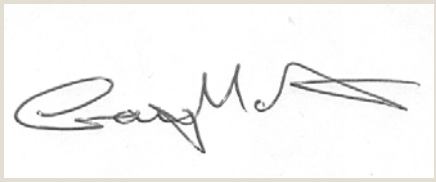
Development of Land Affected by Contamination:
Guidance for Applicants and Developers

Supplementary Planning Guidance Note

Falkirk Council

Development Services

Foreword



Welcome to this supplementary planning guidance note on 'Development of Land Affected by Contamination'. It is one of a suite of such guides promoting development quality in the built environment and takes forward the Council's commitment to sustainable development as set out in the Development Plan.

The industrial revolution has left a legacy of contaminated land in Scotland. The Falkirk area was an important centre for industry including mining, iron working and chemical products manufacture. Due to this industrial past, sites coming forward for development in the Falkirk Council area are potentially impacted by contamination.

At a time when approximately 70% of all planning applications received require a contamination assessment it is appropriate that the Council publish guidance for those wishing to develop on potentially contaminated land.

The SPG will raise awareness of developers' legislative responsibilities when developing potentially contaminated land and detail the information that should be provided to avoid potential liabilities if the work is not submitted to the required standard.

I commend this SPG to you and look forward to it helping us all make Falkirk and District a healthier and more pleasant place to live in.

February 2011

Content




1. Background and Introduction

The industrial revolution has left a legacy of contaminated land in Scotland. The Falkirk area was an important centre for industry including mining, iron and chemical products manufacture. Due to its industrial past, some of Falkirk's development sites are potentially impacted by contamination.

Contamination can pose immediate or long-term risks to human health and the wider environment. Contaminants can migrate and cause air, land, surface water or groundwater pollution, damage to buildings and underground services, or contaminate the food chain.

Land Contamination is addressed by the Local Authority through both planning and environmental legislation. Where a site comes forward for development landowners/developers are required to improve land condition to ensure that any contamination risks are addressed through the planning process. Land that is not subject to a planning application will be considered under Part IIA of the Environmental Protection Act 1990.

National and local planning policy encourages the reuse of previously developed sites, some of which may be contaminated. The rehabilitation of contaminated land through its promotion for development provides the benefits of contributing to the physical enhancement of the area and reduces the need to release greenfield sites for development

This Supplementary Planning Guidance note has been prepared to provide guidance to developers, planning applicants and consultants interested in developing potentially contaminated sites in the Falkirk area and should be read in conjunction with PAN33 and the Model Procedures for the Management of Land Contamination (CLR11).

The document aims to:

1. Detail Falkirk Council's planning process in relation to potential land contamination.

2. Raise awareness of legislative responsibilities when developing potentially contaminated land.

3. Detail what information a planning applicant may be required to submit in order to satisfy their land contamination planning conditions.

4. Provide information on potential liabilities to developers should the work not be submitted to the required standard.

2. Land Contamination and the Planning Process

2.1 Policy Framework

Under the Planning etc (Scotland) Act 2006 the Falkirk Council development plan provides the statutory basis for preparing Supplementary Planning Guidance. Both the Falkirk Council Structure Plan and the modified Finalised Falkirk Council Local Plan contain policies which support the rehabilitation of contaminated land.

Falkirk Council Structure Plan 2007

Policy ENV 16 CONTAMINATED LAND states:

The Council will support the rehabilitation of vacant, derelict and contaminated land through the promotion of redevelopment on specific sites and investment, in partnerships with other agencies, in a prioritised programme of site investigation and remediation measures. Detailed proposals will be incorporated in Local Plans.

Finalised Falkirk Council Local Plan (as modified June 2010)

Policy EQ8 VACANT, DERELICT AND CONTAMINATED LAND states:

The Council will seek to reduce the incidence of vacant, derelict and contaminated land, particularly within the priority areas for enhancement set out in Policy EQ7. Subject to compliance with other local plan policies, development involving the rehabilitation and re-use of derelict land will be encouraged.

Both policies support action to rehabilitate contaminated land through its promotion for development. A key role of the planning system, in dealing with contaminated land, is to ensure that land is made suitable for any new use. This is effected through the development process when planning applications are considered for a new use.

The responsibility for identifying and designating contaminated land lies with the Council under the Environment Act 1995 which implemented the provisions of Part IIA of the Environmental Protection Act 1990. Under this legislation the Council approved, in 2001, an Inspection Strategy whereby potentially contaminated sites are prioritised into high, medium and low risk categories.

2.2 National Advice

Planning Advice Note (PAN) 33: Development on Contaminated Land encourages the reuse of land which may be affected by contamination. The Scottish Government considers the "suitable for use" approach as the most appropriate to deal with the historic legacy of contaminated land, in a way that takes account of environmental, social and economic objectives.

It is the developer/planning applicant's responsibility to ensure that the land is "suitable for its intended use". It is recommended that consultation with the Council's Contaminated Land Team commences as early as possible as this will ensure that the application process runs as efficiently as possible and may lead to cost savings through the programming of work.

In line with guidance, planning applicants will be required to consider contamination if their proposed development falls within 250m of a former industrial use or other potentially contaminative activity. Where it is considered likely that the levels and severity of contamination present on a site may result in the site not being suitable for its intended use, the planning applicant will be required to submit a contaminated land assessment at the outset of the planning process and prior to approval being granted. This is in line with the principals outlined in PAN33.

It should be noted that where a planning applicant wishes to carry out a contaminated land assessment at the outset of the planning process, this will be reviewed at the time when it is submitted in order to ensure that the application progresses as timeously as possible.

Householder Planning Applications and other Small Scale Projects:

Applicants may be surprised to discover that a contaminated land assessment may be required on small scale planning applications e.g. the installation of a conservatory. Generally conservatories will only be conditioned where it is known that a potentially contaminative activity may have occurred within the site and there is a chance that the proposed development may be affected by the contamination e.g. particularly aggressive soil conditions, which may attack the concrete, or services, or where gas mitigation measures which have been incorporated into the existing building may be breached by the proposed development.

A key element of the 'suitable for use' approach is the responsibility of the planning authority to ensure that land is made suitable for the proposed new use. The Planning authority therefore requires that applications include appropriate remediation measures. If they do not, then there are grounds for refusal of planning permission. Where contamination may be present at the site, but it is felt that the contamination risks can be dealt with through various remedial measures e.g. through the use of protective barriers or gas proof membranes, then a contaminated land condition will be placed on the application consent by the Planning Authority. This is felt to be the fairest procedure and ensures that unnecessary financial burdens are not faced by the applicant, and minimises any delays that may be incurred.

2.3 Land Contamination Planning Conditions

2.3.1 Any planning application that may be potentially impacted by contamination will have the following planning conditions placed on the subsequent consent:.

1. No development shall commence on site unless otherwise agreed with the planning authority until a contaminated land assessment has been submitted and approved. The assessment must determine the nature and extent of any contamination on the site, including contamination that may have originated from elsewhere. Any potential risks to human health, property, the water environment and designated ecological sites should be determined. The contaminated land assessment must be approved in writing by the Planning Authority.

2. Where contamination (as defined by Part IIA of the Environmental Protection Act 1990) is encountered, a detailed remediation strategy should be submitted to the Planning Authority demonstrating that the site will be made suitable for its intended use by removing any unacceptable risks, caused by the contamination. The scheme must be approved in writing by the Planning Authority.

3. Prior to the commencement of development of the site, the remediation works must be carried out in accordance with the terms and conditions of the remediation scheme, and as agreed by the Planning Authority. No part of the development shall be occupied until a remediation completion report/validation certificate endorsed by the relevant parties have been submitted to and agreed in writing by the Planning Authority.

4. If unexpected contamination is found after development has begun, development of the affected part of the site must stop. The developer must notify the Planning Authority immediately and carry out a contaminated land assessment, and undertake any necessary remediation works, before development of the affected part of the site may continue.

2.3.2 The Planning Applicant should appoint a suitably qualified, experienced person/ organisation to carry out the works and it is recommended that they should meet the following criteria:

- Relevant profession(s) e.g. environmental scientist, chemist, geologist, hydrogeologist, engineer specialising in contaminated land.
- Member of an appropriate professional body or able to demonstrate that they operate within a quality assurance system.
- Organisation must use appropriately accredited laboratories (e.g. MCERTS or UKAS, where possible).
- Must be aware of and adhere to current legislative requirements including contaminated land, health and safety and the relevant guidance and codes of practice.
- Must be able to carry out contaminated land risk assessments and clearly report the findings.
- Must have and maintain appropriate professional indemnity insurance.

Depending on the nature and extent of contamination, some of the processes involved in the development of the land will require the use of specialist environmental consultants and the services of site investigation contractors or analytical laboratories. Care should be taken in appointing suitable consultants or contractors and applicants should ensure that their appointed consultants/contractors fully understand and can meet the requirements of the land contamination planning conditions.

Falkirk Council cannot recommend consultants, however reference can be made to the Ends Directory www.endsdirectory.com or Yellow Pages www.yell.com.

3. Land Contamination Assessments

3.1 Risk Based Approach

3.1.1 Applicants should note, that the conditions offer a risk based incremental approach. If the first phase of work does not identify any significant contamination risks on or in the vicinity of the site, then no further works will be required. However if significant contamination is suspected, then further works will be required until it has been demonstrated that the site is suitable for its intended use. Further details on what works are required can be found in Sections 3.2 to 3.5.

It is the planning applicant's responsibility to ensure that each stage has been agreed with the Contaminated Land Team and to ensure that all conditions are resolved timeously. It is recommended that consultation with the Contaminated Land Team continues throughout the process. It is also recommended that the planning applicant uses the checklists enclosed within this SPG and downloadable from Falkirk Council's environmental protection website, to ensure that they have submitted all appropriate information in relation to contaminated land.

The legislation requires the Planning Applicant to consider potential risks to human health, the water environment, property and ecologically sensitive receptors, for further details see Part IIA of the Environmental Protection Act 1990.

3.1.2 In most cases, levels of contaminants are sufficiently low that there is no significant risk. However, sometimes contamination may be a risk to public health and the wider environment.

All site investigations should follow a risk based approach to characterise the site as per CLR 11 (See Figure 2: Model Procedures for Management of Land Contamination). The Land Contamination Assessment should establish whether there are any pollutant linkages on site and will be required to identify all potential sources, pathways and receptors that may be present at the site. This is known as developing a Conceptual Site Model (See Figure 1: Example Conceptual Site Model).

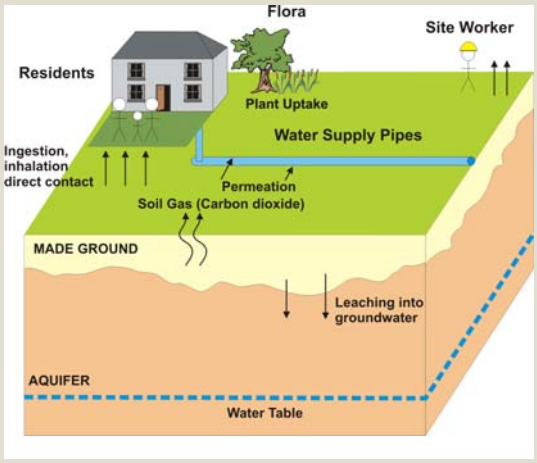


Figure 1 : Example Conceptual Site Model

3.1.3 A pollutant linkage is taken to be a relationship between three on-site factors: source, pathway and receptor. The potential for harm only occurs when the linkage is complete which requires all three elements to be present.

The Conceptual Site Model should take into account both the probability that the contamination will impact on the receptor and the magnitude of any effect.

For further information on creating a Conceptual Site Model and carrying out a preliminary qualitative risk assessment please refer to CLR11 and R&D66 (Guidance for Safe Development of Housing on Land Affected by Contamination). Both are referenced in Appendix 3.

Conceptual site models are useful tools in problem formulation. They present in both visual and written form, the hypothesised relationships between potential pollutant linkages.

A site containing contaminants may not cause significant harm in its existing use; but where a different use is proposed there is the possibility that significant pollutant linkages will be created, or more sensitive receptors introduced.

3.1.4 Contaminated Land Statutory Guidance defines the types of receptor to be protected as follows;

Human Beings;

The Water Environment;
as defined by the Water Environment and Water Services (Scotland) Act 2003.

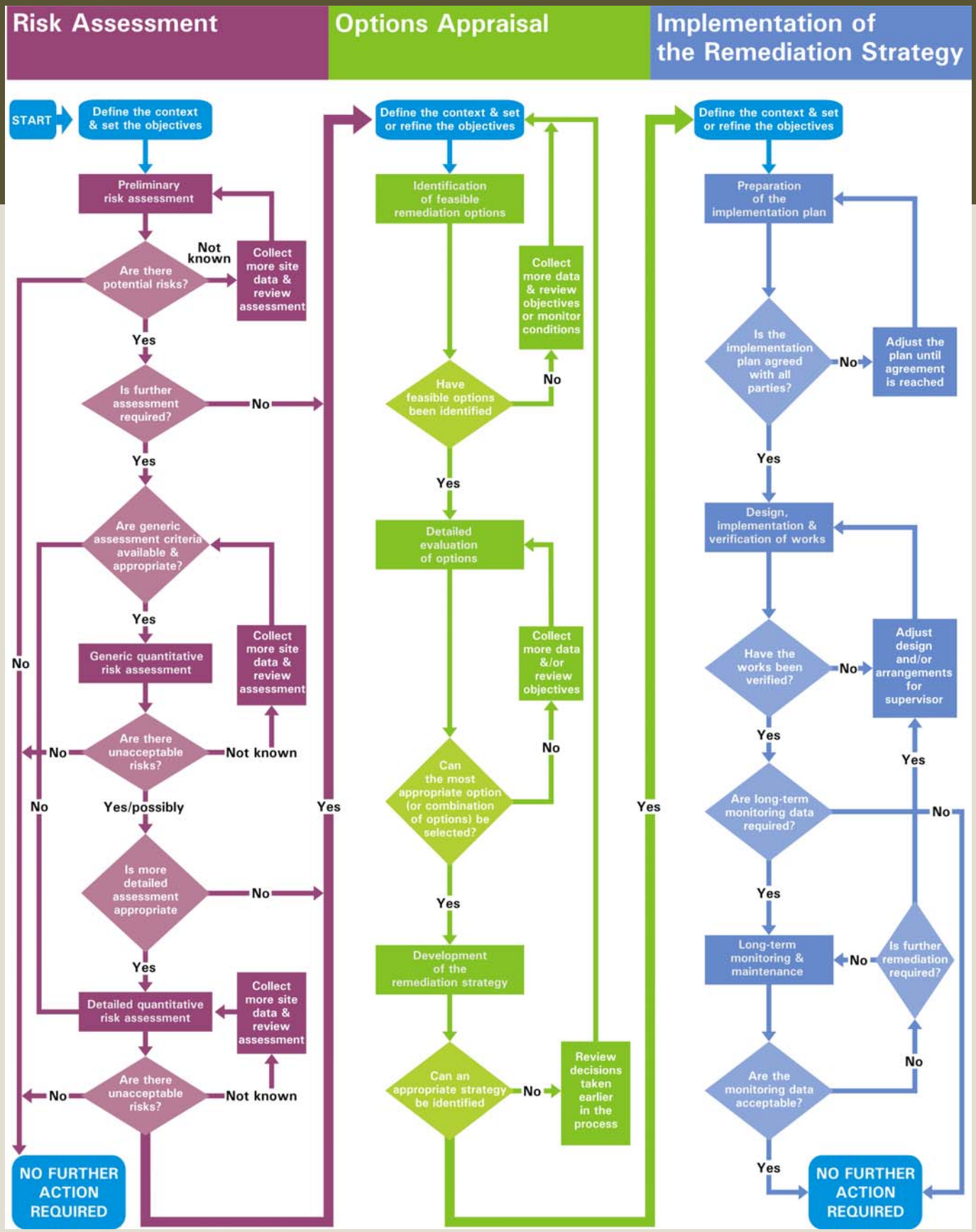
Ecological systems;
meeting the specific requirements as set out in Table A, Part 3 (pp78-80) of the Statutory Guidance; e.g. Sites of Special Scientific Interest; land declared a national nature reserve, etc;

Property in the form of crops;
domestically grown produce, livestock, other owned or domesticated animals and wild animals that are the subject of shooting and fishing rights;

Property in the form of buildings & services.

The assessment process consists of four phases, however progress to Phases 2, 3 & 4 will only occur if deemed necessary in terms of risk and the need for further investigation.

Figure 2 : Model Procedure Flowchart from CLR11



3.2 Phase One:
Desk Study Reviews (Appendix 1, Checklist 1)

The first stage is to carry out what is commonly referred to as a "Phase One desk study review".

The objective of a Phase One desk study review is to identify whether there are any potential sources of contamination at the site or within close proximity to the site that could potentially cause harm to human health, property or pollution of the water environment or sensitive ecological receptors. This process is commonly referred to as developing a "conceptual site model".

All reports must have a conceptual site model (CSM) and a preliminary risk assessment. A review of the conceptual site model and risk assessment will determine whether it will be necessary to carry out Phase two works.

The Phase One desk study review will generally include:

- A review of current & historical maps.
- A site reconnaissance/site walkover.
- A review of geological & hydrogeological maps at an appropriate scale.
- Consultations with regulators e.g. the Local Authority, SEPA and SNH.
- A review of authorisations, discharge consents, licences, etc issued by SEPA.
- A plan of the proposed site at an appropriate scale.
- A review of anecdotal evidence, historical records, etc.
- Preliminary Risk Assessment and Preliminary Conceptual Site Model.
- A recommendation for further works, or a justification for no further works.

The Phase One desk study review should be submitted to the Contaminated Land Team prior to any further works being carried out (if these are required).

3.3 Phase Two:
Intrusive Investigations (Appendix 1, Checklist 2)

If the Phase One review indicates any potential contamination risks at the site, there will be a requirement to carry out further works. Typically these will involve an intrusive investigation.

The Phase Two intrusive works should focus on identifying and quantifying any potential sources, pathways and receptors that were identified during the Phase One. For example, if there was a former petrol tank at the site, the applicant should demonstrate that the tanks and any cabling were/are not leaking and impacting on any receptors e.g. adjacent rivers, etc. Particular attention should be made to areas where potential receptors may come into contact with contamination e.g. garden/ landscaped areas. It is therefore recommended that where possible the intrusive works are not carried out until after the design plan of the proposed development has been finalised.

The Phase Two report should be carried out in accordance with British Standards and current contaminated land guidance e.g. BS10175 and CLR11 Model Procedures.

The Phase Two report will generally include:

- A review of the Phase One report
- A rationale for the intrusive works, sampling procedure and chemical analysis
- Plan showing exploratory hole locations at an appropriate scale
- Diagram indicating areas of concern at an appropriate scale
- Results including Chain of Custody, Laboratory Analysis Certificates and Gas Monitoring
- Borehole/Trial Pit Logs
- Quantitative Risk Assessment
- Refinement of the Conceptual Site Model
- Recommendations for further works or Remedial Works (if required)
- Uncertainties/limitations

Phase Two: Intrusive Investigations

The intrusive investigation may take a phased approach, dependent upon access to the site, and the initial findings of the intrusive works.

There are a number of risk assessment methodologies available. It is important to ensure that the method selected is appropriate for the proposed scenario. Examples of **human health** risk assessment tools currently available;

- CLEA software
- Risk Based Corrective Action (RBCA) Toolkit Version 2 – USEPA
- (BP) RISC Human – RIVM
- SNIFFER Worksheets

Examples of **water environment** risk assessment tools currently available;

- RTM Worksheet
- ConSim
- RAM
- Risk Based Corrective Action (RBCA) Toolkit Version 2 – USEPA

It is important that the limitation of the risk assessment tools are understood when selecting the models. Applicants should also note that delineation of contamination sources and potential linkages is an iterative process and may require several phases of investigation.

Please note that Checklists 1, 2, 3 & 4 are available to download from Falkirk Council's website.

Applicants should also note that gas spikes or standpipes inserted into Trial Pits will not be accepted as an appropriate gas monitoring technique.

Ground Gas Assessment

Where the potential for migration of ground gases and vapours 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 methodologies. Available guidance include:

- CIRIA C665: Assessing risks posed by hazardous ground gases to buildings (revised 2007)
- CIRIA 149: Protecting development from methane, 1995
- NHBC: Guidance on evaluation of development proposals on sites where methane and carbon dioxide are present, 2007
- Ground Gas Handbook, Wilson Card & Haines, 2008
- The VOCs Handbook, CIRIA C682, 2009.

These risk assessment methodology lists are not exhaustive.

R&D Publication 66 issued in 2008 provides a more detailed Guidance for the Safe Development of Housing on Land Affected by Contamination.

In line with current Government policy, a full justification for the tools used, and the individual parameters should be provided in the Phase Two report. The level of detail required will be dependent on the degree of contamination encountered on site.

Care should be taken to ensure that additional pollutant linkages are not created during any intrusive works carried out at the site. Particular care must be taken when any drilling or piling is necessary as this may create direct pathways e.g. to underlying groundwater.

The Phase Two report should be submitted to the Contaminated Land Team for review. Where unacceptable risks to humans, property or the environment are encountered, remedial works will be required.

3.4 Phase Three:
Remedial Strategy
(Appendix 1, Checklist 3)

The remedial scheme must identify and break all unacceptable pollutant linkages. The scheme should clearly state how the works proposed will be validated in order to demonstrate to the Planning Authority that the site will be suitable for its intended use.

The remediation scheme should be agreed with the appropriate regulators prior to works commencing.

The Phase Three proposed remediation report will generally include:

- Objectives of remediation works
- Detailed description of works to be carried out
- Review and summary of ground conditions
- Type, form and severity of contamination
- Full methodology
- Remedial objectives, targets and justifications
- Detailed drawings (i.e. site plans and delineated areas of contamination)
- Approximate timescales
- Consents, agreements and licenses (e.g. discharge consents, mobile plant authorisations, waste management licenses or exemptions, asbestos removal license)
- Full detailed site management procedures
- Plan for deviation from original plan including notifying appropriate Regulatory Bodies
- Detailed verification/validation procedures.

Should the works involve the importation of material to the site it will be the responsibility of the developer/planning applicant to ensure that the material is suitable for use and has the appropriate certification. This should be submitted to the Planning Authority within the validation report. SEPA regulate the movement of soils and should be notified prior to the transportation of soils.

Alternatives to the "dig and dump" method are supported in line with the Council's sustainable development objectives. However it is recognised that in some situations "dig and dump" may be the only feasible option. It will be the planning applicant's responsibility to ensure that the appropriate documentation has been obtained and permission has been obtained from SEPA (if necessary).

It should be noted that upon completion of the remediation works, a validation report should be submitted to the Planning Authority.




3.5 Phase Four:
Validation Report
(Appendix 1, Checklist 4)

The validation report should demonstrate that the remedial works have been carried out and that the site is now considered to be suitable for its intended use. Where possible, the validation report should be submitted prior to any construction works taking place, unless the remedial works form part of the construction works e.g.the installation of gas proof membranes.

The Phase Four report will generally include:

- Confirmation that remedial works have been undertaken by suitably qualified personnel
- Details of the remediation works undertaken
- Details and justification for any variations from the original remediation statement or strategy
- Quality control and assurance procedures
- Results of monitoring and validation samples and a detailed interpretation
- Justification of how all the remediation objectives have been met
- Confirmation of post-monitoring and maintenance requirements

Where an agreed remediation scheme includes future monitoring and maintenance schemes, arrangements will need to be made by Developer/Planning Applicant to ensure that any subsequent owner is made aware of these requirements and assumes ongoing responsibilities that are tied to the land.

Should any unexpected ground conditions or suspect substances be encountered during any site works, the Planning Applicant shall notify the Planning Authority immediately, as there will be a requirement to undertake further environmental risk assessments, in relation to contaminated land issues. These risk assessments would be subject to review and approval by the Planning Authority.

Should the validation report indicate that potential risks remain at the site post validation, further works may be required, which must be agreed with the Planning Authority.

Where a planning application requires a building warrant, a contaminated land assessment may be required. In most cases, the information submitted to the Planning Authority will be sufficient to satisfy the requirements of the Building (Scotland) Regulations 2004 (amended in 2006 and 2007). The Regulations require that all buildings must be protected from harmful or dangerous substances. Further information regarding contaminated land requirements in relation to Building Standards can be found in Section 3 of Schedule 5 of the above regulations which relates to the environment, including contaminated land.

4. Legislative Responsibilities

4.1 Planning Context

The potential for land to be contaminated is a material consideration outlined in PAN 33, Development of Contaminated Land and incorporated into town and country planning; it places the responsibility on owners/developers to establish the extent of any potentially harmful substances on their sites, and where necessary to take steps to ensure that no significant pollutant linkages remain post development. It is the site owners/developers responsibility to ensure that the site will not be designated as Part IIA Contaminated Land, as defined by the Environmental Protection Act, 1990 post development.

It is the Planning Authority's duty (as regulators) to ensure that owners and developers carry out the appropriate contaminated land assessment to ensure that any contamination is dealt with appropriately and based on current legislation and guidance, will not present any significant risks post development.

Falkirk Council may require clarifications or additional works to be carried out. This may be because the submitted report does not contain all of the information required, some of the information is contradictory or unclear, or the report does not provide sufficient detail to address the concerns of the Planning Authority.

The Contaminated Land Team will provide details to the Planning Authority of any clarifications and additional information required. This information will then be passed onto the Planning Applicant. If there are any uncertainties about what is required, the Contaminated Land Team will discuss the requirements over the telephone, or an appointment can be made.

Upon completion of all the works to the satisfaction of the Contaminated Land Team and carried out in accordance with current legislation and guidance, the Contaminated Land Team will notify Development Management (Planning Authority) that, based on submitted information, the site would appear suitable for its intended use and that the contaminated land planning conditions can be discharged.

Should the contaminated land assessment not be carried out or it is not of the required standard, the Planning Authority may opt to take any one or a combination of the following actions:

- Withhold planning permission until a suitable assessment has been carried out.
- Take enforcement action if the site has been conditioned.
- Provide evidence to the NHBC or other approved body to ensure that a warranty is not issued until any contamination issues are resolved. This will prevent the release of funds.
- Liase with Building Standards to ensure that a Building Warrant or Completion Certificate is not issued.
- "Determine" the site under Part IIA of the Environmental Protection Act 1990. This will result in the area being designated as "contaminated land" and being put onto the Falkirk Council Contaminated Land Register. Based on current legislation, once a site has been put onto the register it will remain on the register forever.

4.2 Part IIA of the Environmental Protection Act, 1990

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 aforementioned Act:

"any land which appears to the Local Authority, in whose area it is situated 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."

'Pollution' is defined as:
"the direct or indirect introduction into the water environment of substances which may give rise to harm to human health or the quality of aquatic ecosystems or terrestrial ecosystems directly depending on aquatic ecosystems, result in damage to material property or impair or interfere with amenities and other legitimate use of the water environment (section78A (9) of Environmental Protection Act 1990)"

'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."

While these definitions are specific to the Part IIA regime, it is important to consider that if significant pollutant linkages are not appropriately addressed as part of a site development, formal action may be 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, on, 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 land contaminated is the appropriate person.

Failure to identify and remediate significant pollutant linkages whilst developing a site may result in its determination as Contaminated Land under Part IIA

Checklist 1 PHASE I (minimum requirements)

PHASE I

Preliminary Risk Assessment/Desk Study

Objective is to obtain a good understanding of the site history, setting, current and proposed use.

Reporting requirements:

	✓
Purpose & Aims of the study. A statement is required explaining the reason for the report.	
Site Location Plan and current layout plans (appropriately scaled and annotated with north point),National Grid Reference (minimum 6 figures) and site area in hectares.	
Detailed Site Walkover Survey. Including review of surrounding area and consideration of invasive species.	
Historical Background. Review of the site history and surrounding area including historical maps, aerial photographs,previous site studies and anecdotal information.	
Environmental Setting including the interpretation and implications of: • Drift and solid geology • Hydrogeology and hydrology of the area • Information from the Scottish Environment Protection Agency (SEPA) on abstractions, pollution incidents, water quality classification, landfill sites within 250m and flood risk • Archaeological or ecological considerations • Information from Consultations with other relevant Bodies	
Conceptual Site Model (CSM) showing all potential source-pathway-receptor linkages.	
Interpretation of CSM (Qualitative Risk Assessment) indicating source-pathway-receptor linkages: • Potential contaminants of concern and source areas • Potential pathways that the contaminants of concern could impact on statutory receptors • Receptors	
Conclusions and Recommendations. Identification of information gaps and uncertainties, recommendations for intrusive contamination investigations (if necessary) to include the identification and justification of target areas for more detailed investigation.	

It should be noted that an EnviroCheck, Sitescope, Groundsure (or similar) report, will not be sufficient to provide all of the information required by the Planning Authority. However it would be acceptable to include one of the above reports as part of a more detailed submission.

PHASE II

Site Investigation/Quantitative Risk Assessment

Objective is to refine and update the CSM, provide detailed site specific information on substances in, on or under the ground, investigate the geology and water environment, confirm relevant pollutant linkages, evaluate potentially unacceptable risks through generic or detailed quantitative risk assessment (DQRA) and provide the basis for the Options Appraisal.

Reporting requirements:

	✓
Purpose & Aims of the Study Statement explaining the reason for the report.	
Site Location Plan and current layout plans (appropriately scaled and annotated), National Grid Reference (minimum 6 figures), site area in hectares.	
Review and Summary of any previous reports with references	
Conceptual Site Model (CSM), showing all potential source-pathway-receptor linkages	
Site Investigation Methodology to include:	
• Any preparatory enabling works	
• An appropriately scaled and annotated plan showing exploration locations, sampling points, site structures, above or below ground storage tanks, etc.	
• Sampling strategy (refer to BS10175 for methodology, justification and location plan and advice in CLR4)	
• Exploratory hole logs, showing water strikes, installation details as appropriate	
• Details of surface and groundwater monitoring programmes	
• Methods of collecting, storing and transporting samples to laboratory monitoring programmes	
• Description of site works and observations	
• Gas and vapour monitoring in accordance with CIRIA C665 & CIRIA C682. Logs should include atmospheric conditions, flow rates, concentrations, etc.	
Justification for analytical strategies including:	
• The selection of parameters and samples for additional tests such as leachability	
• Analysis of samples to be carried out by an appropriately accredited laboratory (e.g. MCERTS or UKAS)	
• All contaminants of concern identified in preliminary risk assessments and any additional contaminants identified during intrusive site works	
• Including where necessary,speciation of contaminants to allow for a Detailed Quantitative Risk Assessment to be carried out.	

	✓
Evaluation of site investigation results in comparison to the revised Conceptual Site Model	
Site Specific Risk Assessment for both Human and Environmental Receptors to include:	
• Objectives and details of proposed site use	
• Details of models selected and justification of the choice for the site	
• Justification for input parameters, with source reference for literature values and additional calculations for field derived parameters, assumptions, safety factors	
• Any model printouts that have been generated (e.g. CLEA Model, RTM, SNIFFER, etc, the data worksheets should be included)	
• Note, where non-UK models are utilised, it will be important to make modifications to them ensuring compliance with UK policy.	
Interpretation of Results including:	
• Description of ground conditions (including interaction between made ground, geology, the water environment)	
• Discussion of the nature and extent of contamination, an appropriately scaled and annotated plan indicating the extent of each of the contaminants.	
• Comparison of analytical results to appropriate standards, with full justification of standards chosen	
• Consideration of ground gas and asbestos	

Conclusions & Recommendations to include remediation proposals and further monitoring, where required

Checklist 3 Phase III (minimum requirements)

PHASE III

Remediation Statement/Strategy

Objective is to establish which remediation option, or combination of options, provides the best approach to remediate all pollutant linkages that present an unacceptable risk at the site, whilst meeting best practice and current technical guidance.

Reporting requirements:

	✓
Purpose & Aims of the Study	
Site Location Plan and current layout plans (appropriately scaled and annotated with north point),National Grid Reference (minimum 6 figures) and site area in hectares.	
Review and Summary of any previous reports with references, including results of site investigations, quantitative risk assessments and summary of CSM.	
Details of remediation objectives and options – what remediation options are capable of achieving acceptable remediation of each identified pollutant linkage.	
Revised Conceptual Site Model (CSM) showing how it is proposed to break all identified source-pathway-receptor linkages.	
Detailed evaluation of remediation options and proposed standard of clean-up (depending on proposed end-use).	
Outline of how Remediation Strategy will be verified and Future Monitoring Requirements.	
Monitoring and Maintenance Plan giving details of future monitoring and or maintenance requirements in a Monitoring and Maintenance Plan (where necessary) once remediation has been completed.	

Where remediation includes importation of soils onto the site, either for gardens or soft landscaping purposes; these must be suitable for use. It will be necessary to provide supporting documentation before importation of such soils.

Consultation with SEPA and Falkirk Council's Contaminated Land Team, should take place prior to the importation of soils so that the details can be agreed.

It should be noted that whilst the Planning Authority may agree on target treatment concentrations, these concentrations may also be subject to review by SEPA on application for a mobile plant licence or exemption to waste management licences for the reuse of treated material on-site. (SEPA Land Remediation & Waste Management Guidelines December 2009)

SEPA should be consulted during the development stages of the remediation scheme where treated soil will be reused on-site.

Checklist 4 Phase IV (minimum requirements)

PHASE IV

Remediation Validation Report

Objective is to clearly demonstrate that the remediation activities have been completed satisfactorily, have not caused harm to third parties or the environment and that the remediation criteria for each of the relevant pollutant linkages have been met.

Reporting requirements:

	✓
Purpose & Aims of the study	
Site Location Plan and current layout plans (appropriately scaled and annotated with north point),National Grid Reference (minimum 6 figures) and site area in hectares.	
Details of remedial work undertaken and by whom, with justification for any changes from the original remediation strategy.	
Specification of Engineered Cover System, where appropriate.	
Waste Transfer documentation, where appropriate, including the type and amount of material taken off site and the disposal location for example, site records of material leaving site and delivery records for the same materials at the destination.	
Suitable Certification and Validation Testing of any imported materials.	
Validation of any Gas Preclusion Measures including gas-proof membranes, vent trenches or periscope vents, etc.	
Validation of Chemical Test Data and results of any further monitoring.	
Final Conceptual Site Model showing that all identified **source-pathway-receptor linkages** have been broken.	
Confirmation that remedial objectives have been met and confirmation of post-completion monitoring and/or maintenance requirements.	

The aforementioned checklists are provided to help the Applicant ensure that they have included all relevant information. The scope of the submitted reports must reflect the size, complexity of the site, necessary level of investigation as well as likely contamination risks. The reporting requirements provided may prove useful. They represent good practice but are not exhaustive. Depending on site specific factors, further works and reporting may be required.

Note : Failure to comply with the guidelines in this document will result in the report being rejected due to insufficient information.

Appendix 2: Validation Certificate

To be completed by the applicant and developer and included in the Remediation Validation Report (separate certificate to be completed by each relevant party)

To: Development Management, Falkirk Council, Abbotsford House, David's Loan, Falkirk, FK2 7YZ.

This is to Certify that the scheme of remediation*, decontamination and reclamation at the site known as:

.....(insert site name)

in relation to planning application number:.....

was carried out between the dates of: ...../...../.....

and ...../...../.....

and was completed in accordance with best practice current legislation and guidance and in line with the Council's SPG Land Affected by Contamination : Guidance for Applicants and Developers and to the agreed specification detailed in the documents submitted. Document Reference (insert all reports relating to the site):

.....

.....

.....

Date: ...../...../.....

Which were designed to afford protection from contamination* on the site to all known receptors*.

Signed: .....

Dated: .....

Name: .....

Position: .....

Company Name and Address: .....

.....

.....

* The words "contamination", "remediation" and "receptors" are defined by Part IIA of the Environmental Protection Act 1990.

** Complete/delete as applicable.

Appendix 3: Further Guidance Publications

1.	Environmental Protection Act 1990: Part IIA Contaminated Land – As inserted by Section 57 of the Environment Act 1995 http://www.scotland.gov.uk/
2.	The Contaminated Land (Scotland) Regulations, 2000 (SSI2000/178) & 2005 (SSI2005/658) http://opsi.gov.uk/legislation/scotland/
3.	Scottish Executive 2000 "Development of Contaminated Land", Planning Advice Note 33 http://www.scotland.gov.uk/
4.	Scottish Executive "Planning, Environmental Protection and Regulation, Planning Advice Note 51, Revised 2006 http://www.scotland.gov.uk/
5.	Town and Country Planning (Scotland) Act, 1997 http://opsi.gov.uk/acts/
6.	The Planning, etc (Scotland) Act 2006 http://www.opsi.gov.uk/legislation/scotland/acts2006/pdf/asp_20060017_en.pdf
7.	The Building (Scotland) Regulations, 2004 and The Building (Scotland) Amendment Regulations 2006 and 2007 http://www.sbsa.gov.uk/
8.	Environment Agency, "Model Procedures for the Management of Land Contamination" (CLR11) http://publications.environment-agency.gov.uk/
9.	Environment Agency, "Human Health Toxicological Assessment of Contaminants in Soil" Science Report Final SC050021/SR2/2009 http://publications.environment-agency.gov.uk/
10.	Environment Agency, "Updated Technical Background to the CLEA Model" Science Report Final SC050021/SR3/2009 http://publications.environment-agency.gov.uk/
11.	Department of the Environment, Food and Rural Affairs, 1995 "Industry Profiles" (various titles) http://www.defra.gov.uk/
12.	British Standards Institute "Investigation of potentially contaminated sites - Codes of Practice", BS10175, 2011 http://www.bsonline.bsi-global.com/
13.	Environment Agency and NHBC, "Guidance for the Safe Development of Housing on Land Affected by Contamination" (R&D66), 2008 http://publications.environment-agency.gov.uk/
14.	CIRIA, "Assessing risks posed by hazardous ground gases to buildings", C665, 2007 http://www.ciria.org/
15.	Environment Agency, "Guidance on management of landfill gas", 2004 http://publications.environment-agency.gov.uk/
16.	Environment Agency, "Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination', 2006 http://publications.environment-agency.gov.uk/
17.	SEPA, 'Hydrogeological Risk Assessment for Landfills and the Derivation of Control and Trigger Levels', 2005 http//www.sepa.org.uk/waste/waste regulation/landfill.aspx
18.	SEPA, "Water pollution arising from Land containing chemical contaminants", 2001 http://www.sepa.org.uk/
19.	SEPA, "Land Remediation & Waste Management Guidelines", 2009 http://www.sepa.org.uk/waste/waste_regulation/guidance
20.	SEPA, 'WAT-PS-10-01, Assigning Groundwater Assessment Criteria for Pollutant Inputs', 2010 http//www.sepa.org.uk/land/contaminated land/contaminated land guidance.aspx

Informative Websites

http://www.sepa.org.uk/ http://www.environment-agency.gov.uk/ http://www.scotland.gov.uk/

http://www.scotlandoffice.gov.uk/ http://www.snh.org.uk/ http://www.sniffer.org.uk/

http://www.defra.gov.uk/ http://www.dti.gov.uk/ http://www.ciria.org/ http://opsi.gov.uk/acts/

http://www.environmental-protection.org.uk/ http://www.nhbc.co.uk/ http://www.claire.co.uk/

http://www.chem.gla.ac.uk/sclf/ http://www.sagta.org.uk/ http://www.bsi-global.com/

Useful Contacts

Development Management
Falkirk Council Development Services
Abbotsford House
Davids Loan
Falkirk
FK2 7YZ
Tel: 01324 504748
Fax: 01324 504747

Contaminated Land Team
Falkirk Council Development Services
Abbotsford House
Davids Loan
Falkirk
FK2 7YZ
Tel: 01324 504982
Fax: 01324 504709

Building Standards
Falkirk Council Development Services
Abbotsford House
Davids Loan
Falkirk
FK2 7YZ
Tel: 01324 504985
Fax: 01324 504747

Falkirk & West Lothian EPI Team
Scottish Environment Protection Agency
Bremner House
Castle Business Park
Stirling
FK9 4TF
Tel: 01786 452595
Fax: 01786 461425

East Region
Scottish Environmental Protection Agency
Clearwater House
Heriot Watt Research Park
Avenue North
Riccarton
Edinburgh
EH14 4AP
Tel: 0131 4497296
Fax: 0131 4497277

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