Resources Act 1991, prior consent must be obtained for any structure in, over or under a 'main' river (defined in the Water Resources Act 1991). Under the Land Drainage Act 1991, consent is also required for the erection of mill dams, weirs, and similar obstructions and for culverts in 'ordinary' watercourses (defined by the Land Drainage Act 1991).

These controls are supplemented by regional byelaws which regulate certain other activities on and in the vicinity of main rivers. The extent of the area of land subject to this control varies from region to region and also depends on the type of facility being protected. For example, the area of land subject to byelaw control will usually be greater in the vicinity of sea defences than in the vicinity of main rivers. Seek advice from your local Agency office about local byelaw distances and other specific areas subject to byelaw control.

In addition, the Environment Agency must be given 7 days written notice of any intention to temporarily divert flow of any watercourse, carry out works within the river channel or commence any operations in the river channel so that suitable arrangements can be made concerning fishery interests.

In Scotland, new powers are due to be introduced which will require that any person proposing to carry out drainage works will have to consult with SEPA beforehand on the precautions to be taken to prevent pollution.

2. INTRODUCTION

Most pollution incidents are avoidable. Careful planning can reduce the risk of pollution. Most of the measures needed to prevent pollution cost very little, especially if they are included at the planning stage of any scheme or project. In contrast, the costs of cleaning up a pollution incident can be very high. There are also serious consequences of a prosecution for environmental offences. Any work carried out in or near watercourses must be regarded as high risk with significant potential to cause pollution.

Potential pollutants of concern include silt, cement, concrete, fuel, lubricating and shutter release oils, petrol, sewage, bridge cleaning debris and other waste materials.

The Agency has produced specific guidance for pollution prevention at construction and demolition sites (PPG6 - Reference 3) which should be followed in conjunction with this guidance if applicable.

3. GENERAL PRECAUTIONS

In planning and carrying out any work in or near rivers, streams, ditches and other watercourses, precautions must be taken to ensure their complete protection against pollution, silting and erosion.

Any work on or near foul sewers, (especially trunk sewers), underground oil/chemical pipelines or fluid filled electricity cables poses a major threat of pollution if damage occurs. At least 7 days prior notification of an intention to work on these structures should be given to the Agency, enabling appropriate pollution prevention measures and emergency procedures to be agreed.

The use of industrial by-products at locations where drainage from the material could directly or indirectly enter surface or groundwater must be discussed with the Agency. Such materials must be suitable for the purpose, well weathered and must not pose a leachate problem (Reference 4).

4. SILT

Silt causes lasting damage to river life such as fish, insects and plants and can also build up to cause flooding. Water containing silt should never be pumped or allowed to flow directly into a river, stream or surface water drain. Silty water can arise from dewatering excavations, exposed ground, stockpiles, plant and wheel washing, site roads and disturbance of the river bed. Where possible, silty water should be disposed of to the foul sewer with the prior agreement of the sewerage undertaker (see Section 1b). Discharges to streams, watercourses or soakaways must have Agency approval which should be obtained well in advance. Suitable treatment will be required, such as the use of a lagoon, tank or grassed area to settle solids. For fine silts, flocculants may be required to aid settlement, although these should be used with care because of their potential for pollution.

a. Pumping

Care should be taken with the discharge to watercourse of any pumped clean water from dewatering or overpumping operations. If it is carried out with a powerful pump and/or at a high rate, then the river bed and bank could be disturbed and eroded, producing silty river water. Therefore pumped discharges must be made using a pump of a suitable size for the situation and at a rate which will not cause river bed disturbance.

b. Excavations

Where possible prevent water from entering excavations. Use cut off ditches to prevent entry of surface water and well point dewatering or cut-off walls for groundwater. Use the corner of the excavation as a pump sump and avoid disturbing that corner. Do not allow personnel or plant to disturb water in the excavation. For work in river channels, the use of coffer dams is recommended to keep river water out of the working area.

c. Exposed ground and stockpiles

Minimise the amount of exposed ground and soil stockpiles. Seeding or covering stockpiles and constructing silt fences from a suitable geotextile may be useful in reducing silt levels in run-off water.

d. Site roads and river crossings

Site roads and approaches to river crossings must be regularly brushed or scraped and kept free from dust and mud deposits. The inclusion of small dams in roadside ditches may assist silt retention, especially on steep slopes. If a river is to be frequently crossed, a permanent bridge or pipe crossing should be constructed. This would make fording of the river, and the consequent disturbance of the bed, unnecessary.

e. Bank restoration

Where possible, bank restoration should be carried out by vehicles operating from the bank rather than the river.

5. CONCRETE AND CEMENT

Fresh concrete and cement are very alkaline and corrosive and can cause serious pollution in watercourses. It is essential to ensure that the use of wet concrete and cement in or close to any watercourse is carefully controlled so as to minimise the risk of any material entering the water, particularly from shuttered structures or the washing of equipment. The use of quick setting mixes may be appropriate.

For long term projects involving on-site concrete production, careful initial siting of concrete mixing facilities is vital. A settlement and recirculation system for water reuse should be considered. This will minimise the risk of pollution and reduce water usage. Washing out and cleaning of concrete batching plant or ready mix lorries should be carried out in a contained area as far from the watercourse as practical.

6. OIL AND CHEMICALS

a. Storage

Fuel, oil and chemical storage must be sited on an impervious base within a bund and secured. The base and bund walls must be impermeable to the material stored and of adequate capacity. Detailed guidelines concerning above ground oil storage tanks are available (PPG2 - Reference 5). Leaking or empty drums must be removed from the site immediately and disposed of via a registered waste disposal contractor.

b. Security

All valves and trigger guns should be protected from vandalism and unauthorised interference and should be turned off and securely locked when not in use. Any tanks or drums should be stored in a secure container or compound, which should be kept locked when not in use. Bowsers should be stored within site security compounds.

c. Refuelling

The risk of spilling fuel is at its greatest during refuelling of plant. Where possible, refuel mobile plant in a designated area, preferably on an impermeable surface well away from any drains or watercourses. Keep a spill kit available and use a bunded bowser. Never leave a vehicle unattended during refuelling or jam open a delivery valve. Check hoses and valves regularly for signs of wear, and ensure that they are turned off and securely locked when not in use. Diesel pumps and similar equipment should be placed on drip trays to collect minor spillages or leaks. These should be checked regularly and any accumulated oil removed for appropriate disposal.

d. Biodegradable oils

When working in or near rivers, the use of biodegradable chainsaw chain bar lubricant and biodegradable hydraulic oil in plant is recommended. The Environment Agency has adopted a policy to do so for its own operations, and those working on its behalf will be required to do so by the year 2005.

7. BRIDGE CLEANING AND REPAINTING

Where bridges or other structures over, or adjacent to, rivers are being cleaned or repainted, debris should be prevented from falling into the watercourse or onto the embankment. Provision for the collection of solid debris, including spent abrasive materials and waste paint, should be incorporated into working methods. Where possible physical cleaning methods should be adopted in preference to the use of liquid chemicals such as caustic and acid solutions. If such liquids are used the effluent must be fully contained. The Agency can advise on the required pollution prevention measures (PPG23 - Reference 6).

8. HERBICIDE USE

The use of herbicides in or near rivers requires the written approval of the Agency. If approval is given, the user is responsible for ensuring that the interests of other river users are not adversely affected. Please contact the Agency for further details.

9. EMERGENCIES

If it is unavoidable that oil and chemicals have to be used within close proximity of a stream, river or any other watercourse, then it is recommended that a suitable spill kit or absorbent materials are held in the vicinity and that an appropriate temporary bund is put in place. In the event of any spillage, the spilt material should be contained (using absorbents such as sand, soil or commercially available booms or pads) and the Agency notified immediately, using the emergency hotline number listed at the end of this guidance.

10. REFERENCES

1. Waste Management - The Duty of Care - A code of practice (revised 1996): ISBN: 0-11-753210-X: The Stationery Office: Tel. 08706 00 55 22

2. Classification of special waste: Information Sheet 1: Environment Agency
Use of the consignment note: Information Sheet 2: Environment Agency
Obtaining and sending consignment notes: Information Sheet 3: Environment Agency
A Guide to the Special Waste Regulations 1996: SEPA
A Guide to the Special Waste Regulations (Northern Ireland) 1998: Environment and Heritage Service

3. PPG6: Working at construction and demolition sites

4. Use of industrial by-products in road construction - water quality effects, Report 167: CIRIA (Construction Industry Research and Information Association) ISBN: 0-86017-475-1: Tel. 020 7222 8891

5. PPG2: Above ground oil storage tanks

6. PPG23: Maintenance of structures over water

References 2, 3, 5 & 6 are available free of charge from the Agencies

All the Agencies' pollution prevention guidance notes are available on the web sites listed below.

ENVIRONMENT AGENCY

HEAD OFFICE
Rio House, Waterside Drive, , Aztec West
Almondsbury, Bristol BS32 4UD.
Tel: 01454 624 400 Fax: 01454 624 409
World Wide Web: http: //www.environment-agency.gov.uk

REGIONAL OFFICES

ANGLIAN
Kingfisher House
Goldhay Way
Orton Goldhay
Peterborough PE2 5ZR
Tel: 01733 371 811
Fax: 01733 231 840

MIDLANDS
Sapphire East
550 Streetsbrook Road
Solihull B91 1QT
Tel: 0121 711 2324
Fax: 0121 711 5824

NORTH EAST
Rivers House
21 Park Square South
Leeds LS1 2QG
Tel: 0113 244 0191
Fax: 0113 246 1889

NORTH WEST
Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

SOUTHERN
Guildbourne House
Chatsworth Road
Worthing
West Sussex BN11 1LD
Tel: 01903 832 000
Fax: 01903 821 832

SOUTH WEST
Manley House
Kestrel Way
Exeter EX2 7LQ
Tel: 01392 444 000
Fax: 01392 444 238

THAMES
Kings Meadow House
Kings Meadow Road
Reading RG1 8DQ
Tel: 0118 953 5000
Fax: 0118 950 0388

WELSH
Rivers House
St Mellons Business Park
St Mellons
Cardiff CF3 0EY
Tel: 029 2077 0088
Fax: 029 2079 8555

SCOTTISH ENVIRONMENT PROTECTION AGENCY

HEAD OFFICE
Erskine Court
The Castle Business Park
Stirling FK9 4TR
Tel: 01786 457 700
Fax: 01786 446 885
World Wide Web: http: //www.sepa.org.uk

REGIONAL OFFICES

NORTH REGION HQ
Graesser House
Fodderty Way
Dingwall Business Park
Dingwall IV15 9XB
Tel: 01349 862 021
Fax: 01349 863 987

WEST REGION HQ
SEPA West
5 Redwood Crescent
Peel Park
East Kilbride G74 5PP
Tel: 01355 574 200
Fax: 01355 574 688

EAST REGION HQ
Clearwater House
Heriot-Watt Research Park
Avenue North
Riccarton
Edinburgh EH14 4AP
Tel: 0131 449 7296
Fax: 0131 449 7277

ENVIRONMENT & HERITAGE SERVICE

Calvert House,
23 Castle Place,
Belfast
BT1 1FY
Tel: 028 9025 4868
Fax: 028 9025 4777

The 24-hour emergency hotline number for reporting all environmental incidents relating to air, land and water in England, Wales, Scotland and Northern Ireland.

EMERGENCY HOTLINE
0800 80 70 60

SEPA scottish environment protection agency
ENVIRONMENT AGENCY
ENVIRONMENT AND HERITAGE SERVICE

ENVIRONMENTAL ALLIANCE – WORKING TOGETHER

Printed on Cyclus TCF Recycled Paper.

HO-3/00-12K-C-BBUD