Brownfield Sites and Non-Native Invasive species

Planning Guidance Note

Introduction

The development process often involves redevelopment of brownfield and/or derelict sites. Some sites, particularly those that have been used for industrial processes, will be affected by contamination or non-native invasive species. Contamination may include soils contaminated by chemicals, migration of contaminates to ground and surface waters, and the production of hazardous gases.

The purpose of this guide is to provide planning agents, developers and other applicants with details of the type and extent of investigations and decontamination schemes required by the Council for these sites. This is so that the Council can discharge its statutory responsibilities relating to planning and building standards applications, whilst addressing relevant environmental health issues.

The Council will also consult and have regard to comments made by other bodies, principally the Scottish Environmental Protection Agency (SEPA). SEPA has various regulatory powers relating to the protection of ground and surface waters.

Format of Guidance

All planning guidance notes are material considerations in the assessment of planning applications and shall be afforded significant weight in the decision making process. Failure to comply with Guidance Notes may be a reason for refusal of planning consent.

Planning Framework

This guidance should be reading conjunction with:

- DEFRA and the Environment Agency's Model Procedures for the Management of Land Contamination (CLR 11); and
- Planning Advice Note (PAN) 33, which states *"Where planning consent is granted for a site on which the presence of contamination is known or suspected, an advisory note may be attached to the planning permission informing the applicant(s) that the responsibility for the safe development of the site rests with the developer. It may also warn the applicant that the planning authority has determined the application on the basis of the information available to it, but this does not mean that the land is free from contamination."*

Policy Guidance

For applications where the developer or the Planning Authority considers there may be contaminated land, contaminated land reports must be submitted in support of the planning application and must be of an acceptable minimum standard in order to satisfy statutory requirements.

If you are proposing to develop land that may be contaminated, you are advised to contact the Council at an early stage to discuss land contamination issues before submitting a planning application. A developer can be held liable if they knowingly permit residents to live on a site where there is a risk from contamination.

The applicant needs to satisfy the Council that unacceptable risk from contamination will be successfully addressed through remedial action without undue environmental impact during and following the development. Where an agreed remediation scheme includes future monitoring and maintenance schemes, arrangements will need to be made to ensure that any subsequent owner is fully aware of these requirements and assumes ongoing responsibilities that are tied to the land.

Guidance from the Government recognises that potential contamination is a material planning consideration and that during the development phase is the most cost-effective time to deal with it. The Council has a duty under Part IIA of the Environmental Protection Act 1990 (as amended) to inspect its area for potentially contaminated land irrespective of whether it is subject to a development proposal. Where contamination is found to be significant, the Council will actively take steps to remove or reduce the risk to people and the environment.

The following information provides the background to the expected standard required by the Planning Authority and Environmental Health Services in respect of the Contaminated Land Report.

Site Characterisation and Risk Assessment

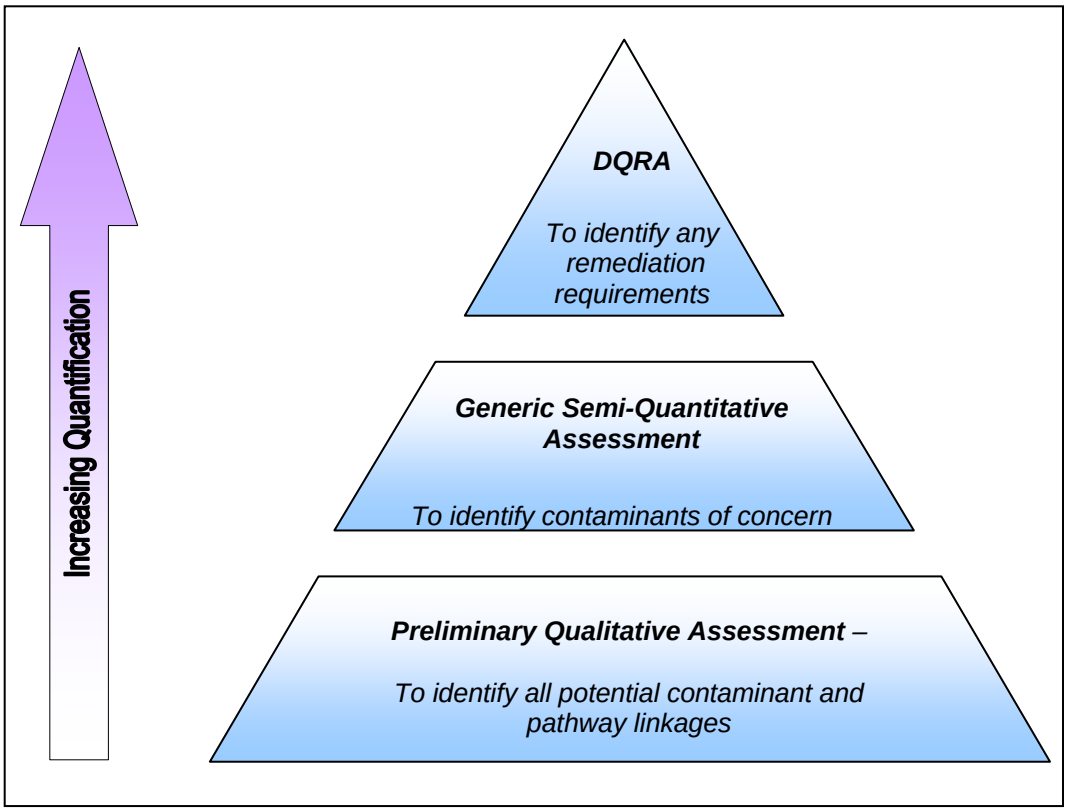
Although contamination is widespread, it may not always be present in a form that would pose an unacceptable risk to human health, water environment, property, ecological systems and the environment. Therefore, it would be unreasonable to require every application to be supported by an intrusive investigation.

The objective of Stage 1 and Stage 2 investigations is to establish a risk assessment to enable the applicant and the regulators to clearly define the risk of harm to existing and proposed end users and other environmental receptors from contamination.

Competent and experienced persons must carry out all elements of the site characterisation. Usually, this would mean commissioning consultants or specialists. These persons must be familiar with all elements of modern risk assessment and site investigation techniques. They should also be familiar with current UK policy and the legislative framework surrounding land affected by contamination.

The UK Risk Assessment Framework is based on a staged or tiered approach:

- Stage 1 – Preliminary Risk Assessment;
- Stage 2 – Generic Risk Assessment (GQRA)s; and,
- Stage 3 – Detailed Quantitative Risk Assessment (DQRA).



All risks must be evaluated fully, to ensure that justifiable conclusions about the nature and level of risk have been drawn. Any recommendations made must be defensible and any uncertainties regarding risk evaluation must be identified.

Stage 1 – Desktop Study, Site Walkover and Preliminary Risk Assessment

The object of the study is to formulate a Conceptual Model and a qualitative preliminary risk assessment. Typically this should include:

- a plan of the proposed site layout;
- site reconnaissance or walkover;
- a description of the site including geology, hydrogeology and current site use;
- review of current and historical maps;
- previous, present and proposed uses of the site and direct vicinity;

- details of any waste disposal practises;
- details of any spillage or pollution incidents;
- any excavation and infilling activities; and,
- review of any previous investigations.

This list is indicative only, and is only used as a guideline for some of the key features. For further details of the conceptual model and preliminary risk assessment, please refer to CLR 11.

During the initial desktop study, it will be expected that contact is made with the Planning Authority.

The risk assessment derived from the Conceptual Model will indicate whether it is necessary for it to be followed by an intrusive or Phase 2 Investigation and Risk Assessment. This is usually referred to as a Tier/Phase/Stage 2 Assessment.

Stage 2 – Intrusive Site Investigation

The aim of an intrusive site investigation (Tier/Phase/Stage 2 Assessment) is to clarify the outlined risk assessments associated with Phase 1 investigation and can be the appropriate point to monitor off-site and potential impact of migrating contaminants.

All investigations should be site specific and must be carried out by suitably competent and experienced consultants and specialists. This will include access to specialist contractors and engineers. The investigation should include sampling techniques carried out in accordance with BS10175:2001 Investigation of potentially contaminated sites – code of practice and CLR 11.

When completed, the results of the investigation should be compared against suitable criteria. Where these are unavailable for a particular substance, it is expected that the most appropriate Risk Assessment Tool is used with full justification for this choice.

The following are examples of risk assessment tools currently available:

Human Health	Water Environment
• CLEA UK version 1.03 Beta • Risk Based Corrective Action (RBCA) Toolkit Version 2 – USEPA • (BP) RISC Human – RIVM •	• Environment Agency Remedial Targets Methodology and Worksheet • ConSim • Risk Based Corrective Action (RBCA) Toolkit Version 2 – USEPA

This list is not exhaustive and it is the responsibility of the person undertaking the risk assessment to ensure that the most appropriate risk assessment tool is used and that it is current.

Risks to groundwater and surface waters should be assessed in line with current SEPA guidance. In particular SEPA's Position Statement WAT-PS-10-01 Assigning Groundwater Assessment Criteria for Pollutant Inputs should be used. Please refer to SEPA contaminated land website or contact SEPA for further advice.

Ground Gas Risk Assessment

Where the potential for migration of ground gases has previously been identified, further investigations will be required. This type of investigation will need to be carried out in accordance with suitable risk assessment methods. Examples of this type of available guidance include:

- CIRIA Guide C665. Assessing risks posed by hazardous ground gases to buildings (revised);
- CIRIA 149 Protecting Development from Methane;
- NHBC Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present; and,
- CIEH Ground Gas Handbook.

Reporting

After the completion of the investigative works, a report detailing the methodologies used in the investigation, results, risk assessment, conclusions and recommendations will be submitted to the Planning Authority. It is expected that the report will also include:

- a rationale for sampling;
- field sampling techniques utilised;
- scaled sampling plans;
- borehole logs and soil profile;
- range of contaminants analysed;
- plan showing location of significant contamination;
- any uncertainties relating to the conclusions; and,
- recommendations.

After the Phase 2 Investigation has been completed, the preliminary conceptual model and risk assessment must be reviewed to see if the potential risk to human health, water environment and the environment have been realised to the satisfaction of the Local Authority.

Remediation Scheme

Where the assessment identifies unacceptable risks to human health, property, or the environment, a suitable remediation scheme must be produced. The remediation scheme will comprise a number of components such as those indicated in the illustration below. At this stage a verification/validation plan should be included within the remediation strategy design, to demonstrate that no pollutant linkages remain or are likely to occur. This report must be submitted to, and agreed in writing by, the Planning Authority, before remediation works commence.

If any ground works are required to be undertaken prior to the commencement of the remediation scheme, they must be approved in writing by the Planning Authority.

Where remediation includes importation of soils onto the site, either for gardens or soft landscaping purposes, these must be suitable for use. The Planning Authority will require developers to provide documentation before importation of such soils so that they are able to demonstrate this. The Planning Authority encourages developers to contact SEPA prior to the importation of soils so that the details can be agreed.

Suitably trained and competent persons shall be appointed to oversee the remediation works. They shall also be responsible for the safety of site workers and the public. These procedures must be in place before the work commences. Appropriate and adequate insurances must be in place including professional indemnity and public liability.

The appointed person shall be responsible for the documented identification, handling, storage and fate of contaminated waste. There may also be a requirement for a waste management licence or permit. Please contact SEPA for specific advice on these matters.

Contaminated soils which require treatment during site redevelopment are likely to fall within the scope of the definition of waste in the revised Directive on Waste 2008/98/EC (as amended).

Treatment processes and the use of treated materials on site require regulation under the legislation governing the management of waste. These guidelines set out SEPA's approach to regulating such treatment processes and the subsequent use of treated materials under the waste management licensing regime.

Guidelines are set out SEPA's document, 'Land remediation and waste management guidelines'. This outlines the approach to regulating the remediation of contaminated sites under the waste regulatory regime and when it will be applied by SEPA to site remediation and redevelopment activities. It is recommended that contact is made with SEPA's waste section regarding any proposals which may be effected by the waste management regulations.

The presence of any previously unrecorded contamination, or any variation to reported ground conditions that becomes evident during site works, shall be brought to the attention of the Planning Authority immediately. The risk assessment shall need to be reviewed in the light of this, and any consequential amendments to the Remediation Strategy shall not be implemented unless it has been submitted to and approved in writing by the Planning Authority.

The Planning Authority will prefer the use of sustainable remediation techniques, as opposed to the 'dig-and-dump' method. Off-site disposal of grossly contaminated materials may still be necessary. However, current

technology allows soils and waters contaminated to certain levels to be treated for reuse. A range of alternative technologies has been developed for dealing with contamination in situ and the options appraisal should identify and evaluate all feasible remediation options available. Once a preferred methodology has been identified, the remediation strategy can be developed.

The remediation strategy should define remediation criteria for each pollutant linkage of concern ('remediation target values'), identify remedial options and include health and safety plans and verification/completion procedures. The remediation objectives should be clear, unambiguous and agreed with the local planning authority. Where appropriate, a monitoring programme should be identified in order to verify the long-term effectiveness measures.

The remediation strategy will involve breaking the pollutant linkages by source control, pathway control or receptor control.

Contingency Plans

Contingency Plans are required to account for the following events;

- additional contamination is discovered;
- the remediation works fail; or,
- contamination occurs as a result of the remediation works (e.g. spillage of fuel oil or pathway linkage created by borehole.

Completion Reporting

After completion of the remediation works, a validation report must be submitted to the Planning Authority for approval, before construction begins (unless the remediation forms part of the construction). The validation report demonstrates whether the agreed remediation objectives have been met. This may include:

- a summary of the risks that have been managed;
- validation sampling of any imported topsoil and certification of the source of the material (including appropriate analysis);
- validation of soil horizons where plants and vegetables could be grown;
- certification of any gas protection measures installed in individual plots;
- 'Duty of Care' waste disposal documentation; and,
- remediation to be agreed on a site specific basis.

There may be a requirement for future monitoring of the site, to verify whether the remediation has been successful, particularly where on-site treatment processes have been used.

Subject to the findings of the validation report, the Planning Authority may require further works, including sampling and remediation to be undertaken.

In situations where the remediation forms part of the construction, progress reports should be submitted on a regular basis with a final validation report submitted to the Planning Authority prior to the site being occupied.

The main purpose of the progress reports is to ensure that the work is validated as construction progresses rather than having to wait until the construction is complete. This should then ensure that any issues can be resolved early on therefore avoiding any unnecessary delay on completion of the works.

General Requirements

There are some matters that an applicant has to consider for all parts of the investigation and remediation.

Competency

Care must be taken to ensure that additional pollutant linkages are not created during any works carried out at the site. This could result in the site being determined as contaminated under Part IIA of the Environmental Protection Act 1990. Particular care must be taken when any piling is necessary. Piling can: create direct pathways into groundwater; fissures in the strata may allow the migration of gases; and, may risk exposing site workers to contaminated arisings. This highlights the need for specialist advice for all parts of the investigation. The Planning Authority encourages developers to contact the Contaminated Land Officer prior to the importation of soils so that the details can be agreed.

Many organisations feel able to complete part of the assessment (usually the desktop study). The Council will have regard both to the content of reports and to professional experience, affiliation and demonstrable expertise. A failure to demonstrate this could lead to the report being rejected.

A specialist consultant should be commissioned to carry out all aspects of the investigation. They should be able to demonstrate:

- experience;
- technical expertise in site investigation and remediation; and,
- familiarity with current UK policy relating to contaminated land, and associated key guidance documents:
    - familiarity with the legal framework surrounding contaminated land;
    - knowledge in the use and application of best practice techniques; and,
    - full Quality Assurance and Quality Control.

In all cases, all reports should be rational, ordered and in sufficient detail to demonstrate a logical progression of the assessment procedure. The reports should be clear and avoid excessive use of scientific terminology. They should also include a summary written in non-technical language.

Health and Safety

The developer is responsible for ensuring that site workers and members of the public are protected from the potential effects of contamination during the entire process. Enforcement for health and safety matters on construction sites is the responsibility of the Health and Safety Executive (HSE).

Parts of East Dunbartonshire have been subjected to mining activities, which can result in the presence of unstable land and mine gases. Any development proposals in these areas will need to afford full consideration to the risks posed by mining legacy issues and, where necessary, set out appropriate remedial measures to address the risks, in the interests of public health and safety. Further information on coal mining legacy can be obtained from the Coal Authority Mining Reports Service, available from www.groundstability.com or by telephoning 0845 762 6848.

Construction (Design and Management) Regulations 2007

The Construction (Design and Management) Regulations 2007 places legal duties on virtually everyone involved in construction work.

Anyone having construction or building work carried out has legal duties under the Construction (Design and Management) Regulations 2007 (CDM 2007), unless they are a domestic client.

A CDM coordinator is required for all HSE notifiable projects. The client can appoint themselves the CDM co-ordinator and/or principal contractor, provided they have the necessary competence and resources to comply with the additional CDM duties.

Serious breaches of health and safety legislation on the construction project could result in construction work being stopped by HSE or the Local Authority and additional work may be needed to put things right. In the most serious circumstances, investigations could lead to prosecution.

Further information on the CDM regulations can be obtained from the HSE website.

Environmental Protection Act 1990 Part IIA

The applicant is responsible for:

(a) providing sufficient correct information to ascertain whether a site is contaminated and that it has successfully been decontaminated. Many of the decisions made by the Local Authority will be on the basis of the information that has been provided to it; and,

(b) the safe development and secure occupancy of the site.

Following the implementation of Part IIA of the Environmental Protection Act 1990 in Scotland in July 2000, all Local Authorities are required to inspect their area to identify sites that have the potential of being ‘contaminated land’ as defined by the Act.

For the purposes of Part IIA, a site can only be formally identified as ‘Contaminated Land’ if it meets the following criteria as defined under Section 78A(2) of the Act:

- *“any land which appears to the Local Authority to be in such a condition, by reason of substances in, on, or under the land, that significant harm is being caused, or there is a significant possibility of such harm being caused; or significant pollution of the water environment is being caused or there is significant possibility of such pollution being caused”.*

‘Harm’ is subsequently 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.”*

‘Harm’ in relation to the water environment, has the same meaning as in section 20(6) of the Water Environment and Water Services (Scotland) Act 2003.

‘Pollution’ in relation to the water environment, means the direct or indirect introduction as a result of human activity, of substances into the water environment, or any part of it, which may give rise to harm.

While these definitions are specific to the Part IIA regime, it is important when developing a site under the planning regime that Part IIA is considered as failure to remediate land to a standard that removes the significant risks to all receptors is likely to result in formal action being taken post development, at the expense of those persons deemed ‘appropriate’ at the time, as defined by the Act.

Section 78F(2) of the Environmental Protection Act 1990 defines ‘appropriate persons’ as those who have caused or knowingly permitted a pollutant to be in, or under the land. As such, they may be liable for the remediation of the site if it is subsequently determined as contaminated land by the Local Authority. However, there are also circumstances under which the current owner or occupier of the contaminated land in question is an appropriate person.

Non-Native Species and Remediation Works

Prior to any works on site, developers should survey the site to ensure the site is clear of non-native invasive species. Should an invasive non-native species be discovered, developers must take the appropriate action to avoid further spread. Developers should contact Scottish Environment Protection Agency Heritage and prepare an appropriate Disposal Plan. Failure to do so may be unlawful and can lead to prosecution.

Non-native invasive species include:

- Japanese Knotweed;
- Giant Hogweed (Heracleum Mantegazzianum); and,
- New Zealand Pygmyweed (Crassula Helmsii).

Japanese Knotweed

Japanese Knotweed is a hardy 'bamboo like' perennial that was imported as an ornamental plant from Japan by the Victorians. It has since become naturalised and is now regarded as one of the most invasive plants in Britain. Unchecked by its natural predators, Knotweed is found on river banks, woodlands, grasslands, coastal areas, urban parks and private gardens. It is also able to grow through brickwork, tarmac and concrete.

The seeds are not productive. However, the smallest fragment, as small as 10mm of rhizome can produce new plants. Knotweed easily spreads to other areas as cut stems, shoots, crowns or roots (rhizomes) are distributed.

Unless it is part of knotweed eradication work being carried out by specialist contractors, do not dig and relocate soil from where there rhizomes may be present i.e. within 7-metre radius from plant stem. Not only is this action against the law, it could cause the plant to spread.

Do not excavate rhizome unless you have to, especially if you do not have the capacity to treat the material on site.

The **Wildlife and Countryside Act 1981** (WCA) provides the primary controls on the release of non-native species into the wild in Great Britain. It is an offence under the act to *"plant"* or *"otherwise cause to grow in the wild"* a number of non-native plant species, including Japanese Knotweed. The Council may take enforcement action under Wildlife and Countryside Act 1981, but there are also a number of other organisations with the power to do so, including the Police and the Scottish Environment Protection Agency (SEPA).

You will not be prosecuted for having Japanese Knotweed growing on your land.

However, under the **Nature Conservation (Scotland) Act 2004**, the Scottish National Heritage (SNH) can issue you with a management order, if you are close to or threaten the interest of a Site of Special Scientific Interest (SSSI). The main aim of the order is to ensure that the relevant action is being taken to rectify the situation.

The **Environmental Protection Act 1990** (EPA 1990) contains a number of legal provisions concerning 'controlled waste', which are set out in Part II. Any knotweed contaminated soil or plant material that you discard, intend to discard or are required to discard is likely to be classified as controlled waste. SEPA is responsible for regulating this waste and would also require consultation under the Control of Pesticides Regulations 1986 for authorising the use of pesticides in or near water.

Giant Hogweed (Heracleum Mantegazzianum)

Giant Hogweed is easy to identify when fully grown by height, which can be up to 5 metres, size of leaves and size of flowers. It can, however, be confused with native hogweed when not fully grown or when growth is stunted (e.g. re-growth after cutting).

Giant Hogweed was introduced as an ornamental plant and was first recorded wild in the UK in the late 19th century. It spreads solely by seeds, mainly through deliberate planting, wind dispersal and in watercourses.

Small amounts of sap can cause blistering of the skin following exposure to sunlight. Other negative impacts include out-competing native flora, river bank erosion and increase in flood risk. Giant Hogweed can also cause delays and additional costs on development sites where the plant must be removed as controlled waste in order to comply with legislation.

Giant hogweed is listed under Schedule 9 of the Wildlife and Countryside Act 1981. As such, it is an offence to plant or otherwise cause this species to grow in the wild. Under the Environmental Protection Act 1990, Giant Hogweed is classified as controlled waste.

New Zealand Pygmyweed (Crassula Helmsii)

New Zealand Pygmyweed is an aquatic plant which can be submerged, emergent and terrestrial. It is readily recognisable when growing at the edges of water bodies by its fleshy leaves. Submerged leaves are less easy to see and recognise. New Zealand Pygmyweed reproduces from very small stem fragments but does not produce viable seed in the UK.

It forms dense mats and can impede drainage, causing flooding. New Zealand Pygmyweed also displaces other aquatic plant species and reduces amenity use of the waterbody.

New Zealand Pygmyweed is listed under Schedule 9 to the Wildlife and Countryside Act 1981. As such it is an offence to plant or otherwise cause this species to grow in the wild in Scotland.

Removal

The removal of large amounts of invasive plants along or near watercourses can affect otters and water voles, and therefore surveys may be required to ensure compliance with the law protecting these species. Where such work falls outwith a planning application, SNH can advise on the species survey requirements.