Inspection Strategy for the Identification of Contaminated Land under Environmental Protection Act 1990, Part 11A

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Development Services

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Executive Summary

This document describes Falkirk Council's Inspection Strategy for the identification of Contaminated Land in the Falkirk area. Part IIA of The Environmental Protection Act 1990 places a duty on Local Authorities to undertake a strategic inspection of all land in their area to identify those sites which would be considered to be contaminated.

Within the Regulations "contaminated land" is given a very specific definition and covers sites where any contamination at the site can be determined to be causing significant harm or likely to cause significant harm to people, property or the environment.

Falkirk Council area has a long industrial history. Since the mid 1700's when the Carron Iron Company was formed there has been a significant presence of manufacturing and extractive industries, throughout the 19th and 20th centuries. The area is still dominated by the petrochemical complex at Grangemouth and its supporting industries.

During an initial assessment Falkirk Council identified over 1500 sites that require further investigation under the Contaminated Land Regime. The purpose of this strategy document is to outline the procedures Falkirk Council intends to follow in making its determination on which of these sites should be considered contaminated, in line with the statutory definition of contaminated land.

Sites that are determined to be contaminated land will be regulated by the Local Authority or, in the case of special sites, by the Scottish Environment Protection Agency (SEPA). These bodies will have the powers to require remediation of the sites to a standard where they no longer present a risk.
Whether contamination is likely to cause harm is based on a combination of two factors, the nature and scale of contamination present at a site and whether

there is a route whereby the contamination could cause harm to a receptor such as people or controlled water.

Falkirk Council does not envisage identifying a significant number of sites that could be considered contaminated. Many of the sites that have been re-developed in the recent past have been subject to remedial works as part of the re-development. However, the adequacy of these remediation schemes will be re-visited as part of the implementation of the strategy. In 1998 Falkirk Council compiled a report detailing the existing information on potentially contaminated sites and identified thirty sites which were considered to be of particular concern. Further investigation of these sites has formed the starting point for the strategy.

Falkirk Council has a number of objectives in implementing this strategy, in particular identifying potentially high risk sites early on in the inspection process and to develop a strategy that supports the principles of Sustainable Development.

To meet these objectives the inspection process has been prioritised based on a combination of land use and the proximity of the site to sensitive receptors. Four classes of former, potentially contaminative, land use have been identified, these being high risk, unknown fill, medium and low risk. Those in the high risk category which are close to sensitive receptors will be investigated first followed by the other categories.

The information collected during the process of investigating and assessing sites will be contained in a central database. Each site will be allocated a unique reference number to ensure that all information relating to the site can be effectively cross-referenced.

The database has been designed in such a way to allow for on going updates, additional information requirements and can take account of changes of use of

the site and the surrounding land. Falkirk Council has developed a number of quality assurance procedures to ensure consistency in the collation and evaluation of information.

On completion of the inspection process the 1500 potentially contaminated sites will be categorised into one of the following:

Category 1 – Sites identified but not considered to be contaminated within the statutory definition of contaminated land, because no significant pollutant linkage has been identified.

Category 2 - Sites identified as contaminated within the statutory definition of contaminated land which are non-special sites and therefore regulated by the Local Authority.

Category 3 – Sites defined identified as contaminated within the statutory definition of contaminated land which are special sites and therefore come under the regulatory control of SEPA.

Information on those sites in Categories 2 and 3 will be placed on a public register held by Falkirk Council, Development Services. SEPA will also hold a public register, in relation to Category 3 sites only.

Background to the Contaminated Land Regime.

"The last hundred years have seen a massive increase in the wealth of this country and the well-being of its people. But focusing solely on economic growth risks ignoring the impact – both good and bad – on people and on the environment. Has we taken account of these links in our decision making, we might have reduced or avoided costs such as contaminated land or social exclusion"

Rt Hon Tony Blair M.P,

Taken from his foreword in "A Better Quality of Life; A Strategy for Sustainable Development in the UK".

Contaminated Land is a legacy of our industrial heritage. The Environmental Protection Act 1990 introduced for the first time a definition of what actually constitutes contaminated land and introduced the concept of a public register of contaminated land. How contaminated land should be regulated required almost a decade of consultation. However, on July 14th 2000 the new statutory regime for the identification and remediation of contaminated land (the "Contaminated Land Regime") came into force.

To date, there has been no detailed information collated on land contamination and how much land is contaminated depends on the results from detailed investigations and the definition used to establish if land if "contaminated" or not. The Contaminated Land Regime provides a statutory mechanism for contaminated land in the UK to be identified, assessed and, where appropriate remediated.

The definition of Contaminated Land is based around the principles of risk assessment and the probability of harm being caused to human health and the wider environment. The term "harm" has also been strictly defined by the legislation.

There will be many sites assessed and, although contaminative substance may be present, these are in such state that they will not cause harm, therefore the

site will be assessed to be "suitable for use". This approach is deemed to be the most effective solution to prevent unnecessary works being carried out.

Therefore, the main objective of the Contaminated Land Regime is to allow a better system of investigating and identifying contaminated land and to ensure sites are remediated to remove or control risks to human health and the environment.

Part IIA is a complex piece of legislation and there may be overlap with other Regimes, in particular Planning and Development Control, Pollution Prevention Control (PPC), Waste Management Licensing and the Control of Pollution Act 1974.

The primary regulator will be the Local Authorities, reflecting their existing duties under the statutory nuisance regime and as the Planning Authority.

PART 1 – Background to Falkirk Area

1.0 Falkirk Council Objectives and Regulatory Context

1.1 Introduction

Under Part IIA of the Environment Protection Act 1990 Falkirk Council have a duty to inspect their area to identify "contaminated land" in line with the statutory definition of contaminated land. In carrying out their inspection duties they are required to take a strategic approach to the identification of land in order to prioritise resources and ensure the process is rational, efficient and well documented. Falkirk Council is required to set out its approach in a written strategy which should be formally adopted and published.

This Contaminated Land Inspection Strategy, produced by Falkirk Council is divided into three parts. Part 1 describes the background to the Falkirk Area in relation to the Contaminated Land Regime. Part 2 describes the development of the inspection strategy and Part 3 details how Falkirk Council intends to undertake their inspection duties under the Regime.

This document is divided into the following sections:

Part 1 Background

Section 1 Falkirk Council objectives and regulatory context.

Section 2 General Policy of Falkirk Council

Section 3 Characteristics of the Falkirk Area.

Part 2 Development of Strategy

Section 4 The overall aims of the strategy

Section 5 Priorities and actions

Part 3 Inspection Strategy

Section 6 The procedures to be followed in the implementation of the strategy.

Section 7 Assessment Method and Prioritisation.

Section 8 Information Management

Section 9 Supporting Information

1.2 Objectives

Falkirk Council's objectives in producing this Inspection Strategy are:

To meet the requirements of producing the strategy, as detailed in the Scottish Executive publication "Contaminated Land Inspection Strategy – Advice to Local Authorities".

- To set out how Falkirk Council intends to fulfil their statutory duties in inspecting its area for the purpose of identifying contaminated land.
- To inform stakeholders of the approach adopted.

1.3 Regulatory Context

Under the new Contaminated Land Regime each Local Authority has a duty to inspect its area with the purpose of identifying contaminated land. Under the Regime contaminated land is defined as:

"any land which appears to the Local Authority in whose area it is situated to be in any condition, by reason of substances in, on or under the land, that –

- *significant harm is being caused or there is significant possibility of significant harm being caused; or*
- *pollution of controlled water is being, or is likely to be caused"*

It is the duty of the Local Authority to devise a strategy for the inspection of its area and to implement the strategy to identify land which would be considered contaminated in line with the above definition. In implementing the strategy the Local Authority also needs to consider if a site is a "special

site". Certain categories of contaminated land will be given the designation of special sites. These categories are defined in the Regulations and refer to sites, which have been put to a particular use or cause harm to certain types of receptor. In determining whether a site is a special site or not the Local Authority is required to act in accordance with the Statutory Guidance.

The definition of contaminated land is intended to embody the concepts of risk assessment: it must be possible to identify the presence of a source of contamination, a potential receptor which could be adversely affected by the presence of that contaminant and a pathway, or mechanism where the contamination can be transported between the source and the receptor.

Where all three elements, the source, the pathway and the receptor are in place and harm to the receptor is considered to be significant, in accordance with the Statutory Guidance, the site can be considered contaminated because there is a "significant pollutant linkage".

The task facing Local Authorities is daunting. Falkirk Council, like many in central Scotland, has a long industrial heritage and there are few parts of the area that have not been affected by industry in one way or another. Therefore it is crucial that a strategic approach to site inspection is adopted to ensure the efficient use of resources and the effective prioritisation of sites. The process also has to be transparent due to the complexity of issues surrounding the inspection process.

1.4 Development of the Strategy

Falkirk Council's Inspection Strategy for Contaminated Land has evolved through a three-stage process.

June 2000

Development of an outline strategy which defined the proposed approach to the inspection process and devised procedures for the implementation of the strategy.

June 2000-November 2000

Pilot Study to implement the inspection process and test its workability. The information acquired during this pilot process has formed the basis of timescales and resources required for implementation and formed the basis of the draft for consultation.

December 2000-January 2001

Preparation of Final Draft of the strategy for Consultation.

February – May 2001

Consultation Period

June 2001

Review Strategy Document in light of consultation responses.

July 2001

Submit to Scottish Executive for approval prior to publishing deadline of October 14th 2001.

2.0 General Policy of Falkirk Council

2.1 Environmental Issues

Falkirk Council published an Environmental Strategy Action Plan in 1999, which is currently being developed into a Local Agenda 21 Framework (LA21) (completion due 2001). A recent public consultation revealed the following priorities for the LA21:

- Education and Awareness of Sustainable Development issues.
- Integrated Transportation Policies.
- Waste Minimisation and Re-cycling.
- Better Planning – including building design and re-development of brownfield sites.

The LA21 will form the basis of partnership working with various groups within the Falkirk area, including community groups, industry, Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH) and Scottish Enterprise Forth Valley (SEFV). Contaminated Land issues are to be included in this framework.

2.2 Enforcement

Enforcement of the Contaminated Land Regulations is overseen by the Contaminated Land Working Group (a sub group of the Corporate Environmental Strategy Group). Officials from Legal Services sit on this group and advice on any legal matter pertaining to the Contaminated Land Regime. It is expected that many of the uncertainties regarding enforcement of the Regime will be resolved through case law.

2.3 Public Access to Information

This strategy is available to the general public for review and comment. It is available through:

- One Stop Shops
- Falkirk Council Web Site

- Development Services

It is appreciated that in implementing the strategy a lot of information will be collated that may be of interest to various sections of the community. Falkirk Council must ensure that it serves the best interests of the community without causing prejudice to others and still comply with confidentiality rights and freedom of information. Requests for information will be dealt with on an individual basis, with advice from Legal Services.

At present the general policy is not to provide site-specific information while the evaluation is on going, unless site becomes a part of the Planning and Development process, or subject of a sale.

Where sites are formally identified as contaminated under the Regime, information relating to the sites will be contained in a public register. This will include information relating to the contamination at the site, justification for the designation of the site as contaminated and details of Remediation Notices, Statements and Declarations when these are issued. The Public Register will be available for review, through appointment, at Development Services main office. The compilation and updating of this register will be an on-going process. It is anticipated that the first entries onto the register may occur in 2003.

3.0 Characteristics of the Falkirk Area

Whether contamination is likely to cause harm is based on a combination of two factors: the nature and scale of the contamination present at a site and whether there is a pathway whereby that contamination can reach a receptor. An understanding of the nature of possible receptors and potential pathways is important in whether a site is likely to be contaminated or not.

Sensitive receptors and harm are defined in the Statutory Guidance and cover human health, the environment and property.

An understanding of the history of the area provides an indication of the likely scale and nature of contamination which might be present.

This section contains background information on;

a) Geographical Location

b) History of the area

c) Geological and Hydrogeological Features

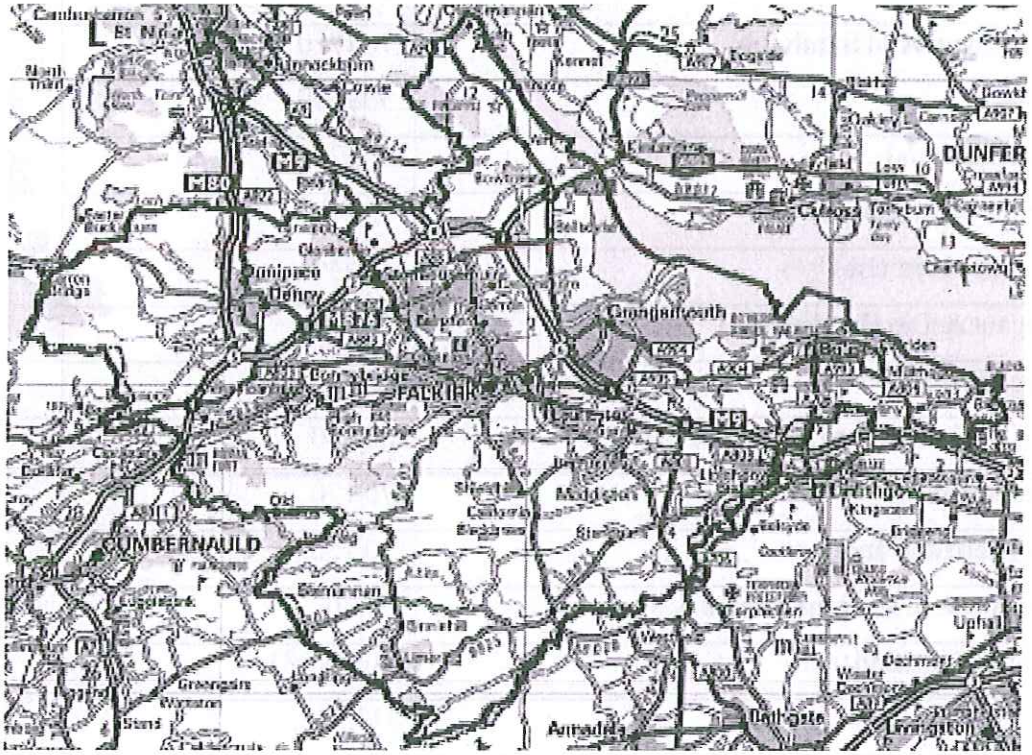
d) Protected Organisms/Ecosystems

3.1 Geographical Location

Falkirk Council Area (31,236 hectares) is situated on the East Coast of Scotland within the Central Belt (see Location Map). The Forth Estuary forms the north-eastern boundary. The area ranges from sea-level along the coastal strip extending south westerly, through the low-lying flood plain of the Forth, towards the broad valley associated with the River Carron and the Bonny Water. Higher ground occurs in two main areas, the Slamannan Plateau to the southwest and the Kilsyth Hills to the west of Denny. The highest elevation within the area is at Darrach Hill (357m).

The main towns within the area are Falkirk, Grangemouth, Denny, Bo'ness, Polmont, Bonnybridge, Larbert and Stenhousemuir. Most of these are contained within the central part of the Council area, generally following the line of the Forth and Clyde and Union Canals (see Map 1, Appendix)

Figure 1: Location Map



The current land use characteristics of the area have been extracted from the 1999 Draft Structure Plan and are summarised in Table 1.

Table 1 - Land Use Characteristics

Land Use	Hectares (1997)
Grass and fern	11,700
Urban limits	4982
Misc (incl arable farmland, amenity grassland)	4571
Woodland And Scrub	2700
Mire	2500
Coastland	2200
Public Open Space	715
Employment Uses	540
Vacant & Derelict land	378
Open Water	300
Rock exposure and waste	300
Heathland	170
Tall herb and fern	150
Swamp, marginal, inundates	30
Total Identified	31083
Total Area	31236

3.2 Brief Industrial History

Falkirk has a rich and varied industrial heritage, which may have led to land contamination. Up until the mid 1700's the area was predominately agricultural, served by market towns. The industry presence tended to be small scale, family run operations. There was a considerable market for leather goods in the town, which were noted to be of good quality.

In 1759 the Carron Iron Company was established to the north of Falkirk, marking the start of large-scale industrial growth. The Carron Iron Company helped to boost the minerals extraction industry within the area as it had a large demand for coal, ironstone, limestone and aggregates such as sand and building stone.

By 1778 the Forth and Clyde canal was opened from Grangemouth to Glasgow allowing an efficient means of transport for iron products and coal to larger markets. Industrial development was focused on the banks of the canal as it provided both transport and a water supply. The main industrial concerns were shipbuilding, iron manufacturing, chemical manufacturing, linen manufacture and dye works. The Union Canal was opened in 1822 to link the Lanarkshire Coalfields with Edinburgh. The Union Canal was linked to the Forth and Clyde Canal at Lock 16, by the village of Camelon to the west of Falkirk. Lock 16 became a focal point for industry, including warehousing, shipbuilding, chemical works and a tar refinery.

The advent of the Railways had a marked impact on the Canals. The Glasgow –Edinburgh Railway opened in 1842 and by 1849 the railway had taken most of the traffic from the Union Canal. Commercial traffic continued on the Canal until 1933 and the Canal was finally closed in 1965.

The Forth and Clyde Canal was more successful. It built its own railway to connect the docks at Grangemouth with the Main Line and in 1867 the Caledonian Railway Company bought the Canal. Navigation continued on the canal, significantly coal from canal-side collieries, whisky, grain and pleasure craft. By the early 1960's the canal was in decline and it was closed in 1962.

The Railways developed, during the nineteenth century encouraging industry away from the Canals by offering sidings into works to provide direct links with the Main Lines. Many industries moved away from the canal banks to larger premises, marking the start of urbanisation. By the end of the 19th Century the only industries that remained at the Canal Bank were those that relied upon it as a water source. There were also numerous mineral railways linking into the canals and the main lines

The core industries of the region throughout the nineteenth century were coal and iron with chemical manufacturing also being a substantial employer. By the turn of the twentieth century the docks at Grangemouth were greatly improved, now covering 58 acres of land and exceeding the activities at Bo'ness in terms of facilities. New industry was attracted to the area, starting with the SCWS Soapworks in 1897, ICI Dyeworks in 1919 and Scottish Oils in 1923. These companies based in Grangemouth were the forerunners to the large chemical industry now present in the town.

During the Second World War many of the foundries in the area were put into war service manufacturing ammunitions. The ICI-Nobel Detonator Factory at Reddingmuirhead was key to the war effort. In 1943 an Aluminium Rolling Mill was put into operation at Bainsford.

After the second world war, Falkirk like many towns in Scotland experienced a period of suburbanisation and changes in social structure. The opening up of the North Sea Oil Fields encouraged new developments along the east coast of the UK. British Petroleum moved to Grangemouth, taking over the small Scottish Oils Plant. This development had far reaching effects on the neighbouring docks and made the area attractive to further investment.

As we enter the twenty first century there are numerous, successful industrial estates around the Falkirk region manufacturing a wide variety of products; timberyards, engineering and coachworks, chemicals, book-binding and metal manufacturing. Falkirk is also embracing the "new" industries of electronics, services, distribution and tourism.

3.3 Geological and Hydrogeological Features

The Physical Environment is very important when investigating an area for land contamination. Where the industrial background may give an indication of potential sources of contamination the natural environmental will allow an indication of the vulnerability of that location to the presence of a

contaminant. For example some materials are more permeable than others and will allow contamination to travel further in the sub-surface environment; other materials act as a natural barrier for contaminant migration. The presence of certain types of rock formation can indicate mineral extraction industries and subsequent waste disposal. Some natural features are also sources of contamination, for example coal measures.

3.3.1 Solid Geology

Most of the area is underlain by Lower Coal Measures of the Scottish Caledonian Group. These formations are characterised by sequences of sandstone, siltstones, mudstones, ironstones, coal and seatrocks. This has been mined extensively in the Slamannan area where several coalfields have been operated over the past 2000 years.

The Clackmannan Group almost forms a ring around the lower coal measures. The Passage Formation occurs around Bonnybridge, Larbert, Grangemouth and Avonbridge and is composed of fireclays, sparse thin coal seams and a few thin marine mudstones and limestones. The Denny and Bo'ness areas are underlain by the upper limestone formation which is composed of cyclic sequences of sandstones, siltstones, mudstones and marine limestones, with igneous intrusions present. Again, the coal seams and fireclays have been extensively mined for many years, some dating back to Roman Timed.

Devonian Upper Old Red Sandstone outcrops in the North West of the area, also associated with igneous intrusions.

3.3.2 Superficial Geology

The superficial deposits to the south are dominated by Boulder Clay which is of variable permeability, making it difficult to predict contaminant migration pathways. Extensive Boulder Clay deposits do tend to retard contaminant migration, thus mitigating serious risks to sensitive receptors. In the higher areas, around Slamannan Plateau there are significant deposits of peat, which

have been recognised through their status as SSSI's, namely, Darnrig Moss, Howrierig Muir and Black Loch Moss.

To the north of the area, in particular around Falkirk/Grangemouth, the drift geology consists of Raised Beach deposits and marine deposits. There is a small band of alluvium along the River Carron running towards Larbert, this is a common deposit around River systems and consists mainly of sands. A band of glacial sands and gravels runs from west to east between Bonnybridge and Linlithgow, approximately along the line of the Forth and Clyde Canal and the Union Canal and in the lower part of the Carron catchment area. These deposits are moderate to highly permeable and can be vulnerable to contaminant migration, thus posing a higher risk to sensitive receptors.

3.3.3 Hydrogeology

The majority of the area is underlain by moderately permeable strata, a significant proportion of which, is overlain by highly permeable superficial deposits, especially in the north.

The Coal measures are moderately permeable and can be highly productive or locally important. However, the water quality from such sources has traditionally been quite poor and it is unlikely that this will be used a potable resource in the future.

The superficial deposits, in particular the glacial sands and gravels that runs along the Forth and Clyde and Union Canals are important locally as a water resource. At present there are only five known private water supplies in the area. However, there are indications that use of the groundwater resources in the superficial deposits around Falkirk and Grangemouth are likely to increase.

Groundwaters in the area are important in providing baseflow to surface waters, particularly in the north where they feed a number of reservoirs.

The occurrence of groundwaters has significant implications for the contaminated land regime in the Falkirk Area because there is a general trend that the areas most vulnerable to contamination are also the areas where there has been extensive industrial activity, historically.

3.3.4 Hydrology

The area contains a number of significant surface water catchments. The area is bordered to the North by the Firth of Forth. There are two canal systems which cross the area, - the Union Canal and the Forth and Clyde Canal.

The main river catchments are:

- The River Avon, which flows from the South East, discharging to the East of Grangemouth.
- The River Carron, which flows from the west, through Falkirk to Grangemouth.
- Other significant water features in the area include:
- The Pow Burn.
- Grange Burn
- Bonny Water (associated with River Kelvin catchment and canals)
- Drumbowie Reservoir (associated with River Carron catchment)
- Little Denny Reservoir (associated with River Carron catchment)
- Carron Dams (associated with River Carron catchment)
- Loch Ellrig
- Black Loch

Historically, the quality of water in the canals, Estuary and Carron catchment, and to a lesser extent the Avon catchment, has been influenced by industrial and mining activity, resulting in generally downgraded watercourses. However, this has significantly improved over the last decade and the major watercourses in the Falkirk area are now Class B or above.

3.4 Protected Organisms/Ecosystems

Protected Habitats are considered to be sensitive receptors under The Contaminated Land Regime. Details of the sensitive receptors are contained in the Statutory Guidance. The following section describes key protected habitats in the Falkirk area which might be vulnerable to the presence of contamination.

3.4.1 Sites of Special Scientific Interest (SSSIs)

SSSI's are defined in the Wildlife and Countryside Act as areas of land or water that are of special interest by reason of their flora, fauna, geological or physiological features. They are designated and managed by Scottish Natural Heritage (SNH).

There are 10 SSSI's within the Council area, of which 2 cross Local Authority Boundary's. It is worth noting that there is approximately 1721 hectares of SSSI's, covering 5.8% of the Council area.

Table 2 - Sites of Special Scientific Interest

Site Name	Date Notified	Total Site Area	Area in Falkirk	Habitat Type
Avon Gorge	Nov 1986	19.0	19.0	Woodland
Bo'mains Meadow	Feb 1991	0.9	0.9	Lowland Grassland
Carron Glen	Mar 1990	42.1	39.7	Woodland and Grassland
Denny Muir	Jan 1992	197.6	197.6	Grassland, Heathland, Bog & Flush
Howierig Muir	Nov 1994	20.5	20.5	Peatland
Blackloch Moss	Jul 1996	108.0	2.4	Peatland
Darnrig Moss	Nov 1995	77.5	77.5	Peatland
Firth of Forth	August 2000	7510	1351 (est)	Coastal Habitat
Carron Dams	Mar 1984	17.1	17.1	Fen

3.4.2 Ramsar Sites

The Firth of Forth SSSI is a designated Ramsar site due to it's importance to migratory and waterfowl species. The main concern here would be the impact of the Kinneil Kerse area on the habitats. This area has a diverse industrial history including, colliery, foundry, timber treatment and waste disposal, which may have derogatory effect on the protected ecosystems.

3.4.3 Birds Directive

The Birds Directive protects all wild birds and their habitats within the European Community. It gives member states the power and responsibility to designate Special Protection Areas (SPA's) to protect birds that are considered

rare and vulnerable within the European Community. Under UK Law, before a site can be designated as a SPA it must first be notified as a SSSI. Once a site has been designated a SPA legal protection is afforded under the Conservation (Natural habitats and Conservation) Regulations 1994. The Forth Estuary SSSI has been notified as a potential Special Protection Area (pSPA). Scottish Natural Heritage (SNH), as lead regulator of SPA's, can prevent activities that may irreversible damage an SPA. This is of great significance to the Contaminated Land Regime.

3.4.4 The Habitats Directive

Under the EC Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora Member States must take measures to protect and maintain rare, endangered or vulnerable species and habitats within Europe. There are 52 habitats and 63 species that have been listed as important in Europe, of which, 14 are priority habitats, i.e. those habitats which are particularly threatened in global terms. Member States are required to identify areas which are best examples of these threatened habitats; these then may qualify as a Special Area of Conservation (SAC). In Scotland there are 52 SAC, including 14 priority types.

There is one site within the Falkirk Area designated as a Special Areas of Conservation, namely Black Loch Moss.

Black Loch Moss is located to the south west of Black Loch and the village of High Limerigg. The site, covers a total of 108 hectares, and is mainly contained within the North Lanarkshire Council area, with a small part being present in Falkirk Council area.

The area has been considered as a Special Areas of Conservation (SAC) with priority status as it is an active raised bog, a habitat type that is threatened with extinction. Such bogs generally have the appearance of a gently sloping raised mound within the landscape and consist of a deep accumulation of

waterlogged peat and a surface layer of plants and mosses. In terms of the Contaminated Land Regime this area has been extensively mined over centuries for coal, peat and clay. This has left a legacy of infilled ground that potentially may adversely impact on the conservation of the area.

3.4.5 National Parks Act

There are no National Parks proposed within the Falkirk Council area, at the present time.

3.5 Key Properties

Property, under the Regime includes timber, crops, allotment produce, domestic pets, livestock and buildings.

There are strict definitions of what constitutes harm to properties in the Statutory Guidance and Falkirk Council will follow this when assessing risks to property.

3.6 Known Information on Contamination

There are several sites within the Falkirk area where it is known contamination exists. In 1998 the Falkirk Council Environmental Steering Group compiled a report detailing the existing information available on potentially contaminated land. Thirty sites were initially identified. Many of these sites were first identified in the 1980's by the Scottish Development Agency and remedial work was undertaken, mainly in the form of on-site encapsulation. These sites will be re-visited to ensure they do not meet the definition of contaminated land under the New Regime. However, some of the sites are subject to current planning applications therefore any contamination issues will primarily be dealt with through the development process.

Over the period 1989-1991 Falkirk District Council undertook landfill gas monitoring of known, or suspected, landfills within the area, revealing a number of gas contaminated sites. Some of the sites identified had remedial

measures installed and at others it was sufficient to install monitoring boreholes, where a monitoring programme continues. These sites shall also be reviewed in the wider context of the Contaminated Land Regime.

3.7 Re-development History and Control

For several years now the Planning Authority and Buildings Control have been requesting mineral reports to be undertaken at many locales in the Falkirk area. More recently, site investigation reports have also had to include some level of contamination assessment, especially on sites where it is strongly suspected that contamination may be an issue.

This work will continue and it is expected that most of the contaminated land in Falkirk area will be remediated through the development process. The publication of the revised PAN 33, Re-development of contaminated land, has provided clear guidance on the use of conditions and pre-application discussion in this respect.

Building Control also has an active role in preventing harm to properties and humans in relation to contaminated land. Structural Engineers must now take adequate measures to prevent or reduce any deleterious effects that the presence of a contaminative substance may have.

The recent re-organisation to form Development Services has combined the functions of the Planning Authority, Building Control and Environmental Health enabling better internal communications on such cross-departmental matters.

The use of the GIS internally also assists in rapid and accurate information exchange.

3.8 Summary of Key Characteristics of the Area

Based on the information noted so far the key characteristics of the area can be summarised as follows:

Falkirk has a small geographical spread but is characterised by extensive, historical industrial activity, primarily iron manufacturing, chemical industries and extractive industries such as coal mining.

The industrial focus in the Falkirk area was around the main population centres. Since the decline in heavy manufacturing industries many sites have been re-developed for more sensitive end-uses, such as housing. During its inspection duties under the Contaminated Land Regime, Falkirk Council may need to re-visit these sites to ensure that adequate remedial measures were employed at the time of re-development.

Historically, industry concentrated along the banks of the canals and the major rivers, within the main population centres. This may have left a legacy of pollution from direct discharges or surface run-off that will require assessment under the Regime. This also the area of Falkirk which is underlain by the most vulnerable superficial deposits in terms of pollution to controlled waters. The concentration of industrial concerns in the north of the area has implications for pollution of controlled waters due to the presence of moderate to high permeability drift deposits, some locally important aquifers and significant surface water features. Contaminant migration may have implications for surface and ground water quality as shallow aquifers contribute greatly to baseflow of rivers. In this respect controlled waters are important both as a pathway and a receptor.

The extensive mineral extraction in the area has left a legacy of unstable ground conditions, spoil heaps and infilled ground. There are former collieries associated with the SSSI's at Skinflats, Kinneil Kerse and Darnrig Moss. The significance of the workings on the ecological systems will need to be assessed. The risks to controlled water in such areas will be minimised by the

Glacial till deposits which are the predominant superficial deposits in this area. The population densities in these areas are also less dense than in the Carron Valley area.

The Kinneil Kerse area has a long and varied industrial history, including colliery, landfill, spoil heap, timber treatment works, railway yard and foundry. The significance of these activities on the Firth of Forth and the habitats will require assessment, in conjunction with Scottish Natural Heritage.

PART 2 – Development of Inspection Strategy

4.0 Overall Aims of the Strategy

Before starting to develop its Inspection Strategy Falkirk Council set out the following aims in order to keep clarity of purpose.

4.1 Aims

- To identify sites effectively and strategically within the area, which would be defined as contaminated in line with the statutory definition of contaminated land.
- To ensure the inspection is undertaken in such a way that it focuses quickly on potentially high risk sites, i.e. sites where it is plausible that a significant pollutant linkage exists.
- To optimise the use of technology in the implementation of the strategy to ensure effective management of a process that will generate a lot of information.
- To ensure that there are appropriate quality assurance procedures built into the implementation of the strategy to enable consistent quality of output and the presence of an auditable trail of the decision making process.
- To ensure the generation of a live database of sites that can be adapted to take account of the continuing development taking place in the area and to provide information to encourage the re-development of Brownfield sites.
- To undertake the inspection process in a cost-effective manner making maximum use of resources and existing information.

4.2 Objectives and Milestones

In order to meet the above aims Falkirk Council set themselves a series of milestones to be achieved during the development of the Inspection Strategy.

- Define the scale of the potential contamination in the area.

- Define the sensitive receptors.
- Develop a screening methodology to focus on high risk sites, in particular former industrial sites in close proximity to sensitive receptors.
- Establish systems and procedures required to implement the strategy.
- To test the proposed methods for the recording, retrieval and management of information.
- To produce and publish a strategy document.
- To implement the inspection process set out in the Strategy Document.

The methods and procedures for implementing the strategy have been developed during June to December 2000, during a pilot study which is discussed in section 5.

Timescales for the implementation of the strategy are provided in Section 7.

5.0 Falkirk Council Priority Actions and Timescales

Due to the work undertaken previously Falkirk Council had a good overview of the potential problem of land contamination within it area. Therefore the starting point for Falkirk Council in developing the strategy was to decide how to prioritise the process of inspection and investigation, to ensure potentially high risk sites were identified early in the inspection process.

It was decided that the prioritisation of the sites should be based on a combination of factors:

1. The potential for contamination to be present at a site based on its former use and the likely nature of that contamination, and
2. the proximity of the site to a sensitive receptor.

The process had to be as efficient as possible in terms of human and technical resource. Once the overall approach was agreed a trial was run over the summer of 2000, to test the efficiency and efficacy of the system. This trial run also allowed for future planning of time and resources to complete the initial stages of the inspection process.

5.1 Identifying Former Land Use

The existing Geographical Information System (GIS) and the "Landmark" database is central to Falkirk Council's approach to inspecting its area. The Landmark database was purchased to assist in identifying historical land uses. The dataset includes historical maps (1864 – 1994) which have been scaled to existing background maps on the GIS. This created accurate overlays which could not have been achieved as readily using paper copy historical maps. The GIS has a search capacity that can be used to identify individual sites or sites with a certain former land use description.

On initial interrogation of the database it was determined that there are approximately 1500 sites within the Falkirk Area which have had some form

of potentially contaminative use. This number does not include point sources such as mine shafts, air vents, and cottage industries. It must be emphasised that this does not mean all these sites are contaminated but that there is a potential for there to be contamination present on these sites. A priority of the strategy is to determine, as quickly and as effectively as possible, which of these sites has a "high risk" of being contaminated as defined in the statutory definition.

5.2 Assigning Risk to Land Use

In relation to former industrial uses, three categories of risk were identified:

- High Risk
- Medium Risk
- Low Risk

The risk categories have been loosely based on those contained in the publication "Desk Reference Guide to Potentially Contaminative Land Uses" published by IVSA (professional society for valuers and auctioneers) in association with the Royal Institute of Chartered Surveyors and the Chartered Institute of Environmental Health. These categories were reviewed in the light of historic land use in the Falkirk area and revised to reflect those industries of main concern. The industries placed in each category are shown in Table 3 along with the number of sites identified under each category.

5.3 Limitations to the Information

It should be noted that this list is not exhaustive and has been limited by the information available through the Landmark Database. Other sources of potential contamination may exist and it is envisage that these will be picked up and the inspection procedure progresses, if they have not already been identified through existing knowledge. Any information received from third parties will also be added to the system where appropriate.

This system was put through a trial run in the summer of 2000 and was found to be effective in terms of time and resources.

Table 3 - Risk Categories Based on Land Use

Former Use Category	Number	Risk Category
Animal By-Products	2	High
Animal Slaughter	3	High
Chemical Manufacture	20	High
Dyes & Pigment Manufacture (inorganic)	1	High
Dyes & Pigment Manufacture (organic)	1	High
Gas Manufacture & Supply	11	High
Leather tanning & dressing	4	High
Machinery: engine manufacture	1	High
Metal manufacture/foundries	56	High
Military Land	10	High
Oil, Gas & Petroleum	7	High
Paints, Varnish Manufacture	3	High
Transport Manufacture	4	High
Known former landfills	25	High
Air Shafts	23	Medium
Clay, Brick, Tile Manufacture	37	Medium
Coal Storage Depot	4	Medium
Electricity Production	4	Medium
Factory or works (use not specified)	57	Medium
General Quarrying	83	Medium
Heap, unknown constituents	74	Medium
Hospitals	19	Medium
Laundries & Dry Cleaners	6	Medium
Mining & Quarrying General	84	Medium
Mining of Coal & Lignite	147	Medium
Motor Vehicle Maintenance	5	Medium
Natural & Man-made textile manufacture	2	Medium
Paper, Packaging Products (manufacture)	10	Medium
Printing (misc)	2	Medium
Quarrying Sand & Gravel	63	Medium
Railways	39	Medium
Road Haulage	20	Medium
Sawmilling, Planing Timber Treatment	36	Medium
Sewage	29	Medium
Tableware & Other Ceramics	5	Medium
Unknown filled ground	313	Medium
Brewing & Malting	2	Low
Cemetery, Graveyard	22	Low
Disturbed Ground	2	Low
Food Processing (manufacture)	2	Low
Outfalls	1	Low
Spirit Distilling	10	Low
Transport support & cargo	15	Low
Total	**1236**	

5.4 Identification of Receptors

The receptors were human health, ecological systems, property, and controlled waters, as defined in the Legislation. These were identified on the GIS as Urban Limits, SSSI's, Schools, Play Areas, Public Open Space, Scheduled Ancient Monuments, watercourses and catchment areas. It is appreciated that the information is limited and will need to be backed up with consultation with other bodies such as SNH and SEPA. Brainstorming

It should be highlighted that most of the high-risk sites identified are within the Carron Valley area, where the risk to groundwater and surface waters are greatest due to the underlying drift material. This reinforces the Council's position that the system is efficient in identifying potential significant pollutant linkages at an early stage.

5.5 Identifying Potential Significant Pollutant Linkages

For each of the risk categories identified the GIS was used to select sites which were within a prescribed distance of sensitive receptors A distance of 250 metres has been applied, except controlled waters where a distance of 50 metres was discussed with SEPA and found to be appropriate, given the overall improvement in water quality over the past decade and the general state of the surface water environment in the area.

These distances were accepted as provided a means of initially prioritising sites for further investigation to take into account sites where a significant pollutant linkages may exist due to the proximity of a source to a receptor.

Filled areas of land were dealt with separately, due to the large number of potential sites identified, and divided into two categories. All known landfilled sites have been included in the high-risk category, while all other unknown filled ground will be considered as a separate category prioritised between the high and medium risk categories. In the early trials on the database it became apparent that many of the areas identified as filled ground

were extremely small and associated with landform changes which may or may not be as a result of filling. For this reason it was concluded that the risks will not be as high as known sites and it was felt overall it would be more reasonable to deal with them separately.

Based on the prioritisation process the numbers of site identified in each category are shown in Table 4.

Table 4 - Number of Sites in each Risk Category

Risk Category	Number of sites less than 250m from a sensitive receptor and less than 50metres from surface watercourse.	Number of sites greater than 250m from a sensitive receptor and greater than 50m from a surface water course.
High Risk	50	0
Medium Risk (unknown fill)	336	413
Unknown Fill	247	66
Low Risk	40	14

5.6 Prioritisation Process Action Plan

Following the pilot study it was decided that the prioritisation of the investigation strategy will take place in this order;

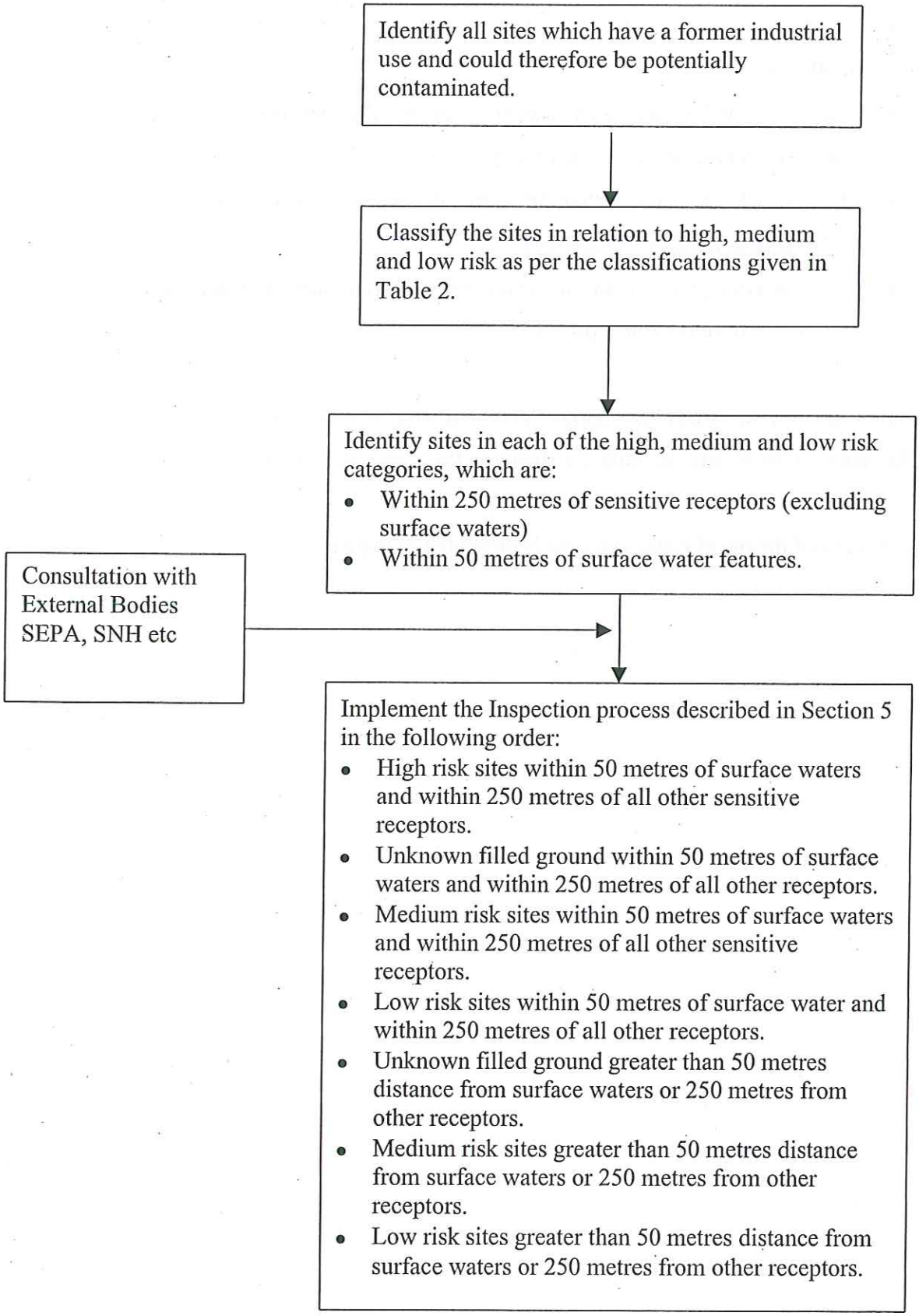
- High risk sites within 50 metres of surface waters and within 250 metres of all other sensitive receptors.
- Unknown filled ground within 50 metres of surface waters and within 250 metres of all other receptors.

- Medium risk sites within 50 metres of surface waters and within 250 metres of all other sensitive receptors.
- Low risk sites within 50 metres of surface water and within 250 metres of all other receptors.
- Unknown filled ground greater than 50 metres distance from surface waters or 250 metres from other receptors.
- Medium risk sites greater than 50 metres distance from surface waters or 250 metres from other receptors.
- Low risk sites greater than 50 metres distance from surface waters or 250 metres from other receptors.

As part of a pilot study an initial screening risk assessment has been undertaken on the 50 sites identified as being in the high-risk category.

A summary of the prioritisation process is presented in Figure 2.

Figure 2 - Summary of the Prioritisation Process



5.7 Priorities

The priorities for Falkirk Council in implementing the Inspection Strategy over the time period 2001 – 2003 are:

- To undertake further investigative work of the high risk sites identified in the initial screening process and to determine which of these sites are likely to come under the statutory definition of contaminated land.
- To undertake further investigation in relation to all the former landfill sites known to the Local Authority to determine which of these are likely to come under the statutory definition of contaminated land.
- To further investigate any sites identified by SEPA or the Council which may be contaminated in line with the statutory definition.
- To commence wider consultation in relation to those sites identified as potentially contaminated through discussion with the other regulatory bodies, owners and occupiers and any other stakeholders.

In parallel with the above to continue to screen sites in the medium risk category within 50 metres of surface waters and 250 metres of sensitive receptors.

PART 3 – Implementation of the Strategy

6.0 Procedures

The previous section described the Local Authorities development of the Inspection Strategy and the prioritisation process. These form the basis of the procedures and processes that Falkirk Council intends to follow in implementing the Strategy. In addition to the technical aspects of the inspection strategy there has also been work undertaken to put administration and management procedures in place.

6.1 Internal Management Arrangements for Inspection and Identification

Overall responsibility for managing and implementing the Inspection Strategy rests with Development Services.

The Contaminated Land Sub-Group (Contaminated Land Working Group) of the Corporate Environmental Strategy Group has been established to maintain an overview of the development and implementation of the Contaminated Land Regime, including the Inspection Strategy. This group meets on a regular basis to assess progress and provide guidance as appropriate.

Falkirk Council has employed a Contaminated Land Specialist who has responsibility for implementing the inspection strategy, liaison with third parties, investigation of sites and co-ordination of the Working Group.

Input to implementation of the Inspection Strategy will be provided by other disciplines within the Council.

6.2 Local Authority Interests in Land

The Local Authority recognises that they are landowners and their land will need to be included in the inspection process, in recognition of the possible role of the Authority as regulator and responsible person, responsibilities for

these functions have been separated within Falkirk Council. Development Services have responsibilities for the implementation of the requirements under the Contaminated Land Regime while Corporate and Commercial Services manage the Councils landholding.

Falkirk Council own a range of landholdings the majority of which are leased shop units, industrial estates and shopping centres; some of which may be former industrial sites. The land holding also includes a limited number of former industrial sites which were specifically purchased for new development under the former Central Region.

It is Falkirk Council's intention that sites in their ownership should be treated in the same way as sites owned by private landowners and will be prioritised in the same way.

7.0 Assessment Method and Prioritisation

Falkirk Council's inspection strategy is based around site prioritisation using the concept of risk assessment.

The overall aim, on completion, of the inspection will be to classify sites identified as potentially contaminated into one of three categories:

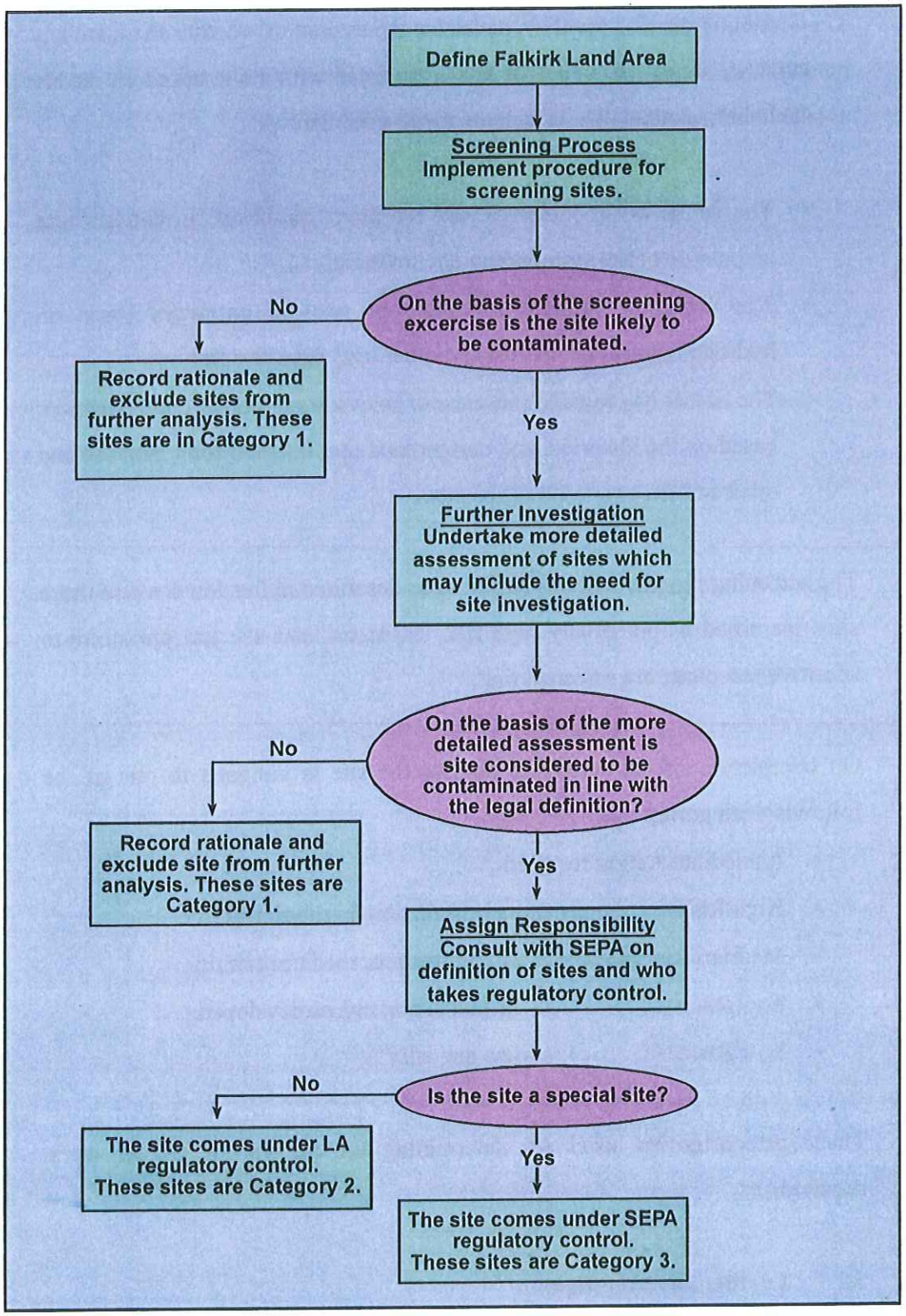
- Category 1 – Sites identified but not considered to be contaminated in line with the statutory definition of contaminated land, because either they are suitable for use, have been appropriately remediated or no source, pathway, target relationship has been established.
- Category 2 - Sites defined as contaminated within the statutory definition of contaminated land which are non-special sites and therefore regulated by the Local Authority.
- Category 3 - Sites defined within the statutory definition of contaminated land which are special sites and therefore come under the regulatory control of SEPA.

The inspection process proceeds in three stages.

1. Screening
2. Further investigation
3. Assigning responsibility for regulation of the site.

Each of the above stages is defined in further detail.

Figure 1 - Summary of Inspection Process



7.1 Screening Process

The purpose of the screening process is to screen out low risk sites where it is considered the potential for a site to be statutorily contaminated is very low. The screening process involves an initial assessment of whether there are any potential, or actual, pollutant linkages associated with a site based on readily available information. This assessment will establish:

- The actual or probable relevant receptors, based on current land use and nature of the surrounding environment.
- The actual or probable presence of relevant pathways based on hydrogeological, geological and other land form features.
- The actual or probable presence of relevant sources of contamination, based on the historical and current land use, neighbouring land use and other written or anecdotal records.

The screening process will be prioritised as described in Section 4 where those sites identified as potentially high risk, based on land use and proximity to sensitive receptors, are screened first.

On completion of the screening process the site is assigned to one of the following categories.

- Immediate Action required
- High Risk: require more information, high priority.
- Medium Risk: require more information, medium priority.
- Low Risk: no further action unless developed
- Low Risk: review annually

These categories are used for determining the priority of further work required.

7.2 Further Investigation

Further investigation of site will be a continuous programme as the screening progresses and further information on the site is gathered to make a determination on whether the site is contaminated in line with the definition provided in the Act. The further investigation phase will proceed in two phases:

1. Further research, including site walkover, further consultation and information gathering followed by a more detailed risk assessment.
2. Site investigation followed by final risk assessment.

The first task will be to enter into more detailed discussion with the relevant regulatory authorities and other interested third parties to obtain further information. There will also be a more in depth search for the information sources identified in Section 5.3.

In the light of the above information a further risk assessment will be carried out on the potentially contaminated site, which would lead to further sites being screened from the process.

Where there is inadequate existing information on a site to make a determination, there may be a need to undertake site investigation work to decide whether or not the site is contaminated. The site investigation will be designed specifically to identify significant pollutant linkages and will be undertaken in line with the Statutory Guidance.

Throughout this phase of further investigation there will be close liaison with SEPA especially where sites may be considered as "Special Sites". In particular SEPA will be invited to attend any site inspections or become involved in the design of site investigations or determining the scope of any quantitative risk assessment work required.

7.3 Assigning responsibility for regulation

The process of assigning responsibility between Falkirk Council and SEPA will be an on-going process through regular consultation as potential special sites are identified. Consultation will be undertaken in accordance with the SEPA Framework Document discussed in Section 6.

7.4 General Liaison and Communication Strategies

Liaison with all third parties relating to contaminated land will be through the Contaminated Land Specialist. Statutory bodies will be contacted in relation to specific sites where required. An initial brainstorming session with SEPA has already taken place. Further communication with SEPA will be undertaken in accordance with the "Framework for Liaison between Local Authorities and SEPA", published by SEPA. This document contains a number of forms to be used in the contamination process which will be utilised by the Council in their dealings with SEPA.

Site owners and occupiers will be contacted as the inspection progresses to obtain further information and to promote voluntary action. Where there are considered to be possible contamination issues Falkirk Council will follow the Statutory Guidance on matters relating to site access and retrieval of information.

The area Forums and Community Councils will be offered the opportunity to attend presentations on the Contaminated Land Regime and Falkirk Council's Inspection Strategy, prior to its publication in the Summer 2001.

Liaison with the wider community will be determined on an "as required" basis. Site-specific issues to be addressed to the wider community are best determined on an individual basis due to the diverse range of present on potentially contaminated sites

7.5 Quality Assurance

Quality Assurance is essential to an effective inspection process. The quality critical issues in the inspection process have been identified as:

- Effective management of information to ensure information is properly filed and can always be readily located by any member of staff.
- Consistency and auditability of the decision making process to ensure the Council is able to justify it position and these justifications will stand the test of time and changes of personnel.
- Checking of the decision making process to ensure clarity in requests for information and prompt response to queries or complaints.
- Effective communication with third parties to ensure clarity in requests for information and response to queries or complaints.
- Ensuring information is effectively updated after the strategy is implemented.

All information relating to the inspection process will be recorded in the Contaminated Land Database. Each site will be entered into this database using a unique reference number. The information is recorded in line with written procedures. Associated with each stage is a standard pro-forma is completed within the database. Access to this database will only be available to Council Officials working on the contaminated land project to ensure quality control and security of data. However, the information gathered will form the basis of the public registers.

Procedure 1 Conducting an initial screening risk assessment
Procedure 2 Site Inspection
Procedure 3 Undertaking further investigation of a site
Procedure 4 Conducting a site investigation
Procedure 5 Monitoring and Remediation
Procedure 6 Re-evaluation of sites

It is envisaged other procedures may be developed as required during the implementation of the strategy. Any correspondence or reports relating to the

site will be referenced in the database and filed in accordance with the unique reference number.

Effective management of information is ensured by relating all information sources to a unique reference number and recording it in a central database. This database will be cross-referenced to the GIS to allow direct access to information from the site plans.

Auditability of the information is ensured using standard pro-formas designed to justify and record the decision making process.

Each pro-forma requires checking by a third party. To some degree the outcome of the initial screening process will rely on using a degree of professional judgement due to the qualitative nature of the process. However, third party review will encourage consistency. The procedures in place for third party communication and review are discussed in Section 6 and 8, respectively.

7.6 Review Mechanisms

The status of sites will need to be re-assessed periodically to ensure the site is still suitable for use. The events which are most likely to effect the status of the site are:

- Changes in land use
- Changes in adjacent land use
- Unplanned events such as flooding or accidental release or spills.
- Additional information provided by third parties such as members of the public, external bodies, owner or occupiers.

Stage 6, Section 5.7, has been established to deal with any of these events. The procedure for completing this requires the completion of a pro-forma on the database which records the date and nature of the re-evaluation process.

The strategy document will be reviewed on an annual basis in March, beginning in 2002. The review will be undertaken by the Contaminated Land Working Group, with input from third parties as necessary. The review will cover:

- Timetable for implementation
- Effectiveness of existing procedures
- Management of resources to ensure the strategy is implemented
- Current status of sites.

7.7 Programme for Inspection

The inspection programme will be prioritised as per Section 4. In each of the categories High, Unknown Fill, Medium Risk, Low Risk the data will be entered on a ward by ward basis to keep the number of site under consideration at any one time to a manageable number.

The wards have been ranked based on a combination of the population density and the number of potentially contaminated sites in the area.

The proposed timetable for implementing the inspection strategy is defined in Figure 4.

Figure 4 – Timetable for the Implementation of the Inspection Programme *January 2001 – October 2003 – Initial Screening Stage*

Screening other sites											
Screening low risk											
Screening medium risk											
Screening unknown fill											
Further investigation of high risk sites											
Screening high risk sites											
Community liaison											
Review of inspection programme	*	*	*	*	*	*	*	*	*	*	*
	Jan 2001	Mar 2001	June 2001	Oct 2001	Jan 2002	Mar 2002	June 2002	Oct 2002	Jan 2003	Mar 2003	Oct 2003

The further investigation of high risk sites will be an on-going process involving:

- Further consultation with regulators
- Inspection of additional documentation
- Liaison with potentially responsible persons
- Site Visits
- Site Investigations
- Community Liaison

During this process of further investigation many of the sites classified, initially, as high risk will be identified as Category 1 (suitable for use) and will, after suitable justification, be excluded from further investigation. However, all sites in Category 1 will be subject to review as described in Section 8.

8.0 Information Management

In implementing the Inspection Strategy as documented Falkirk Council will be required to collate and generate large volumes of information, which will require proper documentation and storage.

8.1 Information Collation

There are many sources of information that will be key to the implementation of the strategy in a resource efficient manner.

8.1.1 Sources

Information sources on actual or potential contamination at sites include:

- Landmark
- Paper Copy Maps
- Coal Authority records
- Scottish Enterprise
- Keeper of Local History (Callender House)
- Landfill Gas Surveys
- Contaminated land reports held in Environmental Health, Building Control and Planning Departments.
- Reports held by landholders, occupiers and developers.
- Data provided by the council to the Scottish Vacant and Derelict Land Survey for the past three years.

8.1.2 Receptors

As discussed previously (Section 4), information on statutory sensitive receptors is held on the Council's GIS database. Further information has been obtained from SEPA in relation to water quality data and criteria. Where appropriate further information on sensitive receptors and harm to those receptors will be sought through further discussion with other bodies such as SNH, SEPA and British Waterways.

8.1.3 Controlled Waters

The Authority holds geology maps for the whole of their area, Ordnance Survey maps and the Hydrogeology map for Scotland which will be used in the initial screening assessment to determine the likely risk to controlled waters of any contaminated sites identified. Further information will be sought from SEPA in accordance with the Framework Document developed by SEPA, in consultation with the Local Authorities, and described further in Section 6.

8.2 Information and Complaints

It is recognised that during the process of strategy implementation information and enquiries will be received from third parties which will need to be dealt with in a consistent manner.

Falkirk Council has an existing central system for the receipt of enquiries and this shall be used for enquiries received regarding the Contaminated Land regime. All enquiries will be passed to the Contaminated Land Specialist and dealt with appropriately.

All information received from third parties will be logged on the contaminated land database described in Section 5.6. Paper copies of the material will be held in the file relating to the relevant site.

Information Evaluation

The definition of contaminated land is based on the principles of risk assessment. In the first instance it is necessary to determine whether there is a possible route or "pollutant linkage" whereby any contaminant present on the site can cause harm to a sensitive receptor.

If such a pollutant linkage does exist then it needs to be determined whether the harm, or potential harm, to the sensitive receptor is sufficiently significant to merit the site as being statutorily contaminated.

Guidance on the definition of significant harm is provided in the Statutory Guidance to the Regulations. In addition there are various current and proposed government publications relating to these issues which are and will be available. The Contaminated Land Specialist will establish a library of reference sources for information which will assist Falkirk Council in determining the risks associated with individual sites.

All planning applications are passed to the Contaminated Land Specialist for assessment and conditions applied as necessary. As sites are progressed through the planning system amendments to the contaminated land database will be made as required.

At the early stages of the screening process the evaluation of risk and harm will be a qualitative assessment based on the information provided and using professional judgement to determine whether the risks are present or not and if they are significant or not. At the later stages of the process, where it is almost certain that risks are present on a site, there will be a need to call on specialist consultants to undertake a quantitative risk assessment based on assessing likely exposure routes, magnitude of exposure and toxicological properties of materials.

The Council will ensure that all personnel undertaking contaminated land risk assessment will be suitably trained and will be expected to participate in continued professional development.

8.4 Contaminated Land Database

The contaminated land database contains all pro-formas for data entry and information relevant to the site. The pro-formas in the database contain a summery of all information relating to the site and the justification for the decision making process. The database cross-references all other information available about the site such as reports, correspondence, information provided by third party etc.

The contaminated land database can only be accessed by officers involved in the inspection process. However, the information entered into the database and supporting files will form the basis of the public register. Once a site has been designated contaminated under the Regime then certain information pertaining to that site becomes available to the public.

Information on Special Sites will be provided to SEPA when they take over responsibility for the regulation of these sites. SEPA will maintain the public register of Special Sites. SEPA will also be provided with information as required for compilation of the State of Environment Contaminated Land Report.

Requests for information on any site within the Falkirk area should be made to the Contaminated Land Specialist, in the first instance.

9.0 Supporting Information

Falkirk Council Contact Details:

Name	Position	Address	Telephone
Rhona Giesler	Director of Development Services	Abbotsford House, Davids Loan Falkirk	01324 504750
Charles S Morrison	Head of Environmental & Regulatory Services	Abbotsford House Davids Loan Falkirk	01324 504750
Jennifer Stuart	Contaminated Land Specialist	Abbotsford House Davids Loan Falkirk	01324 504750
Graeme Webster	Senior Environmental Health Officer	Abbotsford House Davids Loan Falkirk	01324 504750

The Contaminated Land Specialist should be contacted in the first instance.

GLOSSARY

Appropriate Person

The person determined by the Local Authority in undertaking their duties under the Contaminated Land Regime, as the person who should bear the responsibility for anything that is to be done by way of remediation.

Aquifer

A water bearing bed of strata in which water can be stored or transported.

Baseflow

The element of groundwater that provides water to surface water features such as rivers and lakes.

Building

Any structure or erection, any part of a building including any part below ground, but not including plant or machinery comprised in a building.

Contaminant

A substance which is in, on or under the land which has the potential to cause harm or to cause pollution of controlled waters.

Controlled Waters

Defined in the Contaminated Land Regime by reference to Section 30A of the Control of Pollution Act 1974; this embraces territorial and coastal waters, inland fresh waters and ground waters.

Current Use

Any use which is currently being made, or is likely to be made of the land and which is consistent with any current planning permission (or is otherwise

lawful under town and country planning legislation). This definition is subject to the following qualifications:

a) the current use should be taken to include any temporary use, permitted under town and country planning legislation, to which the land us, or is likely to be, put from time to time;

b) the current use includes future uses or developments which do not require a new, or amended, grant of planning permission.

c) the current use should, nevertheless, be taken to include any likely informal recreational use of the land, whether authorised by the owners or occupiers or not, (for example, children playing on the land); however, in assessing the likelihood of any such informal use, the local authority should give due attention to measures taken to prevent or restrict access to the land; and

d) in the case of agricultural land, however, the current agricultural use should not be taken to extend beyond the growing or rearing of the crops or animals which are habitually grown or reared on the land.

GIS (Geographical Information Systems)

A set of software tools used to input, store, manipulate, analyse and display geographical information. The software was developed as a combination of Computer Aided Design and digital cartographic handling integrated with database software.

Harm

Defined in Section 78A(4) as "harm to health of the living organism or other interface with the ecological systems of which they form a part and, in the case of man, included harm to his property."

Local Agenda 21

In 1992 at the UN conference on the Environment and Development, in Rio de Janerio, over 150 nations, including the UK endorsed a 500 page document,

Agenda 21, which set out how developed and developing countries can work towards sustainable development.

Agenda 21 states that sustainable development requires humanity to:

- Reduce use of energy and raw material.
- Reduce pollution and waste.
- Protect fragile ecosystems.
- Share wealth, opportunities and responsibilities more fairly.

Agenda 21 singles out local government as having a special role to initiate the Local Agenda 21 process by developing partnerships at local level that will achieve actions.

Permeability

A geological feature is said to be permeable if water or other liquid in contact with its upper surface tends to pass through more or less freely to the lower surface. Permeability may be achieved by the strata being porous or through fissures in the strata.

Public Register

Maintained by the enforcing authority under the requirements of Section 78R. Contains particular details relating to Contaminated Land.

Ramsar Site

The International signing of the Waterfowl Habitats Convention in 1971 in the Iranian town of Ramsar (The Ramsar Convention of Wetlands of International Importance, especially Waterfowl Habitats) requires the conservation of wetlands, especially sites listed under the convention. The UK became a signatory in 1973 and the subsequent application of the Ramsar site label to its Sites of Special Scientific Interest (SSSI) indicated them as being Wetland Sites of International Importance, usually because of it value to migratory birds.

Remediation

Defined in Section78A (7) as-

"(a) the doing of anything for the purpose of assessing the condition of-

(i) the contaminated land in question

(ii) any controlled water affected by that land

(iii) any land adjoining or adjacent to that land.

This definition is more widespread that on site works to remove/treat contamination and can include risk assessment, site investigation and monitoring.

Remediation Declaration

Remediation Notice

Remediation Statement

Risk Assessment

Assessing the risks associated with a site, where Risk is the combination of:

(i) the probability, or frequency, of an occurrence that causes harm (a hazard) and

(ii) the magnitude (seriousness) of the consequences of exposure to that hazard.

Sensitive Receptor

An entity vulnerable to the effects of a hazard. In terms of the contaminated land regime is either;

(a) a living organism, a group or living organisms, an ecological system or a piece of property as listed in Chapter A of the Statutory Guidance and which is, or could be, harmed by a contaminant.

(b) Controlled waters which are, or could be, polluted by a contaminant.

SEPA

The Scottish Environment Protection Agency (SEPA) is one of the public bodies responsible for environmental protection in Scotland. It was established under the Environment Act 1995 and became fully operational from 1 April 1996. Scottish Environment Protection Agency. Regulate Special Sites under the provisions of the Contaminated Land Regime.

Significant Pollutant Linkage

A pollutant linkage which forms the basis for the determination that a piece of land is contaminated land.

SNH

Scottish Natural Heritage aims to safeguard and enhance Scotland's natural heritage, particularly its natural, genetic and scenic diversity through awareness and understanding of the natural heritage and encouraging environmental sustainability in all forms of economic activity.

SSSIs

Sites of Special Scientific Interest are defined in the Wildlife and Countryside Act as areas of land or water, in the opinion of SNH are of special interest by reason of their flora, fauna, geological or physiographical features. SNH has a statutory duty to notify and seek appropriate protection for such sites which are identified in accordance with guidelines developed and applied on a Great Britain basis. SSSIs provide a foundation for a range of additional natural heritage designations and are therefore at the core of national and international arrangements for the protection of species, habitats and geological or geomorphological features.

Suitable for Use

Land where, after adequate investigation and risk assessment has been deemed suitable for its current use. This will be due to an absence of a significant pollutant linkage.

Special Protection Area

The Wild Birds Directive was adopted in April 1979 by the European Council of Ministers, in response to the need to provide conservation measures for migratory birds. It called upon Member States to implement the Directive within two years (1981) and provide a list of SPAs to be notified.

Conservation measures required by the Directive include;

Prohibition on the killing or taking of species listed in Annex 1 of the Directive.

Monitoring of bird populations.

Conservation of Bird habitats as a means of maintaining populations.

Special Area for Conservation

The Habitats and Species Directive was drawn up in response to the continuing threat to natural habitats in Europe and increasing threats to many wild species. According to the Directive SACs are to be afforded absolute protection subject to "imperative reasons of overriding public interest, including those of a social or economic interest". Article 6 of the Directive lists outlines a number of conservation measures to be established for SACs by the Member States including:

- Management Plans.
- Special measures to avoid significant deterioration of natural habitats and the habitats of species.
- Environmental assessment of all projects not directly necessary for the management of the site.

SNH will not agree to activities which will adversely affect the integrity of the site unless they are necessary for imperative reasons of overriding public interest (including those of a social or economic nature), in which case compensatory measures must be adopted.

Bibliography

Regulatory Context

Scottish Executive Circular 1/2000, Rural Affairs Department, 12 July 2000.
Includes the Statutory Guidance issued under Part IIA.
Environmental Protection Act 1990 Part IIA *(Contaminated Land)*
Environmental Protection Act 1990 Section 27 *(Integrated Pollution Control)*
Part II Environmental Protection Act 1990 *(Waste Management Licensing)*
Part III of the Environmental Protection Act 1990 *(Statutory Nuisance)*
Environmental Protection Act 1990 Section 78YC *(Radioactivity)*
Environment Act 1995 (Section 57)
Environment Act 1995 (Commencement Order NO. 17 and Saving Provision) (Scotland) Order 2000 (SI 2000/180)
Contaminated Land (Scotland) Regulations 2000 (SI 2000/178)

Planning & Development Control

Planning Advice Note (PAN) 33, Development of Contaminated Land
PAN 51 Planning and Environmental Protection
Town and Country Planning (Scotland) Act 1997 Section 26

Building Standards (Scotland) Regulations 1990, made under the Building (Scotland) Act 1959. Included Part G of the Technical Standards for Compliance (Preparation of Sites and Resistance to Moisture)

Others

EC Integrated Pollution Prevention and Control Directive (96/61/EC)
Scottish Office Circular 10/94
Control of Pollution Act 1974
In particular, Part II (Discharge Consents); Sections 31 to 40 on prevention of pollution of controlled waters; Section 46A Works Notices

Part 1 of the Food and Environment Protection Act 1985.
The Health and Safety at Work, etc, Act 1974
Construction (Design and Management) Regulations 1994 (SI 1994/3140)
The Finance Act 1996 (Landfill Tax)
The Control of Major Accident Hazards Regulations 1999 (SI 1999/743) (COMAH)

Department of the Environment, Transport and the Regions
For further information please contact Land Quality Branch, Tel 020 7944 5287.

Department of the Environment,Transport and the Regions *Guidelines for Environmental Risk Assessment and Management; Revised Departmental Guidance* Joint with the Environment Agency and the Institute for Environment and Health

ICRCL (Inter-Departmental Committee on the Redevelopment of Contaminated Land) Publications. The ICRCL was set up in 1976 and consisted of representatives from other Government Departments. Its role was to develop and co-ordinate advice and guidance on human health hazards arising from the re-use of contaminated land and to co-ordinate advice on remedial measures. ICRCL now exists only as a forum for inter-departmental liaison, rather than as a body developing technical guidance. These publications are shortly to be superseded by new guidance being developed as part of the Contaminated Land Exposure Assessment (CLEA) model and associated guideline value and toxicological data papers.

CLR Published Research Reports. A series of reports financed under the Contaminated Land Research Programme which deals with information needed to assess risks; procedures for categorising and assessing risks; and evaluation and selection of remedial methods. The purpose of the reports is to provide regulators, developers and other interested parties with authoritative and researched advice on how best to identify and assess the problems contamination can pose and what can be done to tackle them. They cannot, however, address the specific circumstances of each site as every site is unique.

Industry Profiles. The DOE Industry Profiles provide developers, local authorities and anyone else interested in contaminated land, with information on the processes, materials and wastes associated with individual industries. They also provide information on the contamination which might be associated with specific industries, factors that affect the likely presence of contamination, the effect of mobility of contaminants and guidance on potential contaminants. They are not definitive studies but they introduce some of the technical considerations that need to be borne in mind at the start of an investigation for possible contamination.

SNIFFER

The Scotland and Northern Ireland Forum for Environmental Research (SNIFFER) reports:

Framework for deriving numeric targets to minimise the adverse human health effects of long-term exposure to contaminants in soil: SR99(02)

A guidance manual and protocol for assessing potential adverse effects of substances in soil on designated terrestrial ecosystems: SR(99)01

Communicating Understanding of Contaminated Land Risks: SR97(11)

SEPA

The bulk of SEPA's research is carried out by SNIFFER, but SEPA has funded some contaminated land related research. The reports resulting from this work are detailed below:

Methodology to derive tolerable daily intakes (available through web-site)

Sensitivity analysis of SNIFFER framework for deriving numeric targets to minimise the adverse human health effects of long-term exposure to contaminants in soil]

Environment Agency

The Environment Agency has an extensive research programme, including a number of projects key to Part IIA, including:

Methodology for the derivation of remedial targets for soil and groundwater to protect water resources: R&D publication 20.

Land contamination risk assessment tools: an evaluation of some of the commonly used methods: Technical Report P260

Guidance for the safe development of housing on land affected by contamination: ISBN 011 3101775, obtainable from The Stationary Office.

Consim software: obtainable from Golders Associates, Nottingham.

Other Useful Organisations

NICOLE - network for industrially contaminated land in Europe
www.nicole.org

SAGTA - soil and groundwater technology association
www.sagta.org.uk

CLARRC - Contaminated Land Assessment and Remediation Research Centre
www.clarrc.ed.ac.uk

AEA

The Government's Warren Spring Laboratory merged with AEA Technology on 1 April 1994 to form the National Environmental Technology Centre. Warren Spring publications on contaminated land are available from them.

Building Research Establishment (BRE)

BRE Bookshop, CRC Limited, 151 Rosebery Avenue, London EC1R 4GB (tel 0171 505 6622).

Web-site: http://www.bre.co.uk

Concerted Action on Risk Assessment for Contaminated Sites in Europe (CARACAS).

Land Quality Press, Land Quality Management Ltd, SCHEME, The University of Nottingham, University Park, Nottingham NG7 2RD, UK. Cheques made payable to "Land Quality Management Limited". Tel. 0115 951 4099: Fax. 0115 951 4640.

Web site: http://www.caracas.at

Construction Industry Research and Information Association (CIRIA).

Construction Industry Research and Information Association, 6 Storey's Gate, Westminster, London SW1P 3AU (tel. 0171 222 8891).

Web site: http://www.ciria.org.uk

Contaminated Land: Applications in Real Environments (CLAIRE).

CLAIRE is a public/private partnership that will play a major part in driving forward the Government's commitment to sustainable remediation of contaminated land. It will work closely with site owners, technology vendors and researchers to establish a network of test sites broadly representing the main types of contaminated land that occur in the UK. For more information tel. 020 7316 6269 or on the internet (http://www.claire.co.uk).

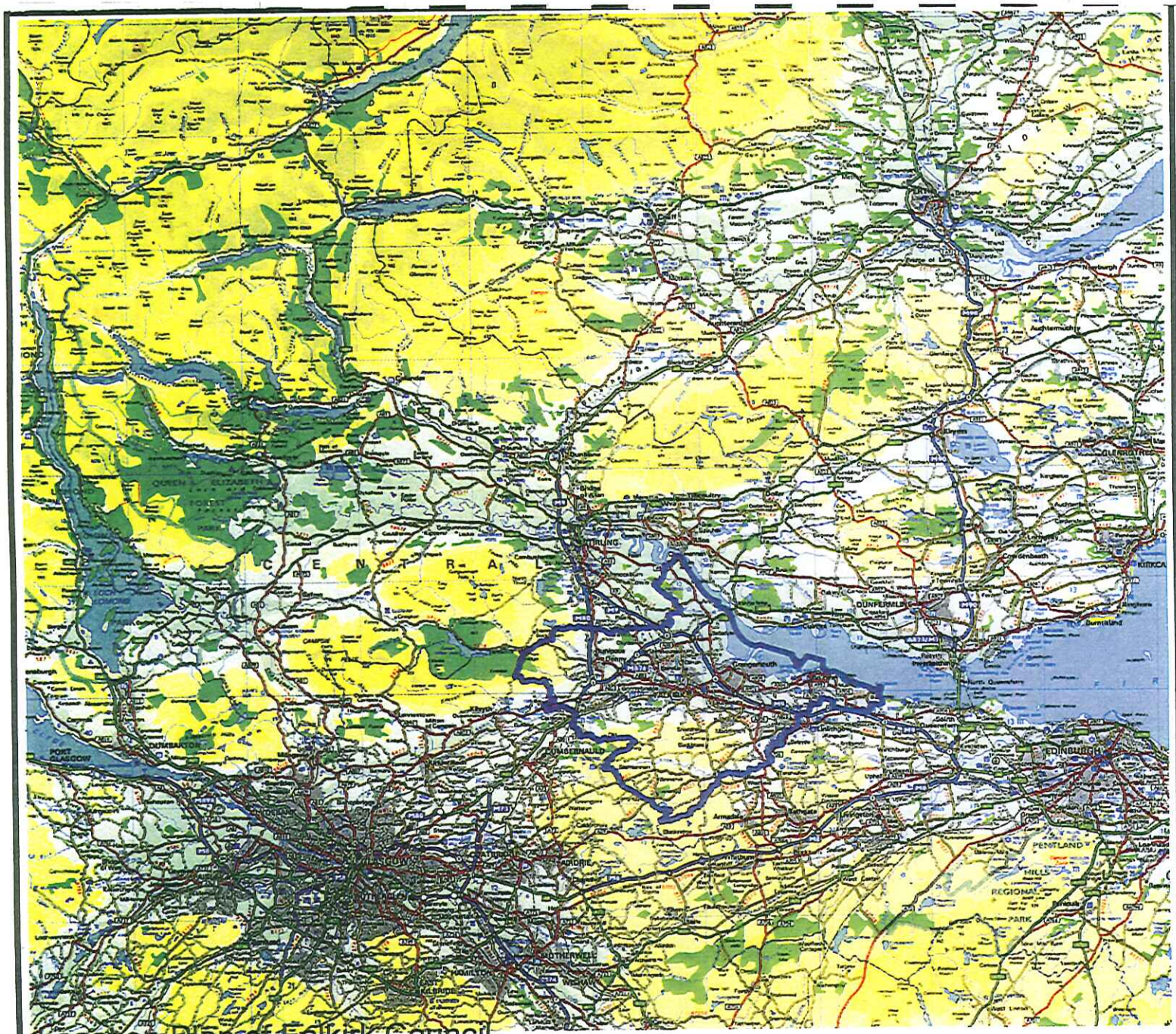
Health and Safety Executive (HSE).

Health and Safety Executive Bookshop, PO Box 1999, Sudbury, Suffolk, C010 6FS (tel. 01787 881 165).

Web-site http://www.open.gov.uk/hse/hsehome.htm

Appendix 1

Maps



Location Plan of Falkirk Council

Falkirk Council
Development Services

Scale: 1:500000

6000 0 6000 12000 Meters

N
W E
S

Urban Areas & Main Water Features