Eden District Council

Contaminated Land Inspection Strategy May 2001

1st Review - Summer 2007

The original report was prepared by Casella Science and Environment Ltd in association with Eden District Council.

This review was undertaken by Eden District Council

Executive Summary

This is the first review of the Contaminated Land Inspection Strategy (referred to as 'the strategy') since its initial publication in 2001. The rationale behind the strategy remains constant, however it has been updated to include:

- Amendments in legislation and guidance
- Updated datasets
- Revised assessment process used for sites prioritisation
- Progress to date
- Timetable of work for 2007-2008

Under new regulations that came into force on 1 April 2000 (Part IIA of Environmental Protection Act 1990) Eden District Council (EDC) was required to inspect land in its district for the purpose of identifying contaminated land. A strategy was submitted to the Department of the Environment Transport and Regions by July 2001.

This strategy details how, in light of the characteristics of the area, the authority will take a rational, ordered and efficient approach to this inspection. It should be noted when considering whether land is contaminated or not, the fact that a harmful substance is (in terms of 'harm' to human health, to eco-systems or to property or pollution of controlled waters) in, on, or under a piece of land does not itself mean that land is 'contaminated land'. The source of harm may be present, but unless a possible route ('plausible pollutant linkage') exists through which it is likely to cause harm to health, eco-systems, property or cause pollution of controlled waters, the land is not contaminated within the meaning of the Act.

In any workable land assessment strategy it is necessary for a system of risk prioritisation to be established. The former uses of a site need to be taken into account as does the local geological and hydrogeological conditions. It is however, the identification of vulnerable receptors and plausible pollutant linkages, which ultimately drives the process.

The principal objectives of the strategy are to:

- Meet the statutory requirements to produce a strategy;
- Use the contaminant-pathway-receptor model as an indication of plausible pollutant linkages. Prioritise and review the condition of the receptors and potential contaminants, identifying immediate concerns and those which may need action in the future;
- Inform stakeholders of the Council's intentions; and
- Provide information to the Environment Agency for its report on contaminated land.

The Council's priorities in dealing with contaminated land are to:

1) Protect human health.

2) Protect controlled waters.

3) Protect designated ecosystems.

4) Prevent damage to property.

5) Prevent further contamination of land.

6) Encourage voluntary remediation.

7) Encourage re-use of brownfield land.

A map - based land categorisation and prioritisation method is being developed to enable the identification of minimum information requirements and the prioritisation of sites to be inspected in more detail.

A programme of assessment over the period 2001 to 2003 was initially undertaken and procedures identified which have taken into account information supplied by the public, business and other organisations; dealing with urgent sites as they arise. The programme also addresses land owned by the Council and land scheduled for development in the Council's Local Development Framework.

The District Council is the lead regulator on contaminated land but, wherever necessary, the Council works in partnership with other organisations, in particular the Environment Agency.

The regulations set clear criteria that must be met before land can be formally designated as contaminated land. The Council also maintains a public register in the prescribed form.

The strategy is subject to regular review and not a static document. Following on from this initial review, it is proposed that an annual progress report will be published and a full review of the strategy published every five years.

1. Introduction

Under new regulations that came into force on 1 April 2000 (Part IIA of Environmental Protection Act 1990) Eden District Council is required to inspect land in its district for the purpose of identifying contaminated land.

The Secretary of State has issued statutory guidance to local authorities on the implementation of Part IIA in England. The Statutory Guidance requires local authorities to take a 'strategic approach' in inspecting their areas and to decide and publish this in a written strategy. This document details how Eden District Council will undertake this inspection.

1.1 General Policy of Eden District Council

The UK has established a policy and legal framework aimed at minimizing the future incidence of contaminated land; ensuring appropriate action is taken to deal with existing contamination where it poses unacceptable risks to health and the environment; and encouraging the reclamation and recycling of 'brown field' land for beneficial use.

In the context of sustainable development, appropriate environmental and economic policies are key considerations in developing this Inspection Strategy because they:

- Ensure unacceptable risks to human health and the environment are reviewed; to promote a cleaner and healthier environment for local people and wildlife;
- Encourage the prudent use of land and social resources; and
- Ensure that the cost burdens of undertaking remediation are proportionate, manageable and economically sustainable.

Land contamination can take a variety of forms and occur in a variety of places. Therefore there is likely to be wide interest in a contaminated site, whether contamination is proven or is suspected.

Eden District Council recognises that decisions about contaminated land should not be made on a purely technical basis. There will be a variety of regulatory, commercial, financial, legal and social factors, which also affect how particular contaminated land issues should be addressed. The Council also recognises that, as with its approach to local government in general, it is important that decisions about contaminated land are defensible and transparent.

This document will therefore be made available both on the Council's web site (http://www.eden.gov.uk/main.asp?page=488) and in hard copy to all groups of people ('stakeholders') who have an interest in a contaminated land strategy for the district. Comments that were received during the consultation stage of the initial strategy production were taken into account at that stage. The final strategy was

submitted to the Department of Environment Transport and Regions (DETR) by the end of June 2001. The document will however be under ongoing review and the Council welcomes comments at any time, which, if appropriate, will be taken into account in subsequent revisions.

No further comments had been received by the time of this first revision, since the publication of the strategy in May 2001.

1.2 Regulatory Context

The government's main policy statement on contaminated land has been a Department of Environment (DoE)/Welsh Office paper 'Framework for Contaminated Land' issued in November 1994 which took into account public responses to an interim consultation paper 'Paying for our Past' published in March 1994. This set out the essential policy parameters, namely:

- The prevention of further contamination at source;
- The promotion of sustainable development;
- The suitable for use approach;
- The polluter pays principle; and
- The notions that
    - Clean-up should be cost effective
    - Only those sites which pose a real risk of danger should be addressed in the short term
    - Contamination on less immediately dangerous sites should be dealt with only as and when those sites come up for redevelopment

UK policy on land contamination as set out in the Framework, as well as emphasizing the Government's commitment to the environmental principles of 'sustainable development' and 'the polluter pays', requires that existing contamination which poses threats to health or the environment is controlled and treated within the 'suitable for use' approach.

The policies in the framework have been implemented primarily through the introduction of the new contaminated land regime, which came into force on 1 April 2000. The statutory basis of the regime is to be found in Part of IIA of the Environmental Protection Act 1990 (which was inserted by the Environment Act 1995). Various provisions of the Act have been in force since the end of July 1995 allowing the Secretary of State to issue the guidelines, which gives effect to the regime. The guidelines are contained in Annex three of DETR Circular 02/2000: Contaminated Land. It is the introduction of this new regulatory regime generally referred to as the Part IIA regime that has prompted the production of this strategy document.

The Regulations encompass:

- Land required to be designated as ‘special sites’;
- Pollution of controlled waters;
- Content of remediation notices, and the persons to whom they should be copied;
- Compensation for rights of entry etc;
- Grounds of appeal against a remediation notice; and
- Content of the Contaminated Land Register.

The procedure that must be followed in the process of dealing with contaminated sites is also set out, namely:

- Identifying a contaminated site;
- Identifying the steps necessary to remediate the land; and
- Identifying those responsible for carrying out the works. This procedure is the same regardless of whom the regulator is.

On 4 August 2006, the Contaminated Land (England) Regulations 2006 (SI 2006/1380) came into force. These consolidated the provisions of the 2000 (2000/227) and 2001 (2001/663) Regulations which have now been revoked. Additionally, the Radioactive Contaminated Land (Modification of Enactments) (England) Regulations 2006 (SI 2006/1379) came into force on this date. These extend the controls of the Part IIA legislation such that radioactivity arising from a historical land use is now included. It does not however include naturally occurring radioactivity, eg radon or sites which are licensed under the Nuclear Installations Act 1965.

It is not considered that the prioritisation risk assessment procedure requires modification in light of these changes. However where appropriate, the possibility of radioactive contamination will be considered within the initial Phase 1 assessment of a site.

1.2.1 Regulatory Role of Local Authorities under Part IIA

The primary regulatory role under the Part IIA regime rests with local authorities. Local authorities have historically had responsibilities for dealing with any statutory nuisance caused by land contamination and are the lead authorities on land use planning.

The local authority has a duty under Part IIA to:

- Prepare an inspection strategy;

- Determine whether areas of land within their district meet the statutory definition of contaminated land;

- Decide whether any of this land is required to be designated as a Special Site under the Contaminated Land (England) Regulations 2006, in which case the Environment Agency will act as the enforcing authority;

- Identify owners and occupiers of this land and notify both them and the Environment Agency that the land is contaminated;

- Undertake urgent remedial action where necessary;

- Determine who may be liable and for what proportion of the costs of remediation;

- Ensure that appropriate remediation is undertaken either through voluntary action or through the serving of a remediation notice;

- Prepare and maintain a public register which details the regulatory action that the local authority has taken under Part IIA;

- Provide information to the Environment Agency on contaminated land.

1.2.2 Regulatory Role of the Environment Agency

The Environment Agency has four principal roles with respect to contaminated land under Part IIA. These are to:

- Assist local authorities in identifying contaminated land particularly where water protection is involved;

- Provide site - specific guidance to local authorities on contaminated land;

- Act as the enforcing authority for any land designated as a special site; and

- Publish periodic reports on the state of contaminated land nationally.

If land is contaminated and falls within one of the relevant descriptions set out in the Contaminated Land (England) Regulations 2006 (referred to as ‘the Regulations’) it must be designated as a ‘special’ site. The definition of a special site is set out in the Regulations. In very general terms it relates to sites associated with a specific land use. For example, acid tar sites, oil and explosives sites, Pollution Prevention and Control Act 2000 Part A prescribed process sites, Ministry of Defence land and sites where there is a significant pollutant linkage affecting controlled waters meeting the definitions of 3(a), (b) and (c) of the Regulations. In these circumstances it is considered that the Environment Agency is best placed to be the enforcing authority. The Regulations also ensure that where wholesomeness of drinking water; surface water classification criteria; and cases where particularly difficult pollutants are affecting major aquifers the Environment Agency becomes the enforcing authority.

Pollution of controlled waters is to a large extent already regulated by the Environment Agency under the Water Resources Act 1991. This gives the Environment Agency the power to serve a Works Notice where pollution of controlled waters is occurring. However the precautionary approach under the contaminated land regime provides more effective control than the service of a works notice. To prevent the overlap of jurisdiction between the two Acts, local authorities are required to liaise with the Environment Agency where pollution of controlled waters is occurring, or is likely to occur.

Part III of the Water Resources Act (WRA) 1991 defines controlled waters as including territorial waters, coastal waters, inland freshwaters and groundwaters. For the purposes of Part IIA, controlled waters are defined as having the same meaning as in the WRA 1991 except that groundwater does not include waters contained in underground strata but above the saturation zone.

Pollution of controlled waters is defined in section 78A(9) of Part IIA as “the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter”.

For the purpose of the contaminated land regime, entry of pollution into controlled waters takes place where a contaminant has direct contact with or is dissolved, immiscible or suspended, on or beneath the surface of the water.

It is not appropriate that land should be designated as contaminated land solely on the basis that substances are already present in controlled waters, where entry of the substances has ceased, and it is not likely that further entry will take place.

A Memorandum of Understanding has been agreed between Eden District Council and the Environment Agency which sets out the agreed terms upon which the two regulators will work together.

1.2.3 Definition of Contaminated Land under Part IIA

In the context of existing threats to health or the environment, and where planning or other environmental protection legislation does not apply, contaminated land is specifically defined in Part IIA of the Environmental Protection Act 1990 as:

“Any land, which appears to the local authority in whose area it is situated to be in such condition, by reason of substances in, on or under the land that:

a) significant harm is being caused or there is a significant possibility of such harm being caused; or

b) pollution of controlled water is being or is likely to be caused.”

Where “harm” is defined as:

"Harm to the health of living organisms or other interference with the ecological systems of which they form part and, in the case of man, includes harm to his property."

Section 78A (5) requires the enforcing authority to act in accordance with guidance issued by the Secretary of State in determining significance and likelihood.

1.2.4 Risk Based Approach

Use of a risk-based approach requires recognition of three main components:

i) A source of contamination, ie the hazardous substance on, in or under the ground.

ii) A receptor [or target], ie the specified entity which is vulnerable, or could be vulnerable, to the adverse effects of the hazardous substance.

iii) A pathway, ie the means by which the hazardous substance is able to come into contact with a receptor.

On any individual site there may be one or more of each of these components. However, all three must be present with a clear relationship or linkage between them, for a risk to exist. The degree of risk and whether it is sufficiently serious to warrant action depends primarily on the nature of the relationship between these components.

The receptors recognised as being potentially sensitive in Part IIA are listed in Table1.

Table 1 - Receptors Laid down by the Regulations and Examples of Each

Receptors	**Examples**
Human Beings	People living, working or using the local area
Controlled Waters	Surface waters (eg rivers, lakes, streams), Drinking water abstractions, Source protection zones, Groundwater-private abstractions, and Groundwater-major aquifers.
Ecological systems or living organisms forming part of a system within certain protected locations	Sites of Special Scientific Interest (SSSIs), National Nature Reserves, Local Nature Reserves, Special Areas of Conservation (SACs), Candidate SACs, Special Protection Areas (SPAs), RAMSAR sites (Wetland of International importance)

Receptors	Examples
Property in the form of buildings	Scheduled ancient monuments
Property in other forms	Crops, Livestock, Home-grown produce, Owned or domesticated animals, Wild animals subject to shooting or fishing rights

In the context of Part IIA a 'source-pathway-receptor' relationship is termed 'a pollutant linkage'. When after a risk assessment, it is deemed that 'significant harm is either occurring or there is a significant possibility of it occurring then this is deemed 'a significant pollutant linkage'. Where there is a significant pollutant linkage identified, then the local authority must designate the site as contaminated.

A risk based 'suitable for use' approach using the concept of source-pathway-receptor relationships reflects UK Government policy on contaminated land. Under planning and building control legislative regimes, risk assessment is based on 'suitable for next use' (eg a change from industrial to residential and therefore a change in receptors). Under the new contaminated land legislative regime, and the statutory definition of contaminated land, the risk assessment is based on 'suitable for **current** use'.

If statutory contaminated land has been identified, the approach for dealing with it will be the same regardless of whether the local authority or the Environment Agency is the lead authority. There are four main stages to this approach:

i) To establish who is the "appropriate person" to bear responsibility for the remediation (or "clean-up") of the land.

ii) To decide what remediation is required and to ensure that this occurs, through:

- reaching a voluntary agreement,
- serving a remediation notice, if agreement cannot be reached, and
- in certain circumstances the enforcing authority will carry out work themselves.

iii) To determine who should bear what proportion of the liability for meeting the costs of the work.

iv) To record certain information about regulatory action on a public register.

1.2.5 Requirements for Strategic Approach

All local authorities are required to take a strategic approach to the identification of land in their area that merits detailed individual inspection. The Statutory Guidance requires that the approach adopted should:

- be rational, ordered and efficient;
- be proportionate to the seriousness of any actual or potential risk;
- seek to ensure that the most pressing problems are located first;
- ensure that resources are concentrated on investigating areas where the authority is most likely to identify contaminated land; and
- ensure that the local authority efficiently identifies requirements for the detailed inspection of particular areas of land.

1.3 Development of the Strategy

This strategy has been developed with particular reference to 'Contaminated Land Inspection Strategies - Technical Advice for Local Authorities' issued by the Department of the Environment, Transport and the Regions (DETR) and has adopted the following approach:

i) Identification of lead department within the Council for the purpose of the strategy and how each individual department with an interest in, or input into, the inspection strategy liaises with each other.

ii) Drafting of a questionnaire for circulation to each of the identified Council departments covering such aspects as: types of data required and current availability; current data management and data quality; external contacts and contamination and redevelopment history.

iii) Assimilation of questionnaire responses followed by a data audit to identify and adopt an initial information gathering strategy as well as identifying an information gathering strategy for further development during the implementation phase.

iv) Preparation of a draft strategy for internal comment by officers from Technical Services, Development partnership (Planning and Building Control), Administration Services and Local Plans.

v) Submission of the consultation draft for approval by the Council's Environmental Sub Committee.

vi) Invitation of comments on the consultation drafts from formal and informal consultees.

vii) Submission of a final version of the strategy (for adoption by the Council's Health and Housing Committee) to the DETR, copied to the Environment Agency.

1.3.1 2007 Review of the Strategy

The process of this strategy review has adopted the following approach:

i) Amendments in legislation and guidance since the production of the original strategy.

ii) Datasets reviewed and updated where necessary through liaison with the relevant departments and organisations.

iii) Protocol used for risk screening updated.

iv) Review of achievements since original strategy produced.

v) Set targets for next twelve months.

1.4 Objectives of the Strategy

The fact that a potentially harmful substance is present (in terms of 'harm' to the receptors listed in Section1.2.4) in, on or under a piece of land does not itself mean that land is 'contaminated land'. The source of harm may be present but unless a 'plausible pollutant linkage' exists, the land is not contaminated within the meaning of the Act.

In any land assessment strategy it will be necessary for a system of risk prioritisation to be established. Former site uses will need to be taken into account as will the local geological and hydrogeological conditions, but it is the identification of vulnerable receptors and plausible pollutant linkages which will drive the process.

The principal objectives of the strategy are therefore to:

i) Meet the statutory requirements to produce a strategy;

ii) Identify areas of land with a current or historic land use that has the potential to impact on land quality;

iii) Use the source-pathway-receptor model as an indication of plausible pollutant linkages;

iv) Prioritise and review the condition of the receptors and potential sources, identifying immediate concerns and those which may need action in the future;

v) Inform stakeholders of the Council's intentions; and

vi) Provide information to the Environment Agency for its report on contaminated land.

2. Characteristics of Eden District

The purpose of this section is to provide the background to Eden District Council's area and how that influences the Council's approach to the inspection of contaminated land. It will also enable fair comparison with other authorities.

2.1 Geographical Location

Eden District occupies the eastern part of the county of Cumbria bordered by other districts of the county to the north, south and west (Carlisle, South Lakeland and Allerdale), Northumberland (Tynedale), County Durham (Wear Valley and Teesdale) and North Yorkshire (Richmondshire) to the East. The location of Eden District within the UK and in relation to neighbouring local authorities is shown in Figure 1.

2.2 Brief Description

Eden District is the second largest administrative district in England. It has one main urban area, the town of Penrith, and three smaller towns, Alston, Appleby and Kirkby Stephen together with a considerable rural area containing many villages of significant character and several contrasting high quality rural landscapes.

The District has an exceptionally high quality of landscape importance forming part of the Lake District National Park, the North Pennines Area of Outstanding Natural Beauty and several Landscapes of County Importance (Howgills and Westmorland Fells). It also borders the Yorkshire Dales National Park along its south-eastern boundary.

Agriculture and the extractive industries dominate the landscape. As expected there is a growth in the service industries, particularly tourism.

Eden District is easily accessible by road and rail; straddling the M6 motorway and the A66(T) cross Pennine Trunk route (see Figure 2). The West Coast Main Line has a station at Penrith and the district is served by five stations on the Settle-Carlisle Railway.

2.3 Historical Development

The first settlers and settlements in the Eden District were thought to be circa 500 years BC and are exampled by many ancient stone monuments and circles within the district. The area consisted of an open broad land around the River Eden, surrounded by mountains of the Lake District and the hills of the North Pennines. Villages sprang up and were subsequently occupied by Romans, Normans and invading Scots. The Roman influences are still in evidence today with Hadrian's Wall just to the north of the district.

FIGURE 1: EDEN DISTRICT COUNCIL BOUNDARY AND NEIGHBOURING DISTRICTS

legend

Eden District Council boundary

district boundaries

project:
CONTAMINATED LAND INSPECTION STRATEGY

client:
EDEN DISTRICT COUNCIL

scale:
1:400,000

drawn/checked:
MM/SP

date:
24.04.01

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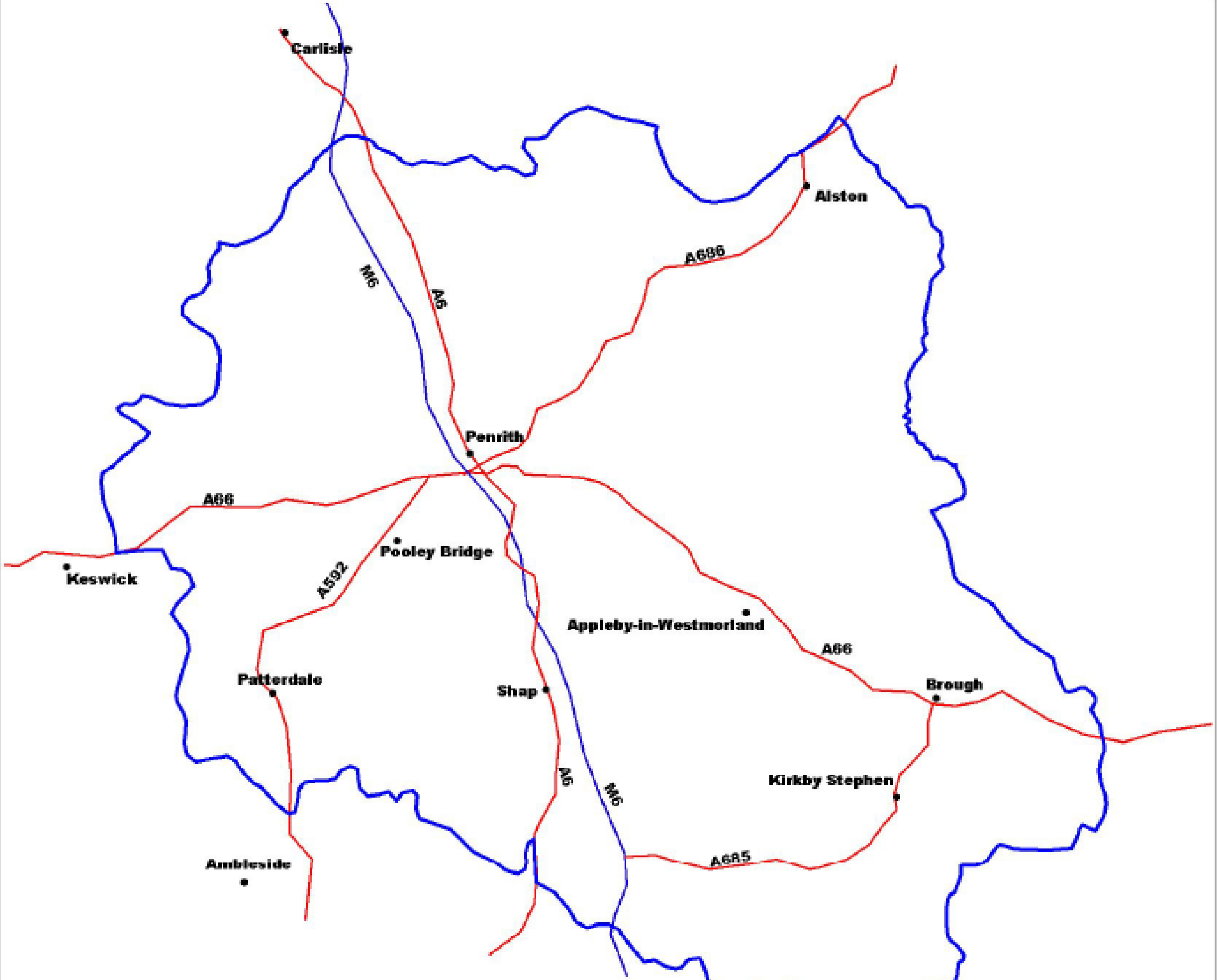

FIGURE 2: MAIN TOWNS AND ROAD NETWORK IN EDEN DISTRICT

legend

main roads

project:
CONTAMINATED LAND INSPECTION STRATEGY

client:
EDEN DISTRICT COUNCIL

scale:
1:250,000

drawn/checked:
MM/SP

date:
24.04.01

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Penrith, situated to the north east of the Lake District and adjacent to the Northern Pennines grew into the major town due to it's location on the main north-south and east-west thoroughfare. It was in the ninth and tenth centuries that the town became the capital of Cumbria, a semi dependent state which, until 1070 AD formed part of the Kingdom of Scotland and Strathclyde. The name Penrith has two possible origins meaning either 'ford by the hill' or 'under the red hill'.

William Strickland, later to become Archbishop of Canterbury and Bishop of Carlisle began Penrith Castle in 1399. The castle was improved and added to over the next 70 years. The district has many other forts and ruins including Brougham, Brough, Dacre and Pendragon Castles, Arthur's Round Table, Long Meg and her Daughters (one of the largest prehistoric stone circles in the country), and Dunmallet Hill Fort.

In 1808 Penrith was also described as a town, well built with principal streets running north to south, of red freestone (sandstone) with blue slated roofs. It became a post coach market town surrounded by agricultural undertakings and large private estates and again being described "a more agreeable place cannot be imagined". At the start of the 19th Century Penrith's population was about 4,000. At this time in addition to agriculture and mining, people were employed in the weaving industry, principally working within their homes. The main extraction activities over the years have been the mining of lead; tungsten and zinc in the hills of the Pennines around Alston and in the Lake District hills around Ullswater and Caldbeck, and the extraction of gypsum at Kirkby Thore. The quarrying of stone has historically and currently is a major activity across the district.

Water is another main feature of the area in the form of the River Eden, and the River Eamont, which flows out of Ullswater. Many of the smaller rivers, especially in the Pennines and fells were utilised to provide power to the mining industry. Relics of this industrial landscape can still be seen.

Thacka Beck is a man-made watercourse cut from the River Petteril to provide water to Penrith and runs through the town and into the River Eamont. Many breweries grew up along the line of the beck. Clean drinking water and sewage systems were introduced to Penrith around 1850.

2.4 Size

Eden District covers an approximate area of 2,160 square kilometres or 835 square miles and comprises 71 parishes. It is the second largest District within England.

2.5 Population Distribution

The population of Eden District is estimated at 52,800 (mid 2005 estimate). It is the most sparsely populated district in England and Wales. The main centres of population are shown in Table 2 and their location within the district in Figure 2.

Table 2 - Main Centres of Population

Location	Population (2001)
Penrith	14,756
Alston	1,128
Appleby-in-Westmorland	2,862
Kirkby Stephen	1,832

Source: Census 2001 Crown Copyright

Eden's population is continuing to growth with an expected increase of 10-15% over the next twenty-five years.

2.6 Roads and Railways

The industrial development of the District was closely linked with improvement of its system of communications. Penrith grew into the major town being on the thoroughfare between Scotland and England (M6 and A6) and also having access from the Cumbrian coast to the north east of England (A66). The M6 has been described as the greatest thoroughfare in northern England.

The nineteenth century saw the development of the railway systems through the District. Railway came to Penrith around 1844 via Shap and then onto Carlisle followed around 1860 to Keswick and the Eden Valley. Penrith is on the main West Coast Line and the famous Settle to Carlisle Railway passes through a majority of the district.

2.7 Economic Landscape of Eden

Penrith, the major town in Eden, sitting on the intersection of the M6 and the A66 is rapidly becoming established as a sub-regional centre although conversely Appleby, Kirby Stephen and Alston are faced with issues arising from the rural isolation and significant decline in traditional industries such as agriculture.

The district of Eden has a total population of 52,800 (2005) of which the working-age population of 31,900 (2005) is just over 60%. Key sectors (see Table 3) are distribution, hotel and restaurant, tourism and public administration, education and health. Source: http://www.nomisweb.co.uk

Table 3 - Business by Sector (2005)

Business Sector	Eden (%)	Cumbria (%)	North West (%)	GB (%)
Manufacturing	9.6	15.7	12.7	11.1
Construction	7.4	5	4.9	4.6
Distribution, Hotel & Restaurant	34.8	31.8	25	24.1
Transport & Communications	6.7	5.8	5.8	6.0
Finance, IT and other business activities	6.7	9.3	17.9	20.7
Public Admin, Education & Health	24.7	25.6	28.2	26.9
Other Services	4.9	5.7	4.7	5.2
Tourism Related	22.4	14.2	8.4	8.1

Source: Nomis - AES Workplace Analysis of Employees 2005
Figures are for employees only and do not include the self-employed, government-supported trainees and HM forces.

The long term aims and objectives for Economic Development and Tourism for Eden are set out within the document '2006 - 2016 Developing the Economy of Eden, A 10 year plan'. Key priority areas identified include moving towards a higher wage economy and providing affordable housing for the workforce.

The Government has targeted that 60% of all new residential development should be on brownfield land. The potential costs involved in remediation techniques required to bring some brownfield sites to an acceptable level for residential use further challenges the viability of affordable housing developments.

2.7.1 Agriculture - Land Cover

Agriculture is one of the mainstays of the economy. Eden District in the Eden Valley area includes the highest proportion of the best and most versatile agricultural land (grade 2) in the county. It also includes some of the poorest areas (grade 4 and 5), associated with the upland areas of the Lake District and North Pennines. In these upland areas sheep farming is the predominant activity. Woodland cover is relatively sparse, comprising either scattered remnants of ancient or semi-ancient woodland, whereas grassland and moorland/heath are the predominant forms of land cover.

2.7.2 Extraction Industry

Since the Planning and Compulsory Purchase Act 2004, Cumbria County Council is required to prepare a Minerals and Waste Development Framework which will replace the current Cumbria Minerals and Waste Local Plan. The County Council is

currently preparing its Minerals and Waste Development Framework (MWDF) which will set out policies and proposals for minerals and waste management developments over the period to 2018. It will replace the Minerals and Waste Local Plan. Following extensive consultation, it is expected that the MWDF will be adopted at the end of 2008. This will cover the area within the Eden District, except in the area covered by the Lake District National Park, which is covered by the Lake District National Park Authority.

The following information has been extracted from the Cumbria Minerals and Waste Plan 1996-2006 and does not cover the area administered under the Lake District Planning Authority.

2.7.2.1 Reserves

The County Plan sets out the provisions for crushed rock aggregates for 1995 - 2021 (millions of tonnes) for the East Region, which mirrors the Eden District boundary (excluding the Lake District National Park). Table 4 sets out these reserves.

Table 4 - Aggregate Reserves

Reserves	Tonnes (millions)
Reserves required (1996-2006)	13.3
Reserves required (2007 – 2021)	19.5
Current permitted reserves	119.4*

**excluding Lower Bed Limestone reserves at Shapfell Quarry estimated at ten million tonnes.*

2.7.2.2 Sand and Gravel

There are three active sites in the district, at Low Plains, Bonnie Mount and Lazonby.

2.7.2.3 Building Stone and Hard Rock

Tables 5 and 6 list the quarries and their status within the district (excluding the Lake District planning area).

Table 5 - Building Stone Quarries

Status	Site
Active	Crag Nook, Scratchmill Scar, Flinty Fell, Leipsic, Pickering, Rooks, and Mousegill Bridge
Dormant	Bowscar
Not Commenced	Brackenbank, West Brownrigg

Table 6 - Hard Rock Quarries

Status	Site
Active	Flusco, Shap Beck, Shapfell, Shap Blue, Hartley
Dormant	Blencowe, Shap Pink, Helbeck
Not Commenced	Blencowe North

2.7.2.4 Gypsum and Anhydrite

Extensive reserves of gypsum and anhydrite occur in the Eden Valley. Gypsum is mined at Kirkby Thore and anhydrite in small quantities at Newbiggin. The Kirkby Thore site has planning permission for underground workings of 1400 hectares.

2.7.2.5 Coal

There are dormant coal sites in the Alston area at Clarghyll Mine, Blagill Colliery and Flow Edge Mine.

2.7.2.6 Other

There are no natural high specification aggregate sites, mudstone or commercial peat workings within the district boundary; although these do exist elsewhere in Cumbria. Aggregates are produced in the district at various hard rock quarries using stone crushing plant equipment.

2.7.3 Tourism and Related Industries

Eden encompasses part of the Lake District National Park (LDNP) and part of the North Pennines Area of Outstanding Natural Beauty. The rich natural landscape, together with its heritage, culture and ecology, attracts many visitors to the region. Tourism is a major source of employment for Eden and the short term increase in population over the main holiday periods supports a wide range of non-tourism related businesses. Annual visitor numbers to Eden are almost 2 million per year. In 2007, 5% of the properties within Eden are second homes or holiday lets which is significantly higher than the national average of around 1%.

Since the outbreak of Foot and Mouth Disease in 2000, many farmers have diversified into activities that support the tourism industry. In 2004, tourists brought a revenue of £146 million into Eden. The food and drink sector is another priority growth sector reflecting the high quality of Cumbrian agriculture. Outdoor education and recreation are also growth areas.

2.7.4 Current Industrial Sites

Today's industries focus on industrial and commercial units and are still linked to the major transportation links of the M6 (north to south) and the A66 (east to west). Table 7 lists the main industrial estates in the Eden District.

Table 7 - Location of Current Industrial Sites in Eden District

Location	Industrial Site
Penrith	Gilwilly Industrial Estate Penrith Industrial Estate Junction 40 Business Park
Alston	Station Yard Industrial Estate SkellGhyll Side Industrial Estate
Kirkby Thore	Kirkby Thore Industrial Estate
Appleby	Appleby Business Park Cross Croft Industrial Estate
Kirkby Stephen	Hobson Lane Industrial Estate
Threlkeld	Blencathra Business Park

2.8 Protected Locations

Figure 3 shows the location of the National Parks and Areas of Outstanding Beauty and Figure 4 illustrates the wealth of ecological protected areas, within the district boundary.

Eden District forms part of the Lake District National Park and North Pennines Area of Outstanding Natural Beauty. It also borders the Yorkshire Dales National Park. Within the district boundary there is a wealth of ecological sites including:

- several Special Areas of Conservation (the river Eden, the Derwent and Bassenthwaite Lake area, Moorhouse-Upper Teesdale, Cumbrian Marsh Fritillary Site, Helbeck and Swindale Woods, Ullswater Oaklands, Ashby Complex, Lake District High Fells, North Pennine Dales Meadows and the Tyne and Nent);

- the Moorhouse Special Protection Area;

- several National Nature Reserves (Moorhouse-Upper Teesdale, Smardale Gill, Great Asby Scar, Tarn Moss and Cliburn Moss);

- ninety-one Sites of Special Scientific Interest; and
- fifteen Limestone pavement orders.

2.9 Key Property Types

The District has 1962 Listed Buildings, 302 Ancient Monuments and 27 designated Conservation Areas.

2.9.1 English Heritage Sites

As part of its consultation procedure, English Heritage was consulted when the initial strategy was drawn up, in relation to its property holdings. A response was received which covers the following matters:

- definition of harm to ancient monuments;
- advice on ancient monuments;
- consultation on Sites and Monuments Records;
- other potentially sensitive receptors;
- overall aims of Contaminated Land Inspection Strategy; and
- future contact with English Heritage.

The English Heritage response is included as Appendix 4. As part of its strategy, the Council, as far as possible, will employ any definition and adhere to the guidance, aims and advice outlined in the response.

FIGURE 3: NATIONAL PARKS AND AREAS OF OUTSTANDING NATURAL BEAUTY IN EDEN DISTRICT

legend

- Eden District Council boundary
- National Parks
- Areas of Outstanding Natural Beauty (approximate boundary)

project:
CONTAMINATED LAND INSPECTION STRATEGY

client:
EDEN DISTRICT COUNCIL

scale:
1:250,000

drawn/checked:
MM/SP

date
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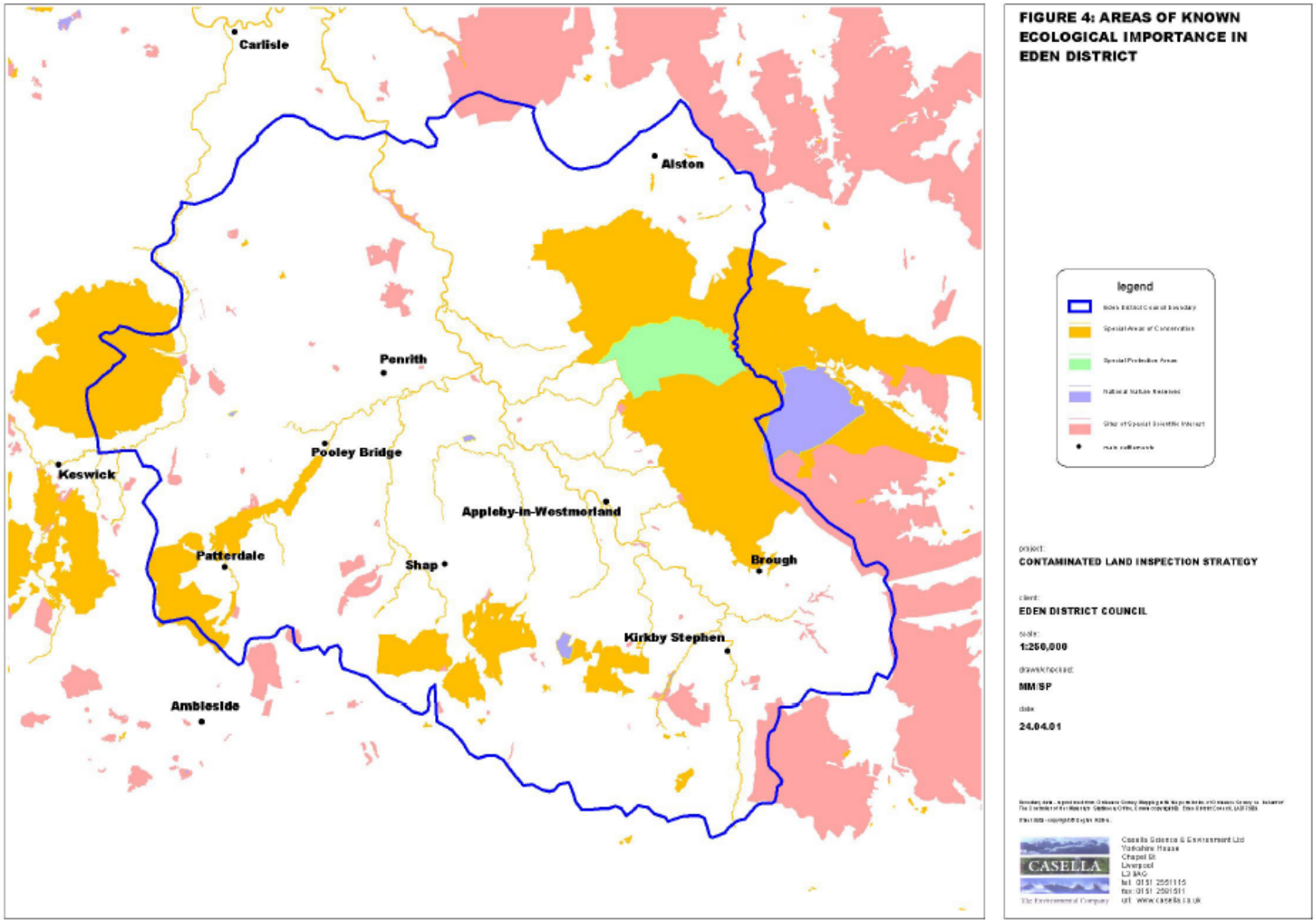

FIGURE 4: AREAS OF KNOWN ECOLOGICAL IMPORTANCE IN EDEN DISTRICT

2.10 Key Water Resource/Protection Issues

Within the Eden District there are primarily parts of four main river catchments, the River Eden, River Lune, South Tyne and the River Tees. River surface water courses are shown in Figure 5.

2.10.1 Eden Catchment

The Environment Agency routinely obtains chemical and biological data through its monitoring programmes. Periodic assessment is now made by applying the General Quality Assessment (GQA) scheme, which provides a general measure of water quality and allows national comparisons. Details of the GQA Chemistry for the Eden Catchment are provided in Appendix 3. The majority of the rivers are Grade C - fair or better (suitable for coarse fish populations).

Water from the River Eden and some of its tributaries is abstracted for Public water supply. In particular water is abstracted from the River Eden to meet Carlisle supply demands. There are approximately 100 licensed abstractions from rivers and other sources eg springs, wells and boreholes of which 90% are for potable water supply. Within the East Lakes area of the catchment there are two large lakes Haweswater and Ullswater. Haweswater is an important water supply reservoir for public supply, from which United Utilities is licensed to abstract 1,000Ml/day. Most of this water is exported from the district. Some potable water abstraction is also taken from Ullswater.

In addition to the licensed abstractions the use of surface waters for small unlicensed supplies mainly for agriculture is common in the rural areas.

2.10.2 Lune Catchment

The Environment Agency routinely obtains chemical and biological data through its monitoring programmes. Periodic assessment is now made by applying the General Quality Assessment (GQA) scheme, which provides a general measure of water quality and allows national comparisons. Details of the GQA Chemistry for the Lune Catchment are given in Appendix 3. The majority of the rivers are Grade C - fair or better (suitable for coarse fish populations).

Water from the Lune and its tributaries is abstracted for public potable water supply although not in that section of the catchment within the Eden District. Impacts on the River and tributaries within the district have the potential to effect abstractions further down stream which may be out of the district.

2.10.3 South Tyne Catchment and Tees Catchment

Based on the information from the other two catchment areas within the District it is likely that the majority of the rivers within these two highland catchments will classified as Grade C - fair or better (suitable for coarse fish populations).

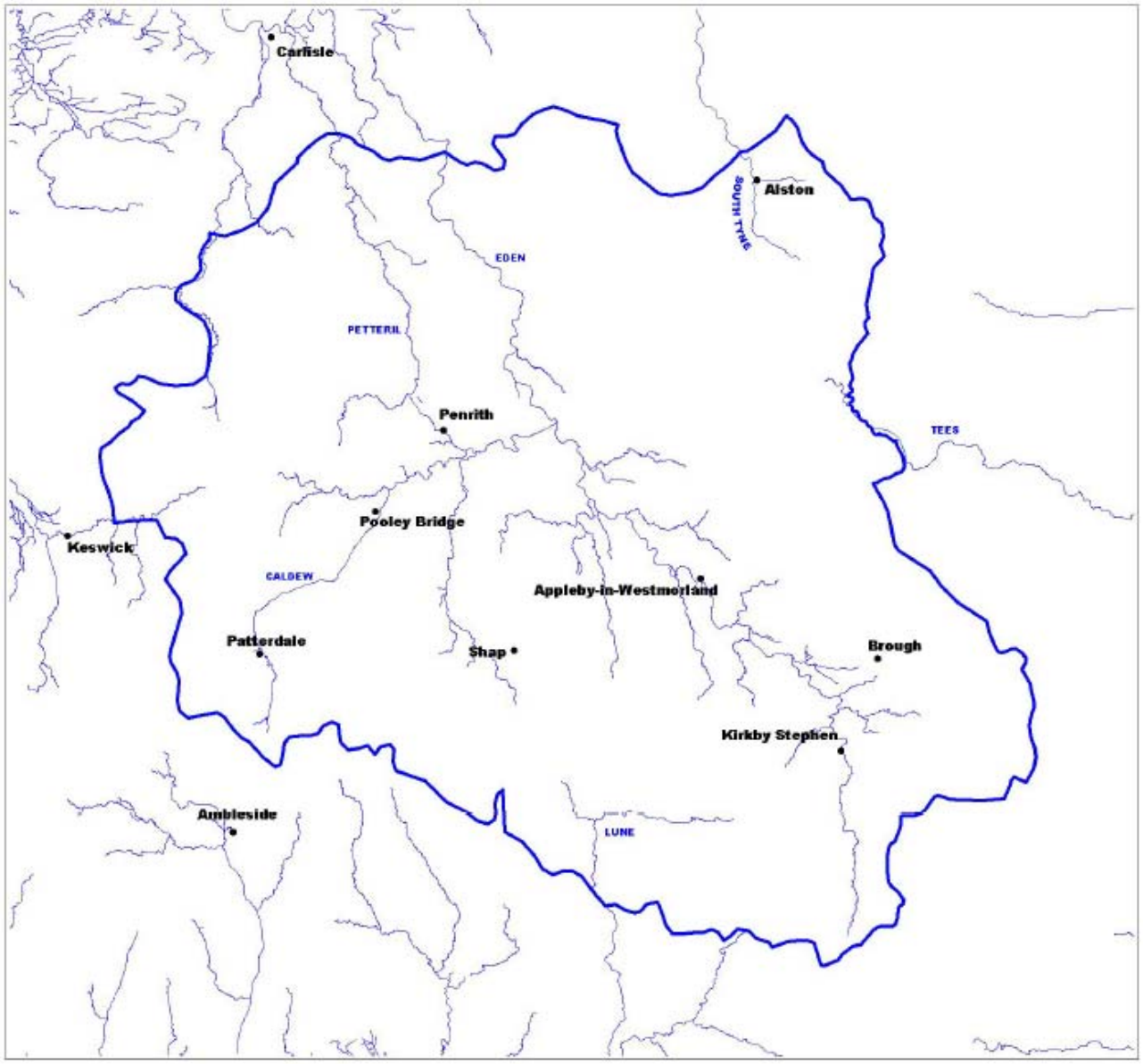

FIGURE 5: MAIN RIVER DRAINAGE FEATURES IN EDEN DISTRICT

legend

project
CONTAMINATED LAND INSPECTION STRATEGY

client
EDEN DISTRICT COUNCIL

scale
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2.11 Geological Characteristics

The present surface expression and land use of the District is in part a response to rock type, and as such, some aspects of geological and structural history are relevant.

The geological conditions have been assessed from the following British Geological Survey (BGS) maps: 1:50,000 Solid and Drift map Sheet 25 Alston; 1:50,000 Solid maps (s) and/or drift maps (d) Sheets 23(s) Cockermouth, 24(s&d) Penrith, 31(s) Brough-Under-Stainmore and Sheet 40(s) Kirby Stephen. In addition reference was made to BGS Geological Survey Ten Mile Map (1:625,000) North Sheet (solid).

The geology of the District can be categorised into four main rock types, which are listed here, youngest first. The Triassic Sherwood Sandstone and the Permian Penrith Sandstone which are mainly located in and around the Vale of Eden; the Carboniferous Millstone Grit deposits located in the area around Alston to the north west of the Distinct; the Carboniferous Limestone Series with rocks located to the eastern Pennine block (Alston Block) and to west of the Vale of Eden; the Ordovician age rocks of Borrowdale Volcanics, forming the central area of the Lake District (Lake District Dome), and the Skiddaw Group, which form the northern area of the Lake District.

Figure 7, shows the approximate solid geological boundaries present within the Eden District and a summary of the geological sequence is shown in Table 8 below, in age/deposition order.

River Terrace Deposits and Post-Glacial deposits of Alluvium, deposited within the last 10,000 years, are primarily associated with the main river valleys including the Rivers Eden, Eamont, Petteril, Tees and the South Tyne.

Boulder Clay (Glacial) deposits are present across much of the Vale of Eden and overlying the Carboniferous solid geology up the edge of the Lake District dome. Boulder clay is also present in the lower lying areas of Alston Block to the east of the District including within parts of the Tees valley and the South Tyne and Nent Valleys in the vicinity of Alston.

Table 8 - Generalised Geological Sequence of the District

Period	Age	Geological Unit	Characteristics
Quaternary 1.8 million years ago - present	Recent and Pleistocene	Alluvium	Soft clays, sand, silt and peat
		River Terrace Deposits	Sand and gravel
		Glacial Sand and Gravel	Sand and gravel, locally clayey
		Glacial Till	Stiff, pebbly, sandy clay

Period	Age	Geological Unit	Characteristics
Mesozoic 248-65 million years ago	Triassic	Sherwood Sandstone Group (St Bees Sandstone)	Red brown sandstones with conglomerate layers Soft sandstone with sub-angular pebbles
Paleozoic 543-248 million years ago	Permian	Eden Shales (including deposits of Gypsum and anhydrite)	
		Penrith Sandstone	Red brown sandstones
	Carboniferous	Coal Measures (Westphalian)	Mudstones interbedded with sandstones as well as coal seams
		MillStone Grit Series - (Namurian)	Alternating sequence of Shales, mudstones, sandstones and grits
		Limestone Series - (Dinantian)	Thick limestones interbedded with shales and sandstones.
	Devonian	-	Polygenetic and Mell Fell Conglomerates
	Silurian	Llandovery, Ludlow and Wenlock Series	Bow Gill Shales Bannisdale Slates Coniston Grits
	Ordovician	Ashgill & Caradoc Series	Swindale and Dufton Shales
		Borrowdale Volcanic Group	Deformed massive lavas and pyroclastics
		Skiddaw Group	Slates

2.11.1 Faulting

The geology of the Eden district is affected by numerous faults. Of particular interest is a major fault zone separating the Carboniferous strata of the Alston dome and the Permo-Triassic rocks of the Vale of Eden. This fault system is dominated by the Pennine Fault to the north of the District and by the Dent Fault to the south. The approximate line of these faults are shown in Figure seven. The Pennine Faults trends roughly north-south and downthrows to the west, bringing the younger Permo-Triassic sandstones (Penrith and St Bees respectively) in to contact with the Carboniferous sequence. Within this area small thrusts such as the Brownber Thrust carry Skiddaw Slates (Ordovician) over the lower carboniferous beds (see Figure seven).

In the south of the District the Dent Fault downthrows to the south east causing a faulted boundary between the older Silurian strata to the west and the Carboniferous Limestones to the east.

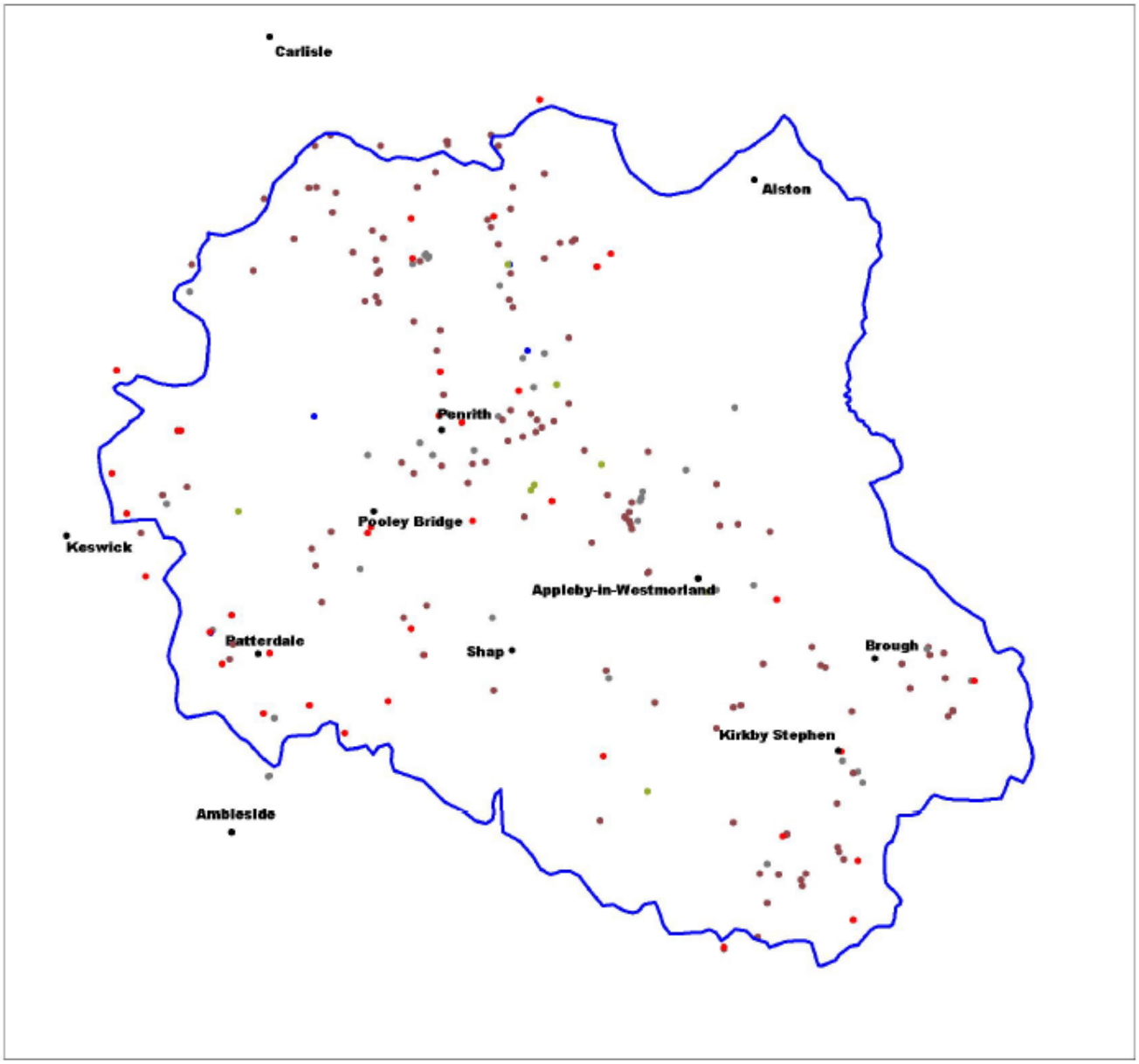

FIGURE 6: ENVIRONMENT AGENCY LICENSED WATER ABSTRACTIONS IN EDEN DISTRICT

legend

Eden District Council boundary

licensed water abstractions

- agriculture
- amenity
- industrial, commercial and public services
- production of energy
- water supply
- main settlements

project:
CONTAMINATED LAND INSPECTION STRATEGY

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EDEN DISTRICT COUNCIL

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2.11.2 Intrusive Rocks

Intrusive rocks in the form of the Skiddaw Granite and Shap Granite are present within the western area of the District. These rock outcrops are the result of late-orogenic forceful intrusions and have been dated to 380-400 million years in age.

To the eastern area of the District further intrusive rocks are present in the form of quartz-dolerite, dolerites and tholieiite. These intrusive rocks form parts of the Great Whin Sill (quartz-dolerite), which is the largest hypabyssal intrusion in Britain, and runs from the Farne Islands on the north east coast, south west towards Brampton and then south-east within the Eden District, closely parallel to the Pennine Fault zone.

A further major intrusion in the form of the Weardale Granite is present beneath the Alston Block.

2.12 Hydrological Characteristics

The Eden district is dominated by the River Eden Catchment in which water flows to the north, eventually discharging to the Solway Firth to the north of Carlisle. The rivers Eamont and Lowther are substantial tributaries of the River Eden. The area to the north west of Penrith, is drained by the River Petteril.

In the area of the district within the Lake District National Park, the lakes of Ullswater and Haweswater are large bodies of open water, receiving flows from a large proportion of the mountainous area to the north east of the national park.

Surface water to the north west of the district also generally has a northerly flow with most waters eventually discharging to the South Tyne. Except in part of the area surrounding Cross Fell where water drains to tributaries of the River Tees flowing to the east. To the west of the district, close to the A66 route, water flows westward via the Glenderamakin and Greta rivers to the River Derwent.

The principal river water drainage features are shown in Figure 5.

2.13 Hydrogeology

The hydrogeological conditions of the District have been assessed from the Environment Agency Groundwater Vulnerability Maps of the area (Sheets four and 7, 1:100,000 scale).

A summary of the hydrogeological features of the strata within the District is shown in Table 9 below.

Table 9 - Hydrogeological Features of the District

Strata Type	Hydrogeological Characteristics	Flow Mechanism	Geological Classification
Alluvium	Floors the main valleys	Intergranular	Minor Aquifer
River Terrace gravels	Occurs sporadically in the river valleys, but notably in Eden Valley. Resources can be locally important, in hydraulic continuity with watercourses	Intergranular	Minor Aquifer
Glacial Sands and Gravels	Occurs as masses within and above Glacial Till	Intergranular	Minor Aquifer
Glacial Till(Boulder Clay)	Clay with pebbles, averages 6m, locally thicker. Can yield small supplies from interbedded sands. Limits infiltration into major aquifers	Varied	Non Aquifer
Sherwood Sandstone Group (St Bees Sandstone)	Major water supply, high permeabilities and high yields. Unconfined in the central southern part of the District.	Intergranular/ Fracture	Major Aquifer
Penrith Sandstone	Major water supply, high permeabilities and high yields	Intergranular/ Fracture	Major Aquifer
Carboniferous Coal Measures	Sandstone layers act as separate aquifers, can support locally important supplies.	Fracture/ Intergranular	Minor Aquifer
MillStone Grit	Sandstone layers within sequence act as individual aquifer units	Fracture/ Intergranular	Minor Aquifer
Carboniferous Limestone Series	Thick and massive fissured beds, some show karstic features Locally flows are enhanced by solution weathering. Vulnerable to pollution	Fissure flow	Minor Aquifer

As can be seen from the table, the major geological strata within the District exhibit a variable ability to store and transmit groundwater. The Permian and Triassic sandstones form the District's principal aquifers. About 73% of the abstracted groundwaters are currently used for water supply purposes.

The Permian and Triassic sandstones beneath the District are a significant groundwater resource. They are exploited via boreholes. Figure 6 shows the Environment Agency's Licensed Water Abstraction points within the District, which includes both surface water and groundwater.

Groundwater is taken from several public water supply abstractions. It is also used to supply a number of industrial activities. However there are a large number of very small licensed abstractions for domestic or agricultural use.

The Environment Agency defines source protection zones around groundwater sourced public drinking water supplies. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. The maps show three main zones (inner, outer and total catchment) and a fourth zone of special interest, which we occasionally apply, to a groundwater source.

Zone 1 (Inner protection zone)
Any pollution that can travel to the borehole within fifty days from any point within the zone is classified as being inside zone 1. This zone also has a minimum 50 metre protection radius around the borehole.

Zone 2 (Outer protection zone)
The outer zone covers pollution that takes up to 400 days to travel to the borehole, or 25% of the total catchment area - whichever area is the biggest.

Zone 3 (Total catchment)
The total catchment is the total area needed to support removal of water from the borehole, and to support any discharge from the borehole.

Zone of special interest
Occasionally, a fourth zone is defined. This is usually where local conditions mean that industrial sites and other polluters could affect the groundwater source even though they are outside the normal catchment area.

Private water supplies are regulated by local authorities under The Private Water Supply Regulations 1991. These contain the same water quality standards as those for public water supplies but the testing frequency and regime will vary depending on the volume and use of each supply. Eden District Council regularly inspects the quality of private drinking water supplies.

Baseflow to the River Eden is maintained not only by inflows from tributaries but also to a large extent by seepages from the sandstone outcrops and by the widespread sand and gravel deposits associated with the rivers across the District. In the case of the River Eden, recent increases in the abstraction of groundwaters from sandstone deposits are being monitored as a precaution to ensure adverse environmental effects do not occur.

Groundwater is an important resource and under particular threat from pollution related to human activity.

2.14 Natural Contamination

Three areas have been reviewed from existing information published by the BGS. These are:

- radon and background radioactivity from natural sources;
- methane, carbon dioxide and oil seepages from natural sources and mining areas; and
- other potentially harmful elements from natural sources and mining areas.

2.14.1 Radon

Radon gas below the ground surface is associated with trace elements of uranium in underlying deposits. In many areas it is largely contained by the overlying impervious deposits, but in certain locations predominantly the fissured limestone areas it may diffuse upwards to the surface and may present a potential hazard to occupiers of buildings.

BGS information at 1:625,000 scale indicates that based on their classification of the underlying rocks, the District falls within the low, low to moderate and moderate and high Radon Potential Classes. This reflects the geology - the Carboniferous Limestone strata falling within the high and moderate classes, the Permian and Triassic sandstones and shales (Vale of Eden) and the Ordovician and Silurian deposits, to the west of the District, are mainly in the Low Class. For the Permian and Triassic deposits less than 1% of dwellings are estimated to be exceeding the 200 Bqm^3 Action Level, however for the Carboniferous Limestone strata 3-10% of dwellings are estimated to be exceeding the action level.

2.14.2 Methane, Carbon Dioxide and Oil Susceptibility

BGS information at 1:625,000 scale indicates that where the Coal Measures strata outcrop there is a moderate susceptibility to methane and carbon dioxide emissions and/or oil seeps at the surface and underground derived from the solid strata.

In the case of the Eden District the susceptibility varies with the variation in the solid and drift geology. Where Carboniferous Limestone and Millstone Grit strata are present, to the east and west of the Vale of Eden susceptibility is generally low. In the Vale of Eden itself where Permo-Triassic strata predominate, an intermediate category is defined where gas and/or oil may be encountered in boreholes, mines or tunnels intersecting buried (concealed) Carboniferous strata. The approximate depth to the top of the Carboniferous Strata in this area is broadly indicated at approximately Om below sea level (bsl) in the western side of the vale increasing to -600m (bsl) towards the eastern side.

Rock strata within the eastern Lakes area of the District present a low susceptibility to methane and carbon dioxide emissions and/or oil seeps at the surface and underground. However, within this area and more so to the west of the Vale of Eden

the presence of unconsolidated deposits (peat) do present a moderate susceptibility to methane and carbon dioxide emissions at the surface and underground.

2.14.3 Soil Geochemistry

In 1995 the BGS produced maps at a scale of 1:625,00 entitled 'Distribution of Areas with above the National Average Background Concentrations of Potentially Harmful elements (As, Cd, Cu, Pb and Zn). This was based on stream sediment data on either one sample per 1.6km² (BGS data) or one sample per 2.5km² (Wolfson Data). A computer procedure then classified the country in one km grid squares based on the highest level recorded for any grid square. The BGS Data, which covers the District, indicated the following ranges for classification of gridded stream sediment geochemical data (mg/kg):

Table 10 - Classification of Stream Sediment Geochemical Data

Element	Data Set	National Average Background (Bk)	Bk-<2Bk	2Bk-<4Bk	>4Bk
Arsenic	BGS	<65	65-130	130-260	>260
Cadmium	BGS	<4	4-8	8-16	>16
Copper	BGS	<110	110-220	220-440	>440
Lead	BGS	<120	120-240	240-480	>480
Zinc	BGS	<455	455-910	910-1820	>1820

In general it was concluded that the areas of more than four times the upper limit of the background value are likely to contain soil concentrations that would require further investigation on the basis of currently accepted guideline concentrations.

The plots, however, are generalised multi-element maps, which must not be relied upon as a source of detailed information about specific areas or as a substitute for appropriate assessment. Above background concentrations are intended as a prompt to consider whether further site specific information is required for the particular purpose. The maps merely indicate those areas where above background levels may be expected in soils and surface waters as well as stream sediments; they are not a guide to absolute concentrations in soil or water as influenced by a number of factors.

Within the District various areas have been indicated to have potentially harmful element concentrations, ie above four times the national average upper limit background levels. Generally the areas are located to the eastern and western sides of the District. It is probable from a comparison with the geology in the localities that most of the elevated occurrences are in relation to natural sources, related to mineralisation and the formation of a variety of metaliferous ores, some of which would have been mined, causing additional disturbance and distribution of the elements present.

2.15 Known Information on Contamination

There are several typical sources of historical land use as identified by the Industry Profiles produced originally by the Department of the Environment (DoE) that are known to have the potential to impact on land quality. Some examples of known potential sources within Eden are listed below:

- Landfills and filled ground
- Petrol Stations
- Road haulage sites
- Gas Works
- Dry Cleaners
- Industrial Sites
- Railway land
- Animal and animal products processing works
- Photographic processing industry
- Printing and bookbinding works
- Sewage works
- Textile works and dye works
- Timber products works
- Timber treatment works
- Transport and haulage centres
- Waste recycling and treatment sites

This is not an exhaustive list since, whilst the main operation of some industries would not be of particular concern they may, for example, have also operated their own delivery vehicles and even stored fuel on-site.

The Council also holds some specific information on sources of potential contamination from:

- Planning applications, desk top studies and site investigations,
- Polluting processes permitted under the Pollution Prevention and Control Regulations 2000 (approximately 72 in Eden),

- Licensed petroleum sites (approx 40 in Eden),
- Waste management permitted sites,
- Sites licensed under the Scrapyard and Motor Salvage Operator's legislation,
- Premises and sites which have been the source of complaints to the Council by the Public.

2.16 Land owned by the District Council

Eden District Council holds 65 full plans on current sites owned by the Council, which are then divided into 160 plans in the asset portfolio. These are also recorded as a separate layer on Eden District Council's GIS system.

2.17 Waste Management & Landfills

There is a range of waste management facilities in the district. Under The Landfill (England and Wales) Regulations 2002, waste must be classified as either inert, non-hazardous or hazardous. There are currently only two operational landfill sites within Eden which are permitted to accept non-hazardous waste. There are no landfill sites within Cumbria however that are currently permitted to accept hazardous waste. This has implications for the remediation of contaminated land since the popular option of 'dig and dump' may no longer be the most cost effective. Eden District Council is committed to the development of sustainable effective remedial treatments to deal with contamination.

2.18 Agricultural Disease - Carcase Disposal Sites

The foot and mouth disease outbreak in 2001 had a major impact in the district. A considerable number of sites within the district were used for carcase disposal. In addition there have been other on farm disposals relating to earlier outbreaks of foot and mouth and other animal diseases, eg anthrax. All the disposal sites used in the 2001 outbreak have been recorded and where other farm disposals have been identified this data has also been documented.

2.19 Redevelopment History and Controls

The District Council is currently engaged in preparing the Local Development Framework (LDF) under the 2004 Planning Act. Currently the LDF is at the Core Strategy (Preferred Options) stage, which sets out the vision, spatial objectives and core policies for the future development of the district.

The LDF must be in conformity with National Planning Policy, the Regional North West Plan prepared by the North West Regional Assembly and the Cumbria and Lake District Joint Structure Plan prepared by Cumbria County Council.

The development of the Contaminated Land Strategy and the subsequent historical land use information that has been collated is now being considered in the

preparation of new planning policies and proposals within the Local Development Framework.

In September 2005, Planning Policy Statement 23 (PPS23) was published which replaced Planning Policy Guidance 23. Annex 2 of PPS23 sets out the significance of development on sites where contamination issues may be relevant. Land contamination is a material planning consideration and this document sets out the role of the developer, the local planning authority (LPA) and the Environment Agency in the development of such sites. It recognizes that remediation of these sites through the development process can be highly effective and states that 'as a minimum after carrying out the development and commencement of its use, the land should not be capable of being determined as contaminated land under Part IIA of the EPA 1990.'

It clearly details that where development is proposed on land that is or may be affected by contamination, an environmental risk assessment should be carried out by the developer for consideration by the LPA. Before permission is granted, the LPA must first be satisfied that the risks are sufficiently well understood and that the development will deliver an appropriate and viable remediation scheme.

Consequently, if development is proposed on an area of land where the past or present use may have resulted in contamination issues, the Council will generally request a Phase 1 assessment (desktop study, walkover survey and preliminary risk assessment) as part of the planning process. Where that indicates a significant likelihood of land contamination issues, a Phase 2 assessment (site investigation and further risk assessment) will also be required, in order to be able to fulfill the requirements of PPS23. After an agreed remediation strategy has been completed, the Council will require validation and verification as to the final condition of the land.

In 2004 Approved Document C of The Building Regulations 2000 was revised. It addresses site preparation and resistance to contaminants and moisture. Significantly the revised document now incorporates the whole development site, the building and land associated with it, not simply the footprint of the building. It also incorporates those smaller developments that would not require planning permission and will also encompass sites where unsuspected contamination is discovered during development.

Eden District Council will draw to the immediate attention of all developers when information relating to potential land quality issues is identified for a site where development is proposed. It will also encourage developers to initiate pre-planning discussions where land quality issues may impact on site development.

2.20 Action Taken to Deal with Land Contamination

Through the planning process, potentially contaminated sites are being identified, risk assessed and where necessary remediated. This has resulted in many brownfield sites being brought back into beneficial use and no longer requiring consideration under the Part IIA requirements.

The processes required to initially identify contaminated sites, characterize the contamination present and then assess the risks posed by the contaminants is a highly complex and lengthy procedure. Until the risks have been quantified, a remedial options appraisal cannot begin. Once a remedial strategy has been decided and carried out, a validation and verification procedure is required to confirm the effectiveness of the chosen treatment.

Upon commencement of the use of the permitted development all of the above requirements will have been completed and submitted to the Council in order for any relevant planning conditions to have been discharged.

3. Eden District Council Strategy: Overall Aims

In developing its 'strategic' approach, the Council will take due regard of its local circumstances and currently available information. This will enable preliminary consideration of the following aspects:

- Available evidence that significant harm or pollution of controlled waters is actually being caused;
- The extent to which human and ecological receptors and controlled waters are distributed within different parts of the authority's area;
- The extent to which those receptors are likely to be exposed to a contaminant as a result of the use of the land or the geological and hydrogeological features of the area;
- The extent to which information on land contamination is already available;
- The history, scale and nature of industrial activities which may have contaminated the land in different parts of the District;
- The nature and timing of past development in different parts of the District;
- The extent to which remedial action has already been taken by the authority to deal with land-contamination problems, or is likely to be taken as part of the District's Local Plan and Development Plan for its area.

This section sets out the Council's particular aims and objectives.

3.1 Aims of the Strategy

In accordance with the requirements of a strategic approach set out in Section 1.2.5 a prioritised list of the Council's aims has been devised to aid decision-making in a cost-effective manner.

The Council's priorities in dealing with contaminated land will be to:

1) Protect human health.

2) Protect controlled waters.

3) Protect designated ecosystems.

4) Prevent damage to property.

5) Prevent further contamination of land.

6) Encourage voluntary remediation.

7) Encourage re-use of brownfield land.

The list is presented in priority order and in all cases will have regard to significance and likelihood, as required by the regulations.

3.2 Methodology for Achievement of Strategy Objectives

The inspection strategy uses a source-pathway-receptor model as an indication of plausible pollutant linkages. The strategy will also prioritise and review the condition of the receptors and potential contaminants, identifying immediate concerns and those which may need action in the future.

A map - based land categorisation and prioritisation method is being developed to enable the identification of minimum information requirements and the prioritisation of sites to be inspected in more detail. These requirements are:

i) Current land use plans.

ii) Locations of current and former landfills and other areas of filled ground.

iii) Locations of groundwater abstraction wells, both public and private.

iv) Current surface water classification under the Environment Agency's General Quality Assessment Chemical Grading for Rivers and Canals Scheme and the river ecosystem classification under the Surface Waters (River Ecosystem Classification) Regulations 1994.

v) Details of current and former discharge to water consents, issued to industrial operators.

vi) Location of statutory and non-statutory sites of ecological importance.

vii) Potential sources of contamination based on the industries listed in the DOE Industry Profiles.

viii) The current and historical locations of these industries based on current and historical records.

Assimilation of questionnaire responses from the various departments within the Council, followed by a data audit, has enabled existing information of relevance to the strategy to be identified together with information gaps which will need to be addressed and prioritised.

Eden District is essentially a rural area with the population concentrated in relatively few towns and large villages. The Council's first priority in dealing with contaminated land is to protect human health. Given that the limited industrial development in the District is also focused in the main centres of population, the urban areas are at the highest risk of having all three elements of a pollutant linkage which could cause significant harm to human health.

As such, an indicative approximation of risk could screen out the majority of the District. However, the land uses associated with particular types of receptor also need to be considered together with potential sources of pollution outside the urban areas. In order to fulfill the aims of this strategy the following aspects were initially identified for assessment:

- The accuracy to which the various data sets can realistically be resolved (for example, proximity of sources of contamination to particular receptors of no less than 50m);
- The necessity to undertake some preliminary (visual) inspection of the District on a fairly cursory basis (eg walk/drive around the area) targeted at specific issues;
- The use of the Council's Geographical Information System (GIS) to manage contaminated land information;
- The use of a scoring system to assist in assigning a priority to various areas of land and decide which areas of land are likely to justify more detailed individual inspection;
- Evidence of an existing problem;
- Likelihood that past remediation work has reduced the potential for the presence of contamination sources;
- Imminent redevelopment proposals where the potential for contamination is being addressed by the planning and development control system;
- Highlight areas identified by the Local Plan which are expected to undergo development before the next review data identified in the Inspection Strategy;
- Assessment of land for which the Council may be the 'appropriate person';
- Information provided to the Council by other statutory bodies (eg Environment Agency, DEFRA (formerly MAFF), conservation/heritage bodies); and
- Information provided to the Council by businesses, the general public or other organisations and individuals.

3.3 Achievements since Initial Strategy Production

Since 2001 and the publication of this strategy, work has been ongoing in accordance with the objectives set out within this strategy.

- Historical mapping data was purchased from Landmark plc and derives from all the previous editions of the Ordnance Survey maps. It identifies historical land uses from the 1850s until 1994 within six time periods. This has been loaded onto the Council's GIS within these epochs. This has led to the identification of between 5,000 and 6,000 potential sites for consideration.

- A proprietary GIS based contaminated land database was purchased which directly links to the Council's GIS system. The process of adding the information of both potential and identified sources and any factual site data including any remediation undertaken has commenced and is progressing.

- After further analysis of the results produced from the receptor-source proximity model described in the original strategy a further refined risk screening model was finally adopted, the details of which are included in Appendix 2.

- In line with the requirements of PPS23, when potential sites are identified during the development process, risk assessments are required in support of the planning application to ensure the necessary planning controls are put in place and therefore a safe form of development ensues. For all sites identified through this process, it is ensured that after the use commences, the site could not be determined under Part IIA. In the two year period 2004-2006, 66 potentially contaminated sites were identified through the planning process.

- Where the Council becomes aware of an incident which may impact on land quality, eg domestic oil tank spill, it endeavours to ensure that the issue is resolved and dealt with effectively such that the site will not need to be considered under the Contaminated Land Strategy as a result of that incident.

- Review of information held and provided guidance on potential contamination issues for proposed housing sites within local service centres and other villages for inclusion within the Local Development Framework Housing Review.

- Eden District Council forms part of the Cumbria Contaminated Land Group which has been actively involved in raising the profile and understanding of contaminated land and co-ordinating a consistent approach throughout the county. This has involved organising a training day for local authorities' development control and building control officers within the county; the production of a guidance leaflet for developers of brownfield sites and the design of a training package for Councillors which was successfully delivered initially within Eden in January 2007.

- Eden District Council represents Cumbria on the Chartered Institute of Environmental Health's Standing Conference for Contaminated Land's Planning Sub-group through the involvement of the Contaminated Land Officer (CLO). This has led to the development of draft national planning conditions which are currently being reviewed by the Department for Communities and Local Government.

- Following the suspension of the production of Soil Guideline Values to assist in the assessment of risks to human health from specific contaminants, Eden District Council was involved in the workshop production of Generic Assessment Criteria organized by Land Quality Management for a further 31 contaminants. This has now been published as a book and is widely used within the Contaminated Land community.

- Eden District Council is actively involved with the CIRIA Management Committee for the Local Authority Contaminated Land Network, representing the North West local authorities. The main aim being to improve regional training opportunities and reduce the need for extensive travel to obtain the required knowledge.

- The Council's internal contaminated land working group continues to meet regularly on a six-monthly basis.

3.4 Achievement of Strategy Aims

Examples of how the strategy aims are being met by Eden District Council:

Protect human health

- Remediation of former petrol stations to allow a residential development.

- Remediation of former haulage yards to allow residential development.

- Gas monitoring on former piggery to assess remedial measures required for residential development.

- Remediation of site identified with lead mining waste deposits to allow residential development.

Protect controlled waters

- Remediation of a former gas works to reduce and minimise the impact to the River Eden and allow the development of a community resource.

- Groundwater monitoring to assess impact from herbicides used on railway sidings.

Protect designated ecosystems

- Co-ordinating a multi-organisation working group to investigate the impact from a former lead mine.

Prevent damage to property

- Co-ordination of investigation and remediation of the impact from a leak from a commercial heating oil tank.

- Review remediation carried out from accidental discharge from domestic oil tank.

Prevent further contamination of land

- Regulation of current industrial processes through the issue and review of local authority Pollution Prevention and Control permits.

Encourage voluntary remediation

- Removal and validation of soil quality surrounding an underground fuel storage tank identified during the construction process.

- Provide guidance and advice to loss adjustors regarding appropriate remediation for leaks from oil tanks.

Encourage re-use of brownfield land

- Risk assessment of former timber treatment works to establish cost benefit analysis for potential residential redevelopment.

- Provide advice on potential housing sites regarding known historic land uses.

4. Local Authority Priority Actions and Timescales

This section defines the specific approach of the Council, taking account of the legal requirements and the characteristics of the district set out in Sections 1 and 2 and the particular aims and objectives set out in Section 3.

4.1 Priorities

The first activity after the publication of this strategy was to obtain information on current land use; local authority owned land; and public and private water abstraction points. The land use categories are: housing; schools; allotments; informal play areas; playing fields; public open space, commercial development; industrial development and agriculture. This data will be plotted on appropriately scaled maps of the District.

Data on important protected habitats, surface water features, solid geology, Environment Agency abstraction sites and landfill sites are shown in Figures 3 to 8 at a scale of 1:250,000. The accuracy of these and other data sets at a more detailed scale will be reviewed.

Historical mapping information was purchased through Landmark plc and together with locally sourced information this now identifies the majority of the sites of potential concern identified from their historical land use.

There are anticipated to be around 5,000 - 6,000 historic land use sites identified within the district boundary that will require further investigation in order to assess whether they warrant consideration under Part IIA. These sites are currently in the process of being recorded within the historic land use database and an associated spatial area recorded within the Council's GIS system. This is currently the main area of work. Once this work has been completed an initial risk assessment of all the sites can be made which may result in fewer sites requiring consideration under the Part IIA process.

4.2 Timescales

An annual progress report will now be implemented commencing in 2008, this will include a review of the achievements of the previous year and the targets for the following twelve months.

The timescales for the prioritised activities identified in 4.1 are shown in Appendix 1 and cover the period 2007-2008.

5. Procedures

5.1 Internal Management Arrangements for Inspection and Identification

The Contaminated Land Officer (CLO) has the responsibility for the implementation of Part IIA and all other contaminated land issues within Eden. As part of the Environmental Team, the CLO reports to the Principal Environmental Health Officer (Pollution).

In October 2001, a temporary post of Support Officer: Contaminated Land was established to assist with the compilation of data and the building up of a land database and GIS based mapping system. The officer was employed as a 0.5 FTE. This post continued with several changes of staff which has hindered the data collection process. In September 2005, the current post holder commenced and this has provided a stable and consistent approach to this work.

During this time the duties have evolved resulting in a significant increase in workload. Following a management review, it was decided that a permanent half-time Contaminated Land Officer was required starting from April 2007. The CLO is responsible for the day-to-day management of the workload and implementation of the strategy. The CLO in close consultation with the Principal EHO (Pollution) Officer are responsible for serving remediation notices.

The current workload is divided between the requirements of collating data described within this document for Part IIA purposes and ensuring that those sites passing through the development process are dealt with appropriately. As a consequence of the complexity of assessing a potentially contaminated site, the time spent dealing with development sites accounts for an estimated 80% of the CLO's time.

A Contaminated Land Regime Working Group was set up in October 2000, accountable to the Council's Management Team through the Director of Technical Services. The purpose of the Contaminated Land Regime Working Group is to fulfil the Council's legislative responsibilities as a regulator, planning authority and landowner in respect of the regime. It comprises representatives from the following service areas - Planning Partnership, Environment and Community Services, Economic Development and Information Technology. To ensure a co-ordinated approach, the working group initially met quarterly and currently meet on a six monthly basis.

Elected members will be informed at the earliest opportunity of any plans to determine an area of Council-owned land, or where the Council is the 'appropriate' person and may be liable for remediation costs.

5.2 Considering Local Authority Interests in Land

As indicated in Sections 2 and 3, Eden District Council holds 65 full plans on current sites owned by the Council, which are then divided into 160 plans in the asset portfolio. Assessment of this land was initially identified as a priority in the original strategy. Whilst this land has been mapped on the Council's GIS system, further work is now required in order to assess each of the sites. This has been agreed as a priority activity for 2007-2008 with the Technical Consultancy Team (see Appendix 1)

5.3 Information Collection

The questionnaire circulated to various departments within the Council identified a number of information sources to identify potential sources of contamination, potential receptors and the nature of potential pathways. These information sources were broadly classified under the headings of conservation data, geology, hydrology, hydrogeology, land use, and natural contamination.

The receptor source-proximity relative risk-screening model is provided in Appendix 2.

5.4 Voluntary Information Provision and Complaints

Information may be provided to the Council by the general public, businesses or other organisations and individuals, either as a complaint regarding contaminated land or relating to land contamination that is not directly affecting them. Procedures to address these complaints or acts of information provision are detailed here.

5.4.1 Complaints

A complaint regarding contaminated land will be dealt with following the same procedure as currently used by the Environmental Services Section to deal with statutory nuisance complaints.

All complainants may expect:

- their complaint to be logged and recorded;
- to be contacted by an officer regarding their complaint within five working days of receipt;
- to be kept informed of progress towards resolution of the problem.

Every effort will be made to resolve complaints quickly and efficiently. It must be recognised however, that the legislation requires the following process in the designation of contaminated land:

i) Proof of a viable pollutant linkage before any formal designation as contaminated land is permissible, which might only be possible with detailed investigation.

ii) Prior consultation with interested parties before designation as contaminated land.

iii) A minimum of a three month period between designation and serving of a remediation notice.

iv) The requirement for the enforcing authority to make every effort to identify the original polluter of the land (or “Class A” person).

The regulations allow conditions (ii) and (iii) to be waived in extreme cases, but not conditions (i) and (iv).

Information provided as a result of a complaint will be assessed using receptor source-proximity model shown in appendix 2.

5.4.2 Confidentiality

All complainants will be asked to supply their names and addresses and, if appropriate, the address giving rise to the complaint. The identity of the complainant will remain confidential. The only circumstance in which this information might be made public would be in the case of a remediation notice being appealed in a court of law when an adverse effect on the complainant’s health was an important reason for the original contaminated land designation.

5.4.3 Voluntary Provision of Information

If a person or organisation provides information relating to contaminated land that is not directly affecting their own health, the health of their families or their property, this will not be treated as a complaint. The information will be recorded and may be acted upon. There will, however, be no obligation for the Council to keep the person or organisation informed of progress towards resolution, although it may choose to do so as general good practice.

5.4.4 Anonymously Supplied Information

The Council does not normally undertake any investigation based on anonymously supplied information, and this general policy will be adopted for contaminated land issues. This policy does not, however, preclude investigation of an anonymous complaint in exceptional circumstances.

5.4.5 Anecdotal Evidence

Any anecdotal evidence provided to the Council relating to contaminated land will be noted, but no designation of contaminated land will occur without robust scientific evidence. In all cases, the Lead officer will use knowledge and experience to decide what, if any, further investigation is required following a complaint or a provision of information.

5.5 Information Evaluation

All information on substances in, on or under the ground that may cause significant harm or pollution will be evaluated against current governmental guidelines.

The Department for the Environment published extensive guidance after the Regulations were initially issued. In 2004 Contaminated Land Research 11 (CLR11) 'Model Procedures for the Management of Contaminated Land' were published which clearly identify the decision processes required for the investigation and remediation of contaminated land. These incorporate existing good technical practice including the use of risk assessment and risk management techniques, into a systematic process for identifying, making decisions about and taking appropriate action to deal with contamination, in a way which is consistent with UK policy and legislative requirements. Additionally there is extensive technical guidance available for those 'suitably competent' practitioners dealing with these sites.

5.5.1 Soil

The Environment Agency issued the Contaminated Land Exposure Assessment (CLEA) human health risk assessment model in 2002. This was designed to allow site specific assessment of human health risks from contaminants identified on a site. This system was used for the generation of generic assessment criteria, for individual contaminants called the soil guideline values (SGVs). CLEA was withdrawn in 2005 amid concerns among the contaminated land community that the results produced were overly conservative and not a true reflection of the risks from a site. The current guidance and methodology that Eden District Council follows is that an exceedance of an SGV does not automatically indicate that there is an unacceptable risk to human health, but that additional risk assessment is warranted.

Currently the Environment Agency has an updated beta system CLEA UK, available for trial. However this has not been fully endorsed for use in the determination of unacceptable levels of risk to human health. The use of risk assessment models developed in other countries will be considered, with due regard that these will have been developed to support particular policy and/or regulatory frameworks in the country of origin. These may differ significantly from UK legislation and guidance.

5.5.2 Soil-Gas

Assessment of data on the soil-gas regime will use relevant guidance provided by the Construction Industry Research and Information Association (CIRIA):

- Report 149 ‘Protecting Development from Methane (1995);
- Report 151 ‘Interpreting Measurements of Gas in the Ground’ (1995);
- Report 152 ‘Risk Assessment for Methane and Other Gases from the Ground’ (1995)
- Report C659 ‘Assessing risks posed by hazardous ground gases to buildings’ (2006)

Together with guidance from National House-Building Council & RSK Group PLC in Report Edition 04 Guidance on Evaluation of Development Proposals on Sites Where Methane and Carbon Dioxide are Present (2007) and the Environment Agency & Building Research Establishment document Protective Measures for Housing on Gas-Contaminated Land (2001).

5.5.3 Controlled Waters

Advice will be sought from the Environment Agency on risk assessment if controlled waters are the receptor in a particular pollutant linkage. It is anticipated, however, that risk assessments and remediation will be carried out in accordance with Environment Agency guidance set out in:

- ConSim version 2 (2003)
- Guidance on the Assessment and Monitoring of Natural Attenuation of Contaminants in Groundwater, R & D 95 (2000)
- Hydrogeological risk assessment for land contamination - Remedial targets methodology (2006).

5.6 Interaction with Other Regulatory Regimes

The planning, water pollution and PPC legislation are considered the most significant regimes where there are overlaps with regulatory action that could be taken to deal with land contamination. These are outlined individually below. Any issues of land contamination that may previously have been dealt with under the statutory nuisance regime will now be dealt with through Part IIA processes.

5.6.1 Planning

The vast majority of contaminated land issues are currently addressed through the planning regime, where land contamination is a material consideration. While the introduction of Part IIA will undoubtedly lead to the problems of additional sites

being addressed, it is anticipated that redevelopment of brownfield sites, and the associated planning controls, will remain the primary mechanism for dealing with contaminated land. In accordance with PPS23, where development is proposed on land that is or may be affected by contamination, an assessment of risk should be carried out by the applicant for consideration by Eden District Council. Any remediation agreed as a planning condition will be dealt with under planning controls and not under Part IIA.

5.6.2 Water Pollution

The Water Resources Act 1991 gives the Environment Agency powers to deal with harm to controlled waters being caused by contaminated land. While Part IIA legislation does not revoke these powers, DEFRA deem that such problems should now be dealt with under the new contaminated land regime. The following steps will be taken:

- the Council will consult with the Environment Agency before designating any contaminated land as a result of risk to controlled waters and will take account of any comments made with respect to remediation; and

- If the Agency identifies a risk to controlled waters from contaminated land, the Council will be notified to enable the Council to consider designation of the land and remedial action to be taken under Part IIA.

5.6.3 Integrated Pollution Prevention and Control (IPPC)

Under new legislation to regulate pollution from industrial processes, site operators of certain industrial processes are required to undertake a site condition survey prior to receiving a license to operate. If the site condition is such that areas of land meet the definition of contaminated land, then submission of a site survey may trigger action under Part IIA.

6. Liaison and Communication

Effective liaison with other bodies is central to the implementation of this strategy. Liaison mechanisms are identified in this section.

6.1 Statutory Consultees

Statutory consultees for the contaminated land inspection strategy are:

- Environment Agency;
- Natural England
- English Heritage;
- Department for Environment, Food and Rural Affairs;
- Food Standards Agency;
- North West Development Agency;
- Cumbria County Council;
- The Lake District National Park Authority; and
- adjoining local authorities.

Each of these organisations was invited to comment on the consultation draft of the strategy.

6.2 Non-Statutory Consultees

There is considerable scope for members of the public, businesses and voluntary organisations to make important contributions in dealing with contaminated land in the District. In particular the Parish Council's within the District could be an important source of information regarding local knowledge they may possess on potentially contaminative land uses in the past.

The strategy will be published on the District's web site and every effort will be made to encourage participation by non-statutory consultees in the process of identifying potentially contaminated land.

6.3 Communicating with Owners, Occupiers and Other Interested Parties

The District Council's approach to its regulatory duties is to seek voluntary action before taking enforcement action. This approach will be adopted for issues of land contamination, recognising that in many cases as much or more effective

remediation can be achieved by agreement than by enforcement.

This approach requires effective communication with owners, occupiers and other interested parties in respect of detailed inspections and the preparation of written records of determinations that particular areas of land are contaminated land. The lead officer will be the central contact point within the authority on contaminated land issues and keep owners, occupiers and other interested parties informed as necessary and regardless of whether there is a formal designation of contaminated land.

6.4 Powers of Entry

Under Section 108 (6) of the Environment Act the Council has been granted powers of entry to carry out investigation. At least seven days notice will be given of proposed entry onto any premises, unless there is an immediate risk to human health or the environment.

6.5 Risk Communication

In accordance with the Environment Agency and Scotland and Northern Ireland Forum for Environmental Research publication 'Communicating Understanding of Contaminated Land Risks', the Council recognises that decisions about contaminated land are not made on a purely technical basis.

Procedures will be based on criteria which address:

- the need for two-way communication;
- to create trust in the regulatory role; and
- openness to enhance the legitimacy of the overall process to any interested party.

Each site will be different and as such risk communication will need to operate in a structured but flexible framework and reflect the content and history around a particular contaminated site.

The Council recognises that the statutory definition of contaminated land requires that there is a risk of significant harm or pollution of controlled waters and that the expectations of some members of the public will not be met by the powers the local authority may exercise under the Part IIA regime.

6.6 The Public Register

Under the regulations, the Council is required to maintain a public contaminated land register. The register will be held by the Environmental Services Section at the Council's office at Mansion House, Penrith. It will be accessible on request by members of the public during office hours, Monday to Friday.

The regulations clearly specify the information that can be recorded on this register. This register will therefore include:

- remediation notices;
- details of the site reports obtained by the authority relating to remediation notices;
- remediation declarations, remediation statements and notification of claimed remediation;
- designation of sites as ‘special sites’;
- any appeals lodged against remediation and charging notices; and
- convictions.

The public register will not include details of historic land use and other records used in the assessment and investigation of potentially contaminated land. These are research documents and as such will not be made available to the public unless this information is already in the public domain.

6.7 Provision of information to the Environment Agency

The Environment Agency is required to prepare an Annual Report for the Secretary of State on the state of contaminated land in England and Wales. This report will include:

- a summary of local authority inspection strategies, including progress against the strategy and its effectiveness;
- the amount of contaminated land and the nature of the contamination; and
- measures taken to remediate land.

As local authorities are the lead regulators on contaminated land, with the Environment Agency regulating only some categories of sites, the national survey will clearly be reliant on information provided by local authorities. A memorandum of understanding has been drawn up between the Environment Agency and the Local Government Association that describes how information will be exchanged between the local authority and the Environment Agency. The Council will therefore provide information to the Environment Agency following the guidelines agreed through this national forum.

The local authority must also provide information to the Environment Agency whenever a site is designated as contaminated land, and whenever a remediation notice, statement or declaration is issued or agreed. The Environment Agency has provided standard forms allowing this information to be provided in a consistent format and the Council will adopt these to fulfil its reporting requirements.

7. Programme and Arrangements for Detailed Inspection of High Priority Sites

7.1 Site Specific Liaison and Powers of Entry

Under Section 108 (6) of the Environment Act 1995, the Council has been granted powers of entry to carry out investigation.

Before the Council carries out an inspection using statutory powers of entry it will have carried out site specific liaison with owners, appropriate persons, the Environment Agency, English Nature, or English Heritage, and satisfied itself on the basis of any information already obtained that:

- there is a reasonable possibility that a pollutant linkage exists on the land; and

- in cases involving intrusive investigation that it is likely that the contaminant is actually present and that given the current use of the land, the receptor is actually present or is likely to be present.

The Council will not carry out an inspection using statutory powers of entry which takes the form of intrusive investigation if:

- it has already been provided with detailed information on the condition of the land upon which the Council can determine whether the land is contaminated; or

- a person offers to provide such information within a reasonable and specified time, and then provides such information within that time.

Where the Council decides to carry out intrusive investigation it will be in accordance with appropriate technical procedures and guidance for such investigations.

7.2 Formal Designation of Contaminated Land

The Council will prepare a written record of any determination that particular land is contaminated land. The record will include:

i) A description of the particular significant pollutant linkage, identifying all three components of the contaminant, pathway and receptor.

ii) A summary of the evidence upon which the determination is based.

iii) A summary of the relevant assessment of this evidence.

iv) A summary of the way in which the authority considers that the requirements of statutory guidance have been satisfied.

When a formal designation of contaminated land is made, the following actions will be undertaken:

- write to the owner and/or the occupier of the land, as well as the Environment Agency, at least twenty-five working days prior to designation, explaining in summary the reason for the intended designation;

- write to the owner and/or the occupier within five working days explaining the land has been designated as contaminated land and seeking appropriate remediation without service of a notice;

- if requested, dispatch a copy of the written risk assessment to the owner and/or occupier of the land within five working days of receipt of a request; and

- write to the owner/occupier of neighbouring properties and/or the complainant within five working days of designation.

Should an urgent designation of contaminated land be required, these steps will be observed as far as practicable, although some deviation from the timescales specified is to be expected.

8. Review Mechanisms

The strategy and supporting information outlines the overall approach the Council will adopt in inspecting land within its area. It is intended that this strategy is flexible enough to allow the review of assumptions and information obtained, and remain effective and up-to-date. These aspects are set out in this section.

8.1 Triggers for Undertaking Inspection

The procedures in Section 5 and the timetable in Appendix 1 have recognised that there may be occasions when the assessment of data and inspections may have to be undertaken outside the general inspection framework. These include:

- responding to information from other statutory bodies, owners, occupiers, the general public or other organisations;
- the introduction of new receptors as a result of particular land uses identified in the Local Plan;
- dealing with urgent sites as identified (eg as a result of unplanned events); and
- supporting voluntary remediation where a potentially liable party wishes to undertake a clean-up before their land has been inspected by the local authority.

The extent to which these events might disrupt the overall inspection timetable will be a consideration in the annual progress reviews.

8.2 Triggers for Reviewing Inspection Decisions

It is intended that all decisions made with regard to contamination will to be made objectively, consistently, transparently, and with proper regard to uncertainty. One important aspect of managing contaminated land is the need to review from time to time, the decisions that no action is necessary, to establish whether any material changes have occurred. Examples of factors which influence the decisions and which have the potential to change include:

- site use;
- use of adjoining land;
- climatic or meteorological change;
- change in physical characteristics, eg the water environment;
- legislative or internal or external policy changes;
- technical standards or procedures;

- ability for actions by humans or other agents to reduce the effectiveness of remedial measures.

All decisions will therefore be made and recorded in a consistent manner that will allow efficient review.

8.3 Reviewing the Strategy

Following on from this full strategy review (Summer 2007), an annual progress report will be published commencing Summer 2008 and every five years a full strategy review will be undertaken. This full review will take into account changes in guidance, legislation and the progress made in the preceding five years. The annual progress report will review the preceding year's work and set out the targets for the forthcoming twelve months.

9. Information Management

A Geographical Information System (GIS) provides an ideal data management tool through which the risk assessment phase of the strategy can be managed.

Eden has an operational GIS, Cartology, which is used, at various levels, by several departments. Landmark historical mapping datasets were purchased and have been loaded as individual layers onto the system to provide a spatial distribution of potential sources of contamination.

Additionally, a proprietary contaminated land database specifically designed to link with Cartology was purchased. It has the facility to store detailed site specific data together with a spatial GIS layer. This has been populated with 1,300 sites so far although the sources of this information appear in many circumstances to be additional to the Landmark data. Consequently a spatial review of these sites in comparison with the Landmark mapping data is required.

The authority also has a Service Level Agreement with the Ordnance Survey, which gives Eden access to certain formatted OS digital data.

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8) British Geological Survey1:50,000 scale Solid Maps: Sheet 23, 24, 31 & 40

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Appendix 1 - Inspection Priority Activities

Priority Activities for the Period 2007 - 2008

1) Review the source category ratings used within the risk screening model to prioritise potential contaminated land sites.

2) Development of an electronic site walkover assessment form. This will allow trained officers to gather field data and directly upload to the FastGCIS database system on their return to the office. This will avoid double handling of data and streamline the data collection process.

3) Progress with reviewing the existing 1,300 sites recorded within the FastGCIS system against the Landmark plc mapped sites.

4) The Council's Technical Consultancy Team in conjunction with the Legal Services Team will collate any information held on the Council owned sites. This will then enable the sites to be risk screened and priortised using the protocol set out in Appendix 2.

5) Penrith New Squares is a 4 hectare predominantly brownfield development commencing 2007/08. The CLO will be actively involved on contaminated land issues relating to this site.

6) Greenside Mine, Glenridding is an ongoing multi-agency project. EDC are the regulator of this site and the CLO co-ordinates the partnership and is actively involved in the assessment process.

Priority activities 1, 2, 3 and 4 relate directly to the progression of the strategy through Part IIA. Priority activities 5 and 6 follow the overarching aims of the strategy.

Appendix 2 - Protocol for Risk Screening to prioritise Potential Contaminated Land Sites for Further Investigation

Potential contaminated land sites are geo-referenced and logged on the contaminated land database. These sites are identified from various sources including: Landmark's 'Historical Land Use Data' and 'Petrol Station Location Data', the EPA 'Authorised Processes' files, 'Open/Closed Landfill Site Registers' provided by the Environment Agency and Cumbria County Council, Eden District Council's files and a number of other sources.

10.1 Sources

As a starting point the Department of the Environment's *Industry Profiles* were used to identify types of industry that had the potential to contaminate land. The 52 industry types listed in these profiles were ranked in order of their potential to cause serious land contamination by examining the 'key contaminants' associated with each. These 'key contaminants' are listed in tables 2.3 and 2.4 in the DEFRA/Environment Agency's *Potential Contaminants for the Assessment of Land* (R&D Publication CLR 8). The different contaminants were categorised according to whether they were 'List I', 'List II' or 'Other' substances. Each 'List I' contaminant was given a score of 2, each 'List II' contaminant a score of 1 and each 'Other' contaminant was given a score of 0.5. Thus, each particular industry type could be given an overall score derived from the type and number of contaminants associated with it.

The purpose of producing these scores was to obtain some measure of 'potential risk' for each industry type in order to incorporate 'source' data into a risk assessment model. The scores for the industry types ranged from 26 to 7 and after ranking they were separated into quartiles (see Table 1). The industry types with the highest 25% of scores were given a 'source risk' value of 1.25, whilst the industry types with the lowest 25% of scores were given a 'source risk' value of 0.75. The remaining industry types were given a 'source risk' value of 1.0 (Table 1 gives the 'source risk' value for each of the 52 industry types).

The potential contaminated land sites were then matched to a particular industry type and allocated the relevant score. Sites that could not be matched to an industry type listed in the DoE profiles were given a score of 0.5.

Note 2: Sewage works and sewage farms were within the top quartile for source risks with a multiplier value of 1.25. However, as wastewater treatment works are managed and monitored to prevent pollution it was decided that the multiplier value should be lowered to 1.0 for sites that were listed as being monitored by the Environment Agency and/or owned by United Utilities. The remaining sites, which were not included on the Environment Agency monitoring list or the United Utilities asset list, were still given a 'source risk' multiplier value of 1.25.

10.2 Receptors

Five categories of receptor were recognised and each was given a score to reflect the priorities given in the Council's Contaminated Land Strategy document.

Receptor category	Priority score
Human Receptors	3
Drinking Water Supply	3
Controlled Waters	2
Ecological Systems	1
Property	1

10.3 Pathways

Following the DoE's *Prioritisation and Categorisation Procedure for Sites Which May be Contaminated* (CLR Report No 6), the potential linkages between the contamination source and receptors were identified. Each potential linkage 'pathway' was then given a score as follows:

10.3.1 Pathways to Human Receptors

1) Residential, schools, playgrounds, allotments, hospitals < 50m from site **Score = 3**

2) Commercial, industrial premises < 50 m from site **Score = 2**

3) Residential, schools, playgrounds, allotments, hospitals 50–250 m from site **Score = 2**

10.3.2 Drinking Water Supply

1) Within Source Protection Zone 1 or 2 **Score = 3**

2) Within Source Protection Zone 3 **Score = 2**

3) Private Water Supply within 250m **Score = 2**

10.3.3 Controlled Waters: surface water vulnerability

1) Surface water < 50 m from site **Score = 3**

2) Surface water within catchment and < 500 m from site **Score = 2**

3) Surface Water outside catchment and < 500 m from site **Score = 1**

10.4 Controlled Waters: groundwater vulnerability

1) Site on major aquifer **Score = 3**

2) Site on minor aquifer **Score = 2**

3) Site on non-aquifer **Score = 0**

10.5 Protected Ecological Systems

1) On or adjacent to site **Score = 3**

2) Within < 250 m from site **Score = 2**

10.6 Property

Buildings, ancient monuments, archaeological sites, crops, produce, livestock and domesticated animals:

1) On or adjacent to site **Score = 3**

2) Within < 250 m from site **Score = 2**

10.7 Planned Development

1) Residential development on site **Score = 3**

2) Residential development adjacent to site **Score = 2**

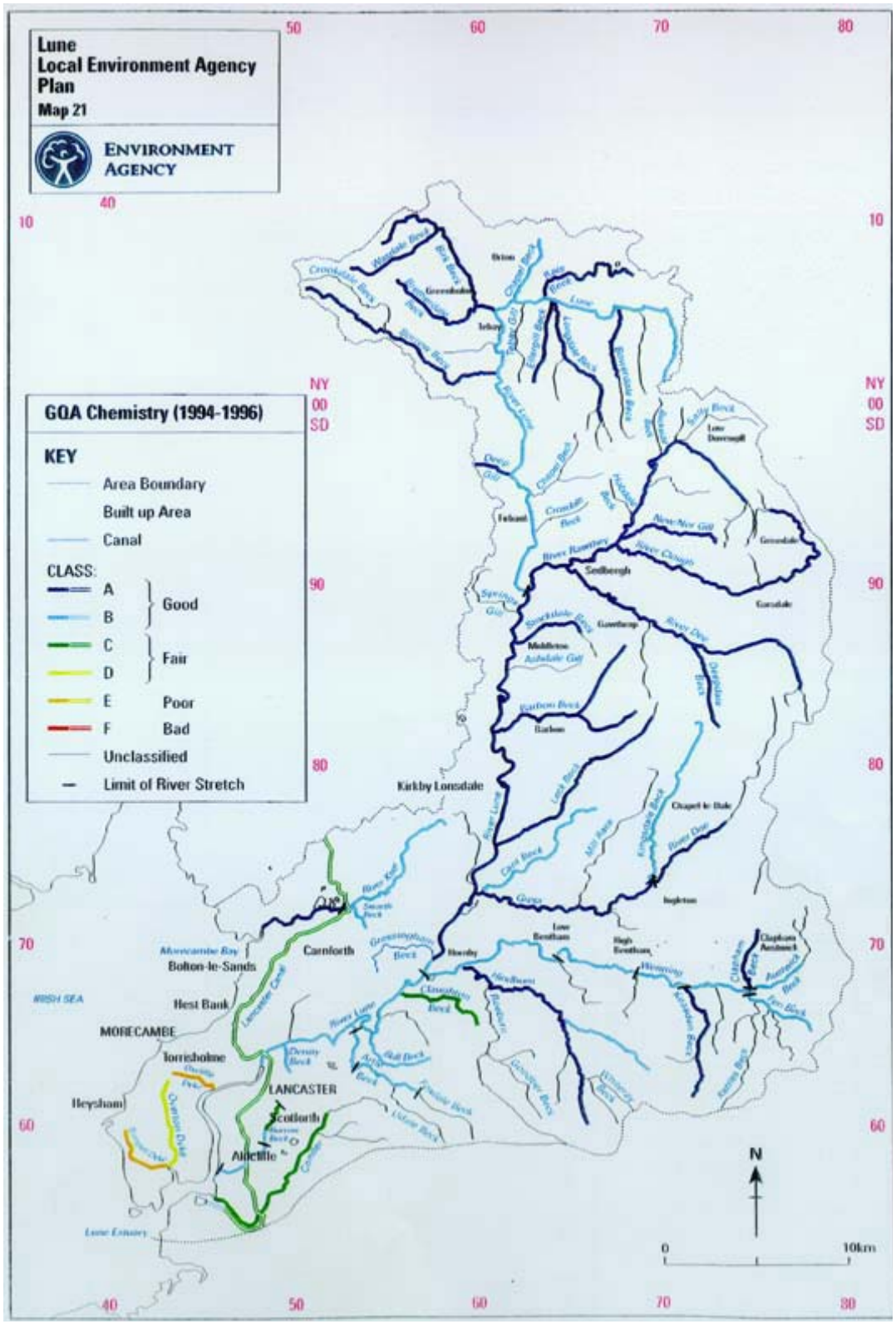
3) Commercial/Industrial development on site **Score = 2**

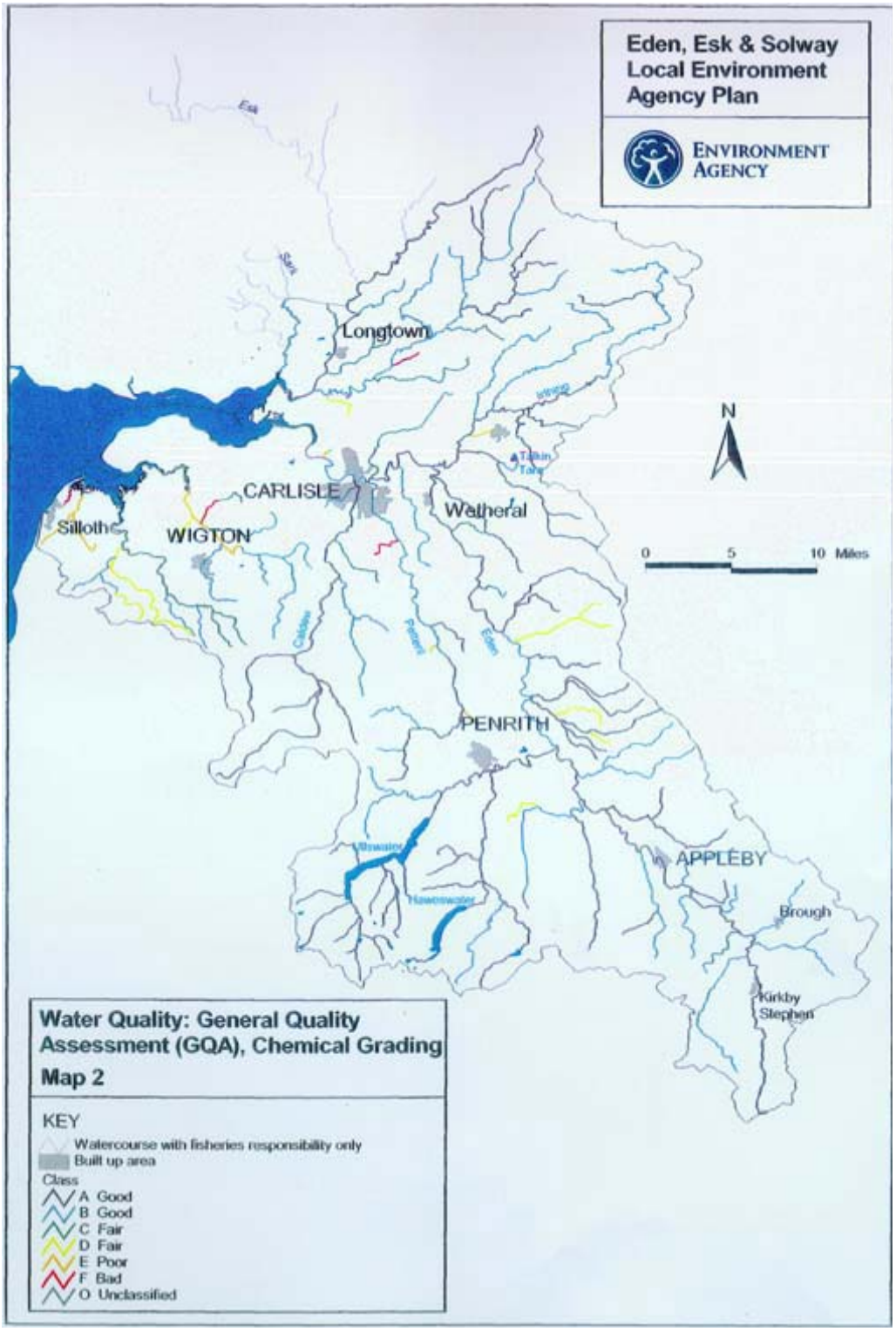
4) Commercial/Industrial development adjacent to site **Score = 1**

The following algorithm was used to obtain an overall Risk Screening score for each potential contaminated land site:

$$(\Sigma\ [\text{receptor score} \times \text{pathway score}]) \times \text{source score}$$

Appendix 3 - Environment Agency River GQA Chemistry Figures




Eden, Esk & Solway
Local Environment
Agency Plan
ENVIRONMENT
AGENCY
Esk
Sark
Longtown
Irthing
Tarn
CARLISLE
Wetheral
Silloth
WIGTON
N
0
5
10 Miles
Caldew
Petteril
Eden
PENRITH
Eamont
Lowther
APPLEBY
Brough
Kirkby
Stephen
Water Quality: General Quality
Assessment (GQA), Chemical Grading
Map 2
KEY
Watercourse with fisheries responsibility only
Built up area
Class
A Good
B Good
C Fair
D Fair
E Poor
F Bad
O Unclassified

Appendix 4 - English Heritage Response

Definition of harm to ancient monuments. Within the categories of significant harm the DETR Circular identifies Scheduled Ancient Monuments as one of receptors that could be subject to harm. In the case of Scheduled Ancient Monuments, substantial damage (ie harm) is regarded as any damage that significantly impairs the historic, architectural, traditional, artistic, or archaeological interest by reason of which the monument was scheduled.

Advice on ancient monuments. You should be aware that the sites of some former industrial activities are Scheduled Ancient Monuments, and at these locations any contaminants present may constitute a significant element of the archaeological interest whereby the monument was scheduled. This aspect would need to be considered when drawing up a remedial strategy for the site.

Scheduled Ancient Monuments constitute a relatively small proportion of the total archaeological resource. We would expect that when significant contamination is identified on or in an unscheduled archaeological site, and remediation is necessary, full discussion with the County Archaeologist and English Heritage would take place at an early stage to agree an appropriate mitigation strategy. Andrew Davison, English Heritage's Ancient Monuments Inspector for the North West will be able to advise on the risks of significant harm to specific Scheduled Ancient Monuments.

Consultation on Sites and Monuments Records. In the preparation of your inspection strategy we recommend that you consult the Sites and Monuments Record (SMR) covering your area. This held by the Cumbria SMR Officer, Bette Hopkins Cumbria County Council Archaeology Service, County Offices, Kendal, Cumbria, LA9 4RQ. The SMR is a record of all known archaeological sites, including Scheduled Ancient Monuments. The person responsible for the SMR should be able to identify any Scheduled Ancient Monuments that are associated with land that maybe in a contaminated state and which could potentially be Contaminated Land according to Part IIA of the EPA 1990.

Other potentially sensitive receptors. Although not included in the DETR guidance, it is important to remember that Listed Buildings, the proposed World Heritage Site, Historic Parks and Gardens and Conservation Areas will on occasions also be sensitive receptors. All these designations, some of them statutory, that local authorities are required to take into account when considering planning applications and related matters. For example a significant number of industrial buildings are listed and some conservation areas may include, or may even have been designated principally because of, industrial sites.

Overall aims of Contaminated Land Inspection Strategy. One of the aims of the document should be to protect historic sites and the historic environment. At the very least it should protect 'designated historic sites' which will include Scheduled and Listed sites, Parks and Gardens and Conservation Areas but English Heritage considers that there will be other sites, not designated at the present time, that should also be afforded protection. Early identification of such constraints will minimise the danger of conflict later in the process.

Future contact with English Heritage. The regional team of English Heritage is keen to provide what assistance it can to deal with this important issue, however it is limited in the amount of detailed casework it is able to undertake. To that end I envisage that your ongoing discussions with archaeological and building conservation staff at Eden and Cumbria will provide the principal initial input on site specific issues. You will be aware that Scheduled Monument Consent is dealt with by English Heritage and it is therefore essential to make early contact with us to discuss suggested courses of action that affect such sites. Sites affected by other historic environment designations will normally be dealt with by officers of your Council, although English Heritage will be involved in certain circumstances.