Wrexham County Borough Council


2nd Edition
May 2013

www.wrexham.gov.uk / www.wrecsam.gov.uk
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1 **INTRODUCTION**

1.1 **Part 2A of the Environmental Protection Act, 1990**

1.1.1 The contaminated land regime was created on 1st July 2001, when Section 57 of the Environment Act 1995 inserted Part 2A into the Environmental Protection Act 1990 (to be referred to as Part 2A). The National Assembly for Wales published the Contaminated Land (Wales) Regulations 2001 and accompanying guidance, which have subsequently been amended. The original Regulations were amended in 2006 and again in 2012 and additional set of Regulations have been published to take account of radioactive contaminated land.

1.1.2 The most recent guidance was published in 2012 for non-radioactive contaminated land, namely the “Welsh Government Guidance Document. Contaminated Land Statutory Guidance – 2012”, hereinafter to be referred to as the “Guidance”. The guidance to be adopted for radioactive contaminated land is only in draft form to date.

1.1.3 The main objective of the regime is to provide a system for the identification and remediation of sites where contamination is causing unacceptable risks to human health and/or the wider environment. This should be assessed according to the current use and circumstances of the land and based on the assessment of risks to human health and the environment, in order to meet the Government’s “suitable for use” approach.

1.1.4 The Regulations address historic contamination issues only. Part 2A is not intended for use for:

- imminent damage and remediation of such by a current operation, controlled by the Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009;
- contamination problems that can be resolved by existing powers under other regimes, for example, via enforcement of the waste management regime; and
- cases where the site is subject to investigation and remediation through other legislative regimes such as planning and building control legislation. In these cases, the planning authority should satisfy itself that the potential for contamination is properly assessed and that the development incorporates any necessary remediation measures.

1.1.5 The regime approaches the assessment of non-radioactive and radioactive contaminated land separately. From April 2013, local authorities will still be responsible for establishing grounds for assessing sites which might be subject to radioactive contamination. However, Natural Resources Wales (NRW) (formerly the Environment Agency Wales) will become the regulatory body for radioactive contaminated land, should land be determined as contaminated land due to radioactive contaminants.

1.1.6 This Contaminated Land Strategy (to be referred to as ‘the Strategy’) details how Wrexham County Borough Council (referred to as ‘Wrexham CBC’ hereafter) is inspecting the land within the County Borough in order to identify any contaminated land. It will also describe the procedures that are being used to assess the risks associated with the land and subsequently the procedures to address those risks. It is a revision of the original Strategy published in September 2002. This revision refers to updated legislation and guidance and the work implemented under Part 2A to date.

1.1.7 This Strategy specifically relates to the assessment of non-radioactive contaminated land. The radioactive contaminated land regime only covers contamination which has resulted from the after-effects of a radiological emergency or a past practice or past work activity. Wrexham CBC has no relevant information relating to examples of this. The regime does not apply to current practices and natural background radiation.

1.2 **Definition of Contaminated Land**

1.2.1 Section 78A(2) of Part 2A defines contaminated land as:
“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—
(a) significant harm is being caused or there is a significant possibility of such harm being caused; or
(b) significant pollution of the water environment is being caused or there is a significant possibility of such pollution being caused;……”]

1.2.2 The Guidance sets out the procedures to be applied in order to define “significant” and the “possibility of significant harm being caused” and the “significant pollution of controlled waters…..is likely to be caused”.

1.2.3 Contaminated land is NOT:

- to be classed as contaminated by any definition other than that described under Part 2A;
or
- land with contamination on, in or under it that may cause significant harm or significant pollution of controlled waters but does not also have a pathway and receptor.

1.3 Principles of Risk Assessment

1.3.1 Contaminated land will be identified on the basis of risk assessment. The Guidance defines “risk” as the combination of:

“(a) the likelihood that harm, or pollution of water, will occur as a result of contaminants in, on or under the land; and
(b) the scale and seriousness of such harm or pollution if it did occur.”.

1.3.2 The concept of ‘contaminant (source) ⇒ pathway ⇒ receptor’ forms the basis for this risk assessment.

1.4 Principles of Contaminant Linkages (Contaminant ⇒ Pathway ⇒ Receptor)

1.4.1 A ‘contaminant linkage’ means the relationship between a contaminant, a pathway and a receptor - the ‘pollutant’ means the contaminant. Unless all three elements of a contaminant linkage are identified in respect of a piece of land, that land will not be identified as ‘contaminated land’. It is possible that more than one contaminant linkage can exist on any given piece of land.

1.4.2 Put simply, before a hazard (a source of contamination) can pose a risk to a receptor (e.g. a human or sensitive environment), there has to be a means (a pathway) by which the receptor can come into contact with the contamination. If no pathway exists the contamination may be a hazard but it does not pose a risk and no remediation is required.

1.5 Whether the Significant Harm or the Possibility of Significant Harm Being Caused is Significant

1.5.1 Significant harm, when applied to human health, should be established when harm is being caused and is directly attributable to the effects of contaminants in, on or under the land on the receptors concerned (see Appendix I for examples).

1.5.2 In order for Wrexham CBC to establish if there is a “significant possibility of significant harm” occurring, Wrexham CBC must evaluate the levels of uncertainty of the relevant contaminant linkages and whether there is a “possibility of significant harm”.

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1 A contaminant is a substance which is in, on or under the land and which has the potential to cause harm or to cause pollution of controlled waters.
2 A pathway is one or more routes or means by, or through, which a receptor is being (or could be) exposed to or affected by a contaminant.
3 A receptor is being, or could be, harmed by a contaminant, or controlled waters which are being, or could be, polluted by a contaminant. Part 2A limits the types of receptor to those listed in Appendix I.
1.5.3 The term "possibility of significant harm being caused", applies when one or more contaminant linkages exist and is based on:
a) the estimated likelihood that significant harm might occur to an identified receptor, taking account of the current use\(^4\) of the land in question; and
b) the estimated impact if the significant harm did occur – i.e. the nature of the harm, the seriousness of the harm to any person who might suffer it, and (where relevant) the extent of the harm in terms of how many people might suffer it.

1.5.4 In deciding whether the possibility of significant harm being caused is significant, Wrexham CBC must decide whether the possibility of significant harm posed by contamination in, on or under the land is sufficiently high that regulatory action should be taken to reduce it, taking account of the aims of the regime (see paragraphs 1.1.3 and 1.1.4) and whether remedial measures are, for example, reasonable, practical, durable, effective and have limited impact on human health and the environment.

1.5.5 The Guidance provides four categories to aid in establishing grounds for significant harm and significant possibility of significant harm specifically to human health, namely Categories 1 and 2 respectively, these encompass land which is capable of being determined as contaminated land on these grounds. Categories 3 and 4 would encompass land which is not capable of being determined on such grounds (as detailed in paragraphs 4.19 to 4.29 in the Guidance).

1.5.6 When assessing significant harm to non-human receptors, Wrexham CBC will give consideration to only the receptors and the types of harm defined in the table in Appendix I. For the assessment of significant possibility of significant harm to non-human receptors, Wrexham CBC will take into consideration the conditions detailed in Appendix II, Table A. Where ecosystems are the receptor, Wrexham CBC will consult with the NRW with regard to the method of assessment and findings of the assessment.

1.6 Significant Pollution of Controlled Waters or Significant Possibility of Such

1.6.1 Wrexham CBC would only conclude that pollution\(^5\) of controlled waters\(^6\) is significant if it considers that treating the land as contaminated land would be in accordance with the aims of the regime (see paragraphs 1.1.3 and 1.1.4). Wrexham CBC will consult the NRW, when assessing such cases.

1.6.2 In assessing whether significant pollution of controlled waters is being caused, Wrexham CBC will need to be satisfied that the pollution is continuing to enter controlled waters or that it already has entered the waters and is likely to do so again in such a manner that past and likely future entry in effect constitutes ongoing pollution. The types of pollution which may be deemed to be significant are detailed in Appendix I.

1.6.3 The term “possibility of significant pollution of controlled waters” means the estimated likelihood that significant pollution of controlled waters might occur, taking into account

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\(^4\) In accordance with the Guidance, the “current use” means:
(a) The use which is being made of the land currently.(b) Reasonably likely future uses of the land that would not require a new or amended grant of planning permission. (c) Any temporary use to which the land is put, or is likely to be put, from time to time within the bounds of current planning permission. (d) Likely informal use of the land, for example children playing on the land, whether authorised by the owners or occupiers, or not. (e) In the case of agricultural land, 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.

\(^5\) Under section 78A(9) of Part 2A the term “pollution of controlled waters” means the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter.

\(^6\) The term “controlled waters” in relation to Wales has the same meaning as in Part 3 of the Water Resources Act 1991, except that “ground waters” does not include waters contained in underground strata but above the saturation zone.
considerations detailed in Appendix II, Table B. As for assessing harm to human health, the Guidance provides four categories to aid in establishing grounds for significant pollution of controlled waters and significant possibility of significant pollution of controlled waters (as detailed in paragraph 4.46 in the Guidance).

1.7 Remediation

1.7.1 Responsibility for paying for remediation generally follows the ‘polluter pays’ principle. In the first instance, those who caused or knowingly permitted the contaminating substance(s) to be in, on or under the land will be the appropriate person(s) to undertake the remediation and meet its costs (Class A person(s)).

1.7.2 However, if it is not possible to find any such person, responsibility will usually pass to the current owner or occupier of the land (Class B person(s)). This latter step does not apply where the problem caused by the contamination is solely one of water pollution. In accordance with Part 2A and the Guidance, responsibility will be subject to limitations.

1.8 Requirements for a Strategic Approach

1.8.1 The approach to developing the Strategy has been in accordance with paragraphs 2.3 to 2.6 of the Guidance, of which, the main underlying principles are to:

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

1.8.2 As required by paragraph 2.6(a) of the Guidance, the Strategy reflects local circumstances in particular:

- any available evidence that significant harm or significant pollution of controlled waters is actually being caused;
- the extent to which any receptor (in accordance with the Guidance) is likely to be found in any of the different parts of Wrexham CBC;
- the extent to which any of those receptors is likely to be exposed to a contaminant (as defined in the Guidance);
- the extent to which information on land contamination is already available;
- the history, scale and nature of industrial or other activities which may have contaminated the land in different parts of Wrexham CBC;
- the nature and timing of past redevelopment in different parts of its area;
- the extent to which remedial action has already been taken by Wrexham CBC or others to deal with land contamination problems or is likely to be taken as part of an impending redevelopment; and
- the extent to which other regulatory authorities are likely to be considering the possibility of harm being caused to particular receptors or the likelihood of any pollution of controlled waters being caused in particular parts of Wrexham CBC.

1.9 The Public Register

1.9.1 In accordance with Section 78R(1) of Part 2A, Wrexham CBC will maintain a Register containing the details listed in Appendix III (see Section 8.2 for accessibility to the Register).

1.9.2 The Public Register will not include details of historic land use and other records used in the investigation of potentially contaminated land since these are research documents only.
1.10 The Regulatory Role of Councils under Part 2A

1.10.1 The primary regulatory role under Part 2A rests with the County and County Borough Councils in Wales and is as follows:

- to inspect their area in order to identify contaminated land;
- to establish who is the appropriate person or persons to bear responsibility for remediation of the land (with the aid of NRW in the case of Special Sites);
- to decide what remediation is required (with the aid of NRW in the case of Special Sites) in any individual case and ensure that such remediation takes place, either through agreement with those responsible or, where necessary, and after consultation, by serving a Remediation Notice or, in certain circumstances, through themselves carrying out the work; and
- to record information on a Public Register about their regulatory actions.

1.11 The Role of NRW under Part 2A

1.11.1 NRW has four principal roles under Part 2A as follows:

- to assist local authorities in identifying contaminated land, particularly in cases where water pollution is involved;
- to provide site-specific guidance to local authorities on the remediation of contaminated land;
- to act as the enforcing authority for any ‘Special Site’ (as detailed in Regulations 2 and 3 and Schedule 1 of the Contaminated Land (Wales) Regulations); and
- to publish periodic reports on contaminated land.

1.12 General Policies of Wrexham County Borough Council

1.12.1 In preparing this Strategy, Wrexham CBC has ensured it complies with its current policies as set out in:

- “Council Plan 2012 – 2016”
- Wrexham CBC’s “Local Planning Guidance Note 23 - Development of Sites with Land Contamination”.

In addition, the “Wrexham CBC Local Development Plan, Edition 1, January 2013, is being prepared, which will supersede the Unitary Development Plan, and is currently out to public consultation.

1.12.2 The strategy of the UDP recognises that:

“Large scale extensions of settlements which occurred in the past are no longer appropriate. The strategy therefore seeks to safeguard the amenity of settlements and secure economy and efficiency in the use of land resources through the regeneration of built-up areas together with limited outward growth.” This is reflected in its policies stated in paragraph 4.6.2.

1.12.3 The Housing and Public Protection Department Enforcement Policy sets out what business and others being regulated can expect from Enforcement Officers and commits the Department to good enforcement policies and procedure. Any enforcement action taken under the appropriate Contaminated Land (Wales) Regulations will be in accordance with the Enforcement Policy.

1.12.4 The remediation of contaminated land under the Contaminated Land (Wales) Regulations has a significant contributory role in achieving Wrexham CBC’s specific policies identified in this section.

1.13 Other Organisations Policies Relevant to Contaminated Land

1.13.1 The Land Contamination Protocol, prepared by the Environment Agency (EA) (now the NRW) and the Local Government Association, details the roles and responsibilities of the
NRW and Local Authorities with regard to Part 2A, including which types of information are held by each and how this information is shared.

1.13.2 The Environment Agency River Basin Management Plan, Dee River Basin District, dated December 2009, refers to working with local authorities and other bodies as part of its actions to improve the water environment by 2015. This includes working with industry, the investigations for the Metal Mine Strategy for Wales and complying with remediation notices.

1.14 Development of the Strategy

1.14.1 The Strategy is written in accordance with the following documents:
- Contaminated Land (Wales) Regulations, 2006;
- Contaminated Land (Wales) (Amendment) Regulations, 2012
- Welsh Government Contaminated Land Statutory Guidance – 2012; and

1.14.2 The Guidance requires that the Strategy is reviewed periodically to ensure it remains up to date and is written in accordance with current guidance.

1.15 Internal Management of the Regime

1.15.1 The Environmental Protection team within the Housing and Public Protection Department of Wrexham CBC has the responsibility for the implementation of Part 2A. A team of Contaminated Land Officers lead the contaminated land operations, reporting to the Principal Manager for Environmental Protection and Enforcement and the Public Protection Service Manager.

1.15.2 The Contaminated Land Officers are suitably experienced persons who have experience in contaminated land desk studies, intrusive site investigations and remediation works.

1.15.3 Where their experience may be lacking in a particular discipline, advice will be sought from a suitably qualified person.

1.15.4 At the time of the production of the original Strategy, the Department of Environment, Transport and Regions and the EA recommended that Councils could regard the development of the Strategy as a project which requires a project manager and a project team. Consequently, the Internal Contaminated Land Working Group was assembled to ensure that Wrexham CBC adopted a co-ordinated approach. Wrexham CBC reviews these contacts from time to time to ensure such an approach is maintained. The contacts are listed in Appendix IV.

1.16 External Liaison

1.16.1 Liaison with external organisations (listed in Appendix V) has taken place from an early stage.

1.16.2 Wrexham CBC takes an active part in the Welsh Land Contamination Working Group, which comprises the regulators (local authorities and NRW) of the contaminated land regime and input from the Welsh Government. The Group was established to ensure the smooth and effective implementation of the regime in Wales but its interests extend to all areas of the management of land contamination in Wales. This includes:
- consultations over any changes to the legislation or guidance, joint training initiatives, funding and resources;
- a focus for the exchange of information relating to the identification and remediation of land contamination through the planning process or the contaminated land regime;
- provision of advice and guidance on consistency and best practice to the regulators of land contamination throughout Wales; and
seeking to resolve issues of strategic or widespread importance, or bring them to the attention of more appropriate bodies such as the Welsh Government.
2.1 The Aims and Objectives of Wrexham County Borough Council

2.1.1 Wrexham CBC has identified its aims, objectives and priorities for inspection, taking into account current policies and local circumstances and conditions.

2.1.2 The aim of Wrexham CBC is to ensure that Part 2A is implemented and that this occurs alongside Wrexham CBC’s policies detailed in Section 1.12.

2.1.3 The objectives to meet the aim of Wrexham CBC will therefore be:
- to meet the requirement of Part 2A to maintain and update an Inspection Strategy for contaminated land;
- to identify potential sources of contamination which may cause unacceptable risks (significant harm) to human health and the environment;
- to identify potential receptors which may be affected by the potential contamination identified;
- to identify whether any pathways exist from the source to the receptor/s (i.e. a contaminant linkage); and
- to prioritise those sites identified as having a potential contaminant linkage and ensure further assessment is carried out, with remediation works carried out to an acceptable standard where necessary.

2.2 The Aims and Objectives of the Strategy

2.2.1 The aim of the Strategy is to ensure that contaminated land is identified and, where necessary, works are undertaken to control unacceptable risks in order of priority.

2.2.2 The objectives to meet the aim of the Strategy will be:
- to ensure that all those affected by, and involved in, the inspection process (i.e. identification of all contaminated land within the County Borough) have the same clear understanding of the rationale for inspection, how this will be carried out and over what time scale;
- to follow and adhere to the requirements of the Guidance, specifically paragraphs 2.3 to 2.15;
- to include procedures on informing all stakeholders of Wrexham CBCs intentions; and
- to provide information to NRW on contaminated land within the County Borough for its report on contaminated land.

2.3 Prioritisation of Sites and Priority Actions

2.3.1 As required by the Guidance, the particular circumstances and characteristics of Wrexham CBC have been taken into account when determining the way in which potentially contaminated sites will be prioritised. Therefore, although Wrexham CBC recognises that all potential receptors are important, it has determined the priorities in assessing potentially contaminated land will be as follows (the most important is first):
- People/Property;
- Surface waters;
- Groundwater; and
- Fauna and flora.

2.3.2 The order of priority is based on the information detailed in Section 4 and is briefly summarised as follows:
- the County Borough has a large population with relatively defined boundaries for the built up areas;
- the River Dee, which is fed by many rivers in the County Borough is a source of drinking water; and
many of the protected wildlife habitats are in rural areas away from the areas historically known for industry (and therefore potential contamination).
3 THE TIME SCALES OF THE STRATEGY AND FUNDING

3.1 The Time Scales for the Part 2A Regime

3.1.1 The Regulations required an Inspection Strategy to be written and adopted within 15 months of the legislation coming into force. Wrexham CBC's Executive Board approved and adopted the Strategy for publication in September 2002.

3.1.2 The original Strategy listed targets for completion of certain tasks. This revision has not stated any targets. Experience has indicated that this is not necessary and ultimately impractical since the duration and cost of Part 2A assessments is highly variable. Since the introduction of Part 2A it has also become apparent that a significant number of sites have been assessed through the Planning Regime. The management of land contamination via both the Part 2A regime and the Planning Regime is a priority for Wrexham CBC and progress through both regimes will be recorded and details summarised on the Wrexham CBC's website.

3.1.3 Wrexham CBC will review the Strategy within an appropriate timescale, referred to in Section 6.2.

3.2 Funding

3.2.1 The cost of each investigation will vary depending on a number of factors such as the size of the site, the nature and extent of contamination, the type of pathway and receptor identified. All the costs in the determination of areas of ‘contaminated land’ will be borne by Wrexham CBC. On conclusion that the land is determined as contaminated land and if the appropriate person(s) is found, the costs of remediation may be borne by that person(s). In the case of Special Sites, some costs will be borne by NRW, although it is noted that they may be constrained in their actions by the availability of funding.

3.2.2 As a land owner, Wrexham CBC is responsible for its own land and orphan sites (see Section 5.7) and as such has consequently made additional provision in its annual expenditure for the investigation of potentially contaminated sites. The costs associated with publishing the Strategy, desk study investigations, initial intrusive site investigation works and remediation of land where Wrexham CBC is the appropriate person have been considered. It is not possible to quantify the overall amount of expenditure that will be required or give a definitive time scale for the completion of the whole process of identification and clean-up.

3.2.3 Progress is gradual and dependent upon annual financial resource limitations. Therefore, funding will be subject to ongoing review on an annual basis. Since the sites are being categorised by the potential risk that they pose, the highest risk sites are being investigated as a priority.

3.2.4 The Contaminated Land Capital Funding Programme was set up by the Welsh Assembly Government (now Welsh Government) to make funding available to local authorities and the EAW from 2005/2006 until 2011/2012. Local Authorities could apply for funding to cover the cost of Part2A intrusive site investigations and remedial works. The Government assessed proposed projects on technical merit and value for money grounds, plus prioritisation of the bids if the programme was oversubscribed. The programme remains suspended.

3.2.5 The Welsh Development Agency (WDA) Land Reclamation Programme was available to both the public and private sectors. The Programme’s objective was to secure the beneficial reuse of derelict land through reclamation (i.e. redevelopment and/or change of use). Derelict land was defined as ‘land so damaged by past industrial or other activity that it is incapable of beneficial use without treatment’. The WDA was abolished in 2006 and its functions were absorbed into the Welsh Government. Funding for derelict sites has become
more select and is often provided in conjunction with co-funding from for example the European Regional Development Fund.
4 CHARACTERISTICS OF WREXHAM COUNTY BOROUGH COUNCIL

4.1 Geographical Location

4.1.1 Wrexham CBC is situated in north-east Wales. Bounded by the Clwydian Hills to the west and the undulating Shropshire and Powys countryside to the south, the County Borough stretches northwards and eastwards to the English border. Figure 1 indicates the County Borough’s regional setting.

4.1.2 The County Borough is bordered by the Welsh unitary authorities of Flintshire, Denbighshire and Powys, and English unitary authorities Cheshire West and Chester to the east and by Shropshire to the south.

Figure 1 – Wrexham CBC’s Regional Setting

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4.2 Brief Description and History of Wrexham County Borough Council

4.2.1 Wrexham town itself is the main focal point of the County Borough and it is the largest and most diverse retail centre in North Wales. The town is also home to the largest hospital in North Wales and other institutions of growing stature such as Yale College and Glyndŵr University.

4.2.2 The town and village settlements of the County Borough are set in an attractive rural hinterland with a number of historic features.

4.3 Size and Population Distribution (Geographical)

4.3.1 The County Borough comprises 50,000 hectares of land and as of 2006, has a population of some 133,600.
Table A - Population in Community Areas in 2006

<table>
<thead>
<tr>
<th>Ward</th>
<th>Population</th>
<th>Ward</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acton</td>
<td>3091</td>
<td>Little Acton</td>
<td>2239</td>
</tr>
<tr>
<td>Borras Park</td>
<td>2400</td>
<td>Llangollen Rural</td>
<td>2087</td>
</tr>
<tr>
<td>Bronington</td>
<td>3409</td>
<td>Llay</td>
<td>4934</td>
</tr>
<tr>
<td>Brymbo</td>
<td>3546</td>
<td>Maesdrw</td>
<td>1998</td>
</tr>
<tr>
<td>Brynffynnon</td>
<td>3592</td>
<td>Marchwiel</td>
<td>2455</td>
</tr>
<tr>
<td>Bryn Cefn</td>
<td>2180</td>
<td>Marford &amp; Hoseley</td>
<td>2411</td>
</tr>
<tr>
<td>Catrefie</td>
<td>2261</td>
<td>Minera</td>
<td>2420</td>
</tr>
<tr>
<td>Cefn</td>
<td>4964</td>
<td>New Broughton</td>
<td>3567</td>
</tr>
<tr>
<td>Dyffryn Ceinog/Ceriog Valley</td>
<td>2401</td>
<td>Offa</td>
<td>2386</td>
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<tr>
<td>Chirk North</td>
<td>2464</td>
<td>Overton</td>
<td>3336</td>
</tr>
<tr>
<td>Chirk South</td>
<td>2070</td>
<td>Pant</td>
<td>2260</td>
</tr>
<tr>
<td>Coedpoeth</td>
<td>4493</td>
<td>Penycae</td>
<td>2243</td>
</tr>
<tr>
<td>Eddig</td>
<td>2199</td>
<td>Penycae &amp; Ruabon South</td>
<td>2422</td>
</tr>
<tr>
<td>Esclusham</td>
<td>2769</td>
<td>Plas Madoc</td>
<td>1718</td>
</tr>
<tr>
<td>Garden Village</td>
<td>2075</td>
<td>Ponciau</td>
<td>4593</td>
</tr>
<tr>
<td>Gresford East &amp; West</td>
<td>2802</td>
<td>Queensway</td>
<td>2494</td>
</tr>
<tr>
<td>Grosvenor</td>
<td>2459</td>
<td>Rhosnesni</td>
<td>2745</td>
</tr>
<tr>
<td>Gwernfro</td>
<td>1653</td>
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<td></td>
</tr>
<tr>
<td>Gwersyllt East &amp; South</td>
<td>4935</td>
<td>Rossett</td>
<td>3402</td>
</tr>
<tr>
<td>Gwersyllt North</td>
<td>2824</td>
<td>Ruabon</td>
<td>2926</td>
</tr>
<tr>
<td>Gwersyllt West</td>
<td>2989</td>
<td>Smithfield</td>
<td>2504</td>
</tr>
<tr>
<td>Hermitage</td>
<td>2226</td>
<td>Stansty</td>
<td>2020</td>
</tr>
<tr>
<td>Holt</td>
<td>3834</td>
<td>Whitegate</td>
<td>2423</td>
</tr>
<tr>
<td>Johnstown</td>
<td>3219</td>
<td>Wynnstay</td>
<td>2128</td>
</tr>
</tbody>
</table>

Total = 133,600

4.3.2 Figure 2 illustrates the distribution of these areas within the County Borough.

Figure 2 – Community Areas within the County Borough

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4.4 Current Land Use Characteristics

4.4.1 The UDP and draft LDP identify the following areas of particularly high environmental value.

4.4.2 Special Landscape Areas - These are areas of high quality landscape which may contribute to the setting, amenity, and character of local settlements or views along main communication routes or be considered of national landscape significance. Examples include parkland and garden landscapes listed in the CADW register of Parks and Gardens of Special Historic Interest, village greens, open areas within or adjacent to built up areas, river valleys, and undulating farmland; specifically, the upper slopes of Ruabon Mountain, the Frith Valley, parts of the Dee Valley and Ceiriog Valley.

4.4.3 Areas of Historic Landscape Value include: the estates of historic houses within parkland settings covering the Chirk Castle Estate and Trevor Hall; and the ridge and furrow of Maelor Saesneg. The latter two features are both listed in the Register of Landscapes of Historic Interest in Wales.

4.4.4 UNESCO World Heritage Site – These are deemed to be sites of outstanding universal value. There is a requirement to afford the highest level of protection to these places, which means not only looking after the sites themselves but also their setting. The Pontcysyllte Aqueduct and Canal is designated as a World Heritage Site with a buffer zone.

4.4.5 Areas of Outstanding Natural Beauty (AONB) – The Dee Valley, Ruabon and Llantysilio Mountain and part of the North Berwyn Mountains are now part of the extended AONB of the Clwydian Range and Dee Valley.

4.4.6 High Quality Agricultural Land - the County Borough contains large tracts of high quality agricultural land. It is mainly concentrated around Wrexham, Gresford, Marford, Rossett, Burton, Holt and along the River Dee flood plain. Over 70% of the County Borough’s area comprises agricultural land.

4.5 Current and Past Industrial History

4.5.1 The County Borough has been undergoing a transformation in the last 40 years with the decline of coal mining and associated heavy industries and enormous job losses in the manufacturing sector in the early 1970’s and their replacement by an expanding service sector and new light and high technology industries. The County Borough is situated on the northern part of the ‘Denbighshire’ Coalfield. There is a legacy of the old coal industry (mine workings, abandoned shafts, adits, spoil heaps) and disused sand and gravel pits, limestone and brick clay pits. Agriculture and the mineral extraction industry are two remaining significant sectors of the local economy. Agriculture is mainly based on sheep farming on the high ground in the west of the Council and further to the east, on the drift covered Coal Measures and Permo-Trias, dairy and arable farming are more prevalent.

4.5.2 The Wrexham Industrial Estate is situated to the east of Wrexham town and the Wrexham Technology Park is situated to the west. Most of the area of the Wrexham Industrial Estate was originally a military establishment with installations both above and below ground. Some structures have been demolished and the area landscaped for the current industrial use. Smaller newer industrial areas are also present around the other smaller towns and villages.

4.5.3 The coal measures in Wrexham run in a strip from Ruabon in the south to Gwersyllt in the north and about 10km wide and it is within this zone that most of the ‘heavy’ industries of the past have been situated. To the north, west and south-west of Wrexham are the ‘urban villages’ which are settlements originally based on coal mining and associated industries, such as Brymbo, Coedpoeth, Gwersyllt, Llay, New Broughton, Rhoslanerchrugog and Rhostyllen. The industry has been extinct for many years although the steelworks at Brymbo continued production until 1990. Since the closure of Bersham Colliery in 1987, coal
extraction has been limited to small open-cast sites. Iron ore is widespread throughout the Bettisfield Formation, it was worked extensively in the 19th Century at places such as Brymbo and Ponciau, generally in conjunction with the mining for coal.

4.5.4 Medieval coal mining in Coedpoeth and Brymbo is documented from the early 15th century. Limited and shallow extraction took place throughout the 18th and 19th centuries in order to satisfy the needs in particular of the local iron industry. However, significant extraction didn’t begin until the sinking of the first deep shafts in the early 20th century. Little now remains of the industry. Of the Collieries, buildings survive at Bersham, Plas Power, Wynnstay, and Llay, a number of colliery waste tips survive and the remains of shallow workings and bell pits are relatively common in some areas, with scheduled examples near Nant Mill in the Clywedog Valley.

4.5.5 Extensive mining for metalliferous ores, mainly lead and zinc, has taken place south and west of Minera, however the extent of many of the workings is not known, although there are some 200 known shafts and adits. The area around Minera was one of north east Wales 3 main lead producing areas. Medieval mining is known from documentary evidence at Minera and a Roman presence cannot be ruled out. Major extraction started in the mid 18th century linked to the development of improved pumping technologies and over 50,000 tons of ore were raised to the surface in 1810. Between 1845 and 1938 north east Wales as a whole produced some 13% of total British lead output and 27% of zinc. Decline set in just before WWI due to cheap imports, with the Minera Company folding in 1914. Most of the production of lead ore galena took place between 1855 and 1880. Silver extracted from the galena was a valuable by-product.

4.5.6 Remains from the mining industry include a number of engine houses, the City Engine House being the best preserved, and related pit head structures, such as horse gin circles; spoil heaps, and processing plants, notably near Brymbo. Some probably late medieval mining remains have also been suggested at the western end of the Minera complex with water hushing channels being noted. In addition a number of shallow shafts are known in the more upland areas above the Clywedog valley with associated spoil heaps.

4.5.7 The zinc ore sphalerite was not mined in appreciable quantities until 1865. Most production took place between 1880 and 1895, with mining effectively ceasing by 1920.

4.5.8 Hard rock extraction within the County Borough has not taken place since 1993 when Minera Quarry ceased operating. Minera has also played an important role in terms of limestone extraction and lime manufacture. A Hoffman kiln dating to 1868 still survives at Minera Quarry as do a number of other industrial scale kilns.

4.5.9 Sand and gravel extraction is the principal mineral working activity in the County Borough with output contributing significantly to the total regional output of north Wales. Sand and gravel resources cover a wide area, especially around the north of Wrexham. There are currently 3 active quarries: Borras, Llay and Gresford.

4.5.10 The presence of fire clays in the coal measures sparked a major local industry in the Ruabon area in the manufacturing of bricks, tiles and terracotta. Although brick production began in the 18th century, it was the 19th century that saw the major development with 2 main companies, J.C. Edwards and Henry Dennis leading the way. The latter company still exists, although associated kilns and clay extraction pits using Ruabon Marl have closed.

4.5.11 Wrexham, along with Flintshire, is the engine for the North Wales Economy and the centre for manufacturing activity in Wales. Approximately 22% of the working population of Wrexham CBC work in manufacturing industry. In recent years, the economy has adjusted to maintain this position by moving towards advanced manufacturing, diversifying growth sectors and housing Glyndŵr University's specialism in digital interface businesses. Wrexham CBC is a competitive location, attractive to overseas business, being within two hours drive of one third of the UK's residential population and half of its manufacturing industry. Positioned in North East Wales, bordering England, the County Borough is close to the new media city
development in Salford and the area is home to over 400 creative digital businesses, with another 3000 within an hours drive.

4.5.12 The Wrexham economy has evolved considerably over the following years, reflecting the changes in the boarder economy. Whilst some of the large manufacturers such as Firestone have long since departed, many big name firms remain such as Kellogg’s, JCB Transmissions and Prysmian Cables amongst others. In recent years the area has attracted a new generation of modern, smaller hi tech knowledge businesses such as Cytec Advanced Materials, Nu Instruments, IPSEN Biopharm and Wockhardt Pharmaceuticals.

4.5.13 Wrexham Industrial Estate in particular maintains its strong manufacturing base and is home to 350 companies employing around 7500 people. A new access road costing in excess of £30m (funded by Welsh Government) opened in the summer of 2012 confirming the Estate status as being one of the key hubs of manufacturing industry in Wales.

4.6 Re-development History and Controls and Future Re-development

4.6.1 Prior to 1974 the current Council was separated into 4 different areas: Wrexham Rural District Council, Maelor Rural District Council, Llangollen Urban District Council, and Wrexham Borough Council. In 1974 all or part of all of these Councils joined to form Wrexham Maelor Borough Council. In 1996 Wrexham Maelor Borough Council joined with part of Glyndŵr District Council to form the current Wrexham County Borough Council. These significant changes in the Wrexham CBC’s structure that have occurred over an approximate 25 year span have made it difficult to gather accurate information regarding the re-development history of the County Borough.

4.6.2 The strategy of the UDP places emphasis on the need to safeguard the amenity of settlements and the economy and efficiency in the use of land resources through the following policies:

- Policy PS1 New development for housing, employment, and community services will be directed to within defined settlement limits/employment areas.

- Policy PS2 Development must not materially detrimentally affect countryside, landscape/townscape character, open space, or the quality of the natural environment.

- Policy PS3 Development should use previously developed brownfield land comprising vacant, derelict or underused land in preference to the use of greenfield land, wherever possible, particularly so where greenfield land is of ecological, landscape or amenity value, or comprises agricultural land of grades 1, 2 or 3a quality.

- Policy PS4 Development should maintain the existing settlement pattern and character and be integrated with the existing transport network to help reduce the overall need to travel and encourage the use of alternatives to the car.

4.6.3 The Development Control section within the Community Well Being & Development Department currently consults the Environmental Protection team within the Housing and Public Protection Department on general environmental implications (i.e. potential noise, dust and contamination problems) of proposed developments when a planning application is received.

4.6.4 Planning Conditions have been routinely added to planning consents since 2002 in order to ensure developers fully risk assess and, if necessary, remediate areas of contamination on new developments before the sites are occupied. Mitigation measures may also be required for some developments that might be affected by landfill gas migration within 250 metres of former landfill sites.

4.6.5 During the 10 year period, 2001 – 2011, 81 hectares of land, which had some form of historic use and potential contamination (including those sites within 250m of a former landfill site), underwent development. Contaminated land investigation and where required
remediation was completed by the developer on this land to ensure that is suitable for use. A further 308 hectares of land has been assessed and is awaiting development or final verification of remediation works.

4.7 Key Property Types

4.7.1 The County Borough contains:
- over 1040 listed buildings noted for their special architectural or historic interest;
- 23 conservation areas, of which the emphasis is on ensuring that buildings, structures, trees, open spaces, and other elements of the environment, preserve or enhance the unique character of the conservation area;
- 113 scheduled ancient monuments, of particular importance are Wat’s Dyke and Offa’s Dyke;
- Pontcysyllte Aqueduct and Canal World Heritage Site; and
- approximately 2000 unscheduled sites of archaeological interest.

4.8 Statutorily and Non-Statutorily Protected Wildlife Habitats – their Location and Status

4.8.1 The following sites are Special Areas of Conservation (SAC) - Berwyn and South Clwyd Mountains; River Dee and Bala Lake; Johnstown Newt Sites; and Fenn’s, Whixall, Bettisfield, Wem and Cadney Mosses.

4.8.2 Berwyn is a Special Protection Area.

4.8.3 The following site is a Ramsar site – Midlands Meres and Mosses (Phase 2).

4.8.4 There are 19 Sites of Special Scientific Interest (SSSI) in the County Borough. The regulator for SSSIs is NRW. Appendix VI lists the sites. All of these sites are detailed on an overlay on the Wrexham CBC GIS system.

4.8.5 In addition, there are approximately 161 sites within the County Borough which are designated as non-statutory Wildlife Sites. These sites have local nature conservation importance and/or regional geological importance which may not merit statutory protection but are important for nature conservation and could be protected by planning policy. This protection will be important where planning permission is required for example for remediation works. All of these sites are detailed on an overlay on the Wrexham CBC GIS system.

4.8.6 There is one Local Nature Reserve within the Council – Alyn Waters Country Park, Llay and plans are underway to designate a Local Nature Reserve at Plas Power, Southsea. Such reserves may be designated on land under Wrexham CBCs management.

4.8.7 Some of the areas have more than one designation e.g. land is both a SSSI and a SAC.

4.8.8 It is recognised that some important species thrive on sites with land contamination and this factor will be borne in mind.

4.9 Key Water Resource/Protection Issues


4.9.2 The County Borough is dominated by sedimentary rocks of Carboniferous age which lie unconformably on Ordovician rocks and are themselves overlain unconformably by Permian-Triassic rocks. The Carboniferous sequence has, at its base, up to 2225m of limestone with subordinate mudstones and sandstones. This is overlain by up to 420m of Millstone Grit (Halkyn Formation) sandstones and mudstones. These are in turn succeeded by up to 520m
of Productive Coal Measures (Bettisfield Formation), characterised by a cyclic repetition of mudstone, siltstone, sandstone, seatearth and coal. The Productive Coal Measures are succeeded by up to about 900m of ‘Red Measures’ (Upper Coal Measures). These also commonly show a cyclic repetition of strata, but coal seams are poorly developed. The succeeding Permo-Triassic sandstones (up to 540m) are entirely covered by thick drift (superficial) deposits of relatively recent (deposited during the last 20,000 years) glacial or post-glacial origin, as is most of the outcrop of the Productive Coal Measures and ‘Red Measures’.

4.9.3 The strata have a gentle dip towards the east, and in broad terms this is shown in the topography of the Council. The high ground in the west reflects the outcrop of the massive limestones of the Carboniferous Limestone and basal sandstone of the Millstone Grit. Eastwards there is a gradual slope towards the broad valley of the River Dee and the Cheshire-Shropshire plain; this slope is underlain by the softer, more easily eroded, and largely drift-covered mudstones of the various divisions of the Coal Measures and, finally, the sandstones of the Permo-Triassic.

4.9.4 Most faults (discontinuities in the solid rock) within the County Borough are steep, within 20º of vertical. Since faults are often only observed in mines and quarries, the position of most of the faults identified in the report are inferred.

4.9.5 Soils on the drift covered land are very variable; the light well-drained soils on the extensive sand and gravel deposits around Wrexham and Gresford contrast with the heavier clay soils developed on the till-covered ground to the south, east and west.

4.9.6 Localised peat and clay filled depressions related to the de-glaciation period and known as kettle holes are concentrated mainly between Gresford and Wrexham.

4.9.7 Hydrogeology - the information in the following paragraphs is also extracted from the aforementioned BGS Technical Report. The main aquifers in the Council area are the Carboniferous Limestone, sandstones in the Millstone Grit (Halkyn Formation), sandstones in the Productive Coal Measures (Bettisfield Formation) and the Permo-Triassic sandstones (Kinnerton Sandstone and Chester Pebble Beds formations).

4.9.8 Most of the solid rock aquifers, apart from the Carboniferous Limestone are to a large extent protected from pollution by a thick, relatively impermeable cover of drift; water supplies taken from the drift deposits are more easily contaminated. Further details regarding hydrogeology and aquifers are detailed in Appendix VII.

4.9.9 NRW has designated 5 Source Protection Zones (areas protected due to their use for groundwater abstraction activities) which are relevant to the County Borough. All five of these are of the type Zone III which cover the complete catchment area and are defined as areas needed to support an abstraction from long-term annual groundwater recharge (effective rainfall). Two smaller zones, within the Zone IIIs are of Type II. This defines a minimum radius of either 250m or 500m around the source, depending on the size of the abstraction and has a 400 day travel time from a point below the water table. Figure 3 identifies the zones within the Council and those just outside.
4.9.10 **Hydrology** – The BGS Report Technical Report states that in the drift covered ground from Wrexham eastwards there is, overall, a very gentle easterly slope towards the broad valley of the River Dee. This slope is interrupted by many minor undulations and shallow stream valleys, and also by a marked eastward facing slope from Marford to Marchwiel at the eastern edge of the sand and gravel deposits of the ‘Wrexham delta-terrace’. The southern part of the area is drained by the River Clywedog and its tributaries. The general drainage is from west to east, but a number of minor streams trend approximately north-south.

4.9.11 The main drainage of the County Borough is by the River Dee and its tributaries, notably the River Ceiriog and River Alyn. The southern most parts are drained by the River Perry, a tributary of the Severn. The streams are moderately flashy with a base flow index varying from 0.49 on the Dee to 0.67 on the Perry. Extensive areas of the alluvial plain of the River Dee are liable to flooding or could be flooded if protective levees were breached or overtopped. These areas make up the Dee floodplain safeguarding area.

4.9.12 The area of the fresh water catchment of the River Dee is a Water Protection Zone\(^7\) i.e. from around Bala Lake, the start of the River, to Chester, to the tidal limit in Cheshire. Six drinking water intakes supply 2 million people in north-east Wales, Cheshire and Merseyside with water. The designation means that since 21 June 1999 a person/company must have permission (in the form of a consent) to undertake a controlled activity\(^8\) within the Zone. The purpose of these controls are to minimise pollution incidents caused by industrial sources which subsequently impact on the River’s use as a potable supply. The management of water resources (controlled waters) is undertaken by the NRW and the public supply of water is managed by Welsh Water.

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\(^7\) The River Dee is Britain’s first statutory Water Protection Zone, designated under section 93 of the Water Resources Act, 1991.

\(^8\) A controlled activity is the keeping or use of a relevant quantity of a controlled substance (any natural or artificial substance, solid or liquid as defined in Dee WPZ 1 ‘Guidance notes for Consent to undertake a controlled activity within the River Dee WPZ’.

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4.9.13 The mean rainfall over the district is of the order of 700mm/year over the lower ground to 900mm/year over the higher ground. The mean evapo-transpiration is considered to be about 450mm/year. Infiltration is controlled largely by the thickness and permeability of the drift cover, varying on average between 50 and 250mm/year.

4.9.14 The Environmental Protection team of the Housing and Public Protection Department holds records of private water supplies in the form of a Public Register on a computer database. The Private Water Supplies (Wales) Regulations, 2010, lay down the wholesomeness standards for private supplies and specify the duties of local authorities in respect of sampling and analysis of private supplies. The NRW also manage abstraction licences, although this is for abstractions of greater than 20m³/day. Details of these licences are held by Wrexham CBC on the GIS database.

Figure 4 – NRW Licensed Water Abstraction Points and Lines

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4.9.15 A total of 199 private water supplies are currently registered by Wrexham CBC. Use of the water is for either: domestic, dairy, production or holiday accommodation. The water sources are either: springs, wells or boreholes. Some of the water sources are untreated, whilst those which are treated are often by one or two of the following methods: filter, ultra violet, chlorinated, ceramic filter, sediment filter, iron and manganese removal, limestone chippings in the tank, nitrate removal, chlorine dioxide/reverse osmosis and/or softener.

4.10 Specific Local Features

4.10.1 Limited information on made ground (i.e. un-natural ground deposited by people) is contained in the British Geological Survey (BGS) Technical Report WA/91/4 ‘Applied Geological Mapping in the Wrexham Area – geology and land-use planning’, 1991. The document states that:

“Made ground is extensive and of variable composition. The infill of worked opencast sites and recently restored sand and gravel pits is usually well documented; earlier pits and quarries may have fill of unknown type…”
“Most areas of made ground are related to mining (metalliferous and coal), quarrying, land development and road and railway embankments. The largest areas are those associated with the Minera lead mines (round SJ 261 519 – 277 509), Brymbo Steelworks (SJ 298 534), the deeper coal mines in the eastern part of the coalfield for example at Llay Main Colliery (SJ 325 562), Bersham Colliery (SJ 312 480), Hafod Colliery (SJ 311 469) and Gresford Colliery (SJ 336 538), and along the A483…”

“Metalliferous mining waste tips generally comprise calcite vein material and the local country rock, principally limestone. Some of the tips, however, may contain a significant content of sulphide minerals (galena (lead) and sphalerite (zinc)). Coal mining tips usually comprise mudstone, siltstone and sandstone debris, and sometimes have an appreciable content of coal. Some of the larger tips (e.g. Llay Main) are gradually being removed or landscaped and their contents used for the manufacture of breeze blocks and similar products. Made ground related to limestone quarrying generally comprises calcareous mudstone and muddy limestone, while that related to sand and gravel extraction usually consists of fine grained sand, silts and mud.”

“Backfill of sand and gravel, opencast coal and other extraction sites usually comprises the waste products of the extraction (e.g. sand and gravel (SJ 357 560), coal (SJ 307 499), clay (SJ309 454)… It may also include, however, household rubbish and industrial waste at approved sites [post regulation of landfilling activities i.e. 1974]…”

4.10.2 The BGS will shortly be issuing a report on what are regarded as normal levels of selected contaminants in Welsh soils in support of the Guidance which considers background levels. This report has been prepared based on the collation and analysis of nationally available data. This will be referred to in implementing the Strategy given the mining areas located within the County Borough, as referred to in paragraph 4.10.1.

4.10.3 The BGS Technical Report WA/91/4 also identifies the possibility of old coal workings acting as areas for methane accumulation, in addition to the more commonly recognised potential for methane accumulation in old landfill sites. The potential for spontaneous combustion under certain conditions if colliery waste is disturbed is also noted.

4.10.4 Radon is present within the County Borough in varying concentrations, with a map entitled ‘The Indicative Atlas of Radon in England and Wales’ available on the Public Health England website showing the areas where no protection, basic protection and full protection are likely to be required. The Building Control section of the Planning Department at Wrexham CBC provides advice on protecting homes from radon. Part 2A does not cover harm, or pollution of controlled waters as a result of naturally occurring background radiation (see Section 1.2 of the Guidance), therefore when implementing this Strategy, radon will not be considered as a source of contamination.

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9 Radon is a natural gas found in all soils and rocks, it has no colour, taste or smell and ground concentrations can vary within the space of a few metres. In open spaces, radon mixes with air and is diluted in the atmosphere, however radon rising from soil into homes (through cracks, gaps etc…) can cause a human health risk.
5 PROCEDURES OF THE STRATEGY

5.1 Internal Management Arrangements for Inspection and Identification

5.1.1 As detailed in paragraph 1.12, the Environmental Protection team within the Housing and Public Protection Department of Wrexham CBC is responsible for the implementation of Part 2A.

5.1.2 The Officers specifically responsible for this Strategy are:
- Principal Manager of Environmental Protection & Enforcement – currently Robert Johnston, who is managing and supervising the progression of the Strategy.
- Contaminated Land Officers – currently Angela Guy, Helen Bradshawe, Stacey Inglis and Paul Sleeman who are undertaking the data management and implementation of the Strategy.

5.2 Information Collection

5.2.1 There are a number of sources of information which are being examined in order to identify potentially contaminating sites, potential receptors to contamination and the existence of any pathways from the contamination sources to the receptors. These sources are listed in Appendix VIII. NRW provide some of the information listed in this Appendix, as required by the Regulations, and this is updated via a website.

5.3 Applicability of Part 2A

5.3.1 The contaminated land regime only relates to historical contamination. However, as discussed in paragraph 1.1.4 this cannot be used where other legislative regimes apply, namely the Environmental Permitting (England and Wales) Regulations 2010 and the planning and building control regimes. This will need to be considered before progressing the investigation of sites under Part 2A.

5.3.2 The Environmental Permitting (England and Wales) Regulations 2010. These Regulations require operators of certain industrial activities to apply for a permit to operate, known as an Integrated Pollution Prevention & Control (IPPC) Permit. The applicant must consider all of the environmental impacts associated with the installation including the preparation of an initial site report (site condition plan) which must identify any substances in, on or under the land, using a pollutant linkage approach, which may constitute a pollution risk. The initial site report will subsequently form a benchmark for comparison with a second site report which the operator must compile if wishing to surrender the permit to operate. The operator is obligated to ensure that necessary steps have been taken to avoid any pollution risk identified and to return the site to a satisfactory state – as described in the first site report.

5.3.3 Wrexham CBC will receive a copy of all IPPC permit applications (including the initial site report), as either a statutory consultee or as a regulator. The information in the site report may indicate that the site meets the definition of ‘contaminated land’ under Part IIA. As a consequence Wrexham CBC would require the operator to remediate pre-existing contamination under the provisions of Part IIA or development controls, not under the Permitting Regulations. The IPPC permit may be granted in parallel.

5.3.4 If the site is heavily polluted with material from pre-IPPC operations, which for some reason was not remediated before IPPC operation began, then it may still be remediated under the Part IIA regime after closure and potential restoration work under the Permitting Regulations.

5.3.5 Planning Regime. Since 1 January 2002, planning applications relating to new build schemes and changes to more sensitive uses (for example industrial land to residential
properties) are being routinely checked with regards to the presence of potential land contamination on or within influencing distance of the proposed development site. For these proposed developments, where advised by the Environmental Protection team (based on the limited information available to them), the Development Control section will require the developers through the means of a planning condition on the planning permission, to satisfy Wrexham CBC that the presence of any contamination has been adequately assessed and subsequently ensure that the land is suitable (or made so) for the proposed new use in accordance with recognised standards. In extreme cases, planning permission may have to be refused or the application put on hold whilst further investigations take place.

5.3.6 Consequently, such developments that have been correctly processed through the planning regime since 1 January 2002 will not be determined as ‘contaminated land’ within the meaning of Part 2A and should not need to be investigated further.

5.3.7 The Building Regulations 2010 require that reasonable precautions are taken to ensure the avoidance of risk posed by contaminants to the health and safety of persons using buildings and the surrounding land and risk of harm posed to the buildings themselves. Generally, developments constructed in accordance with these Regulations on potentially contaminated land will also be required to meet the requirements of the Planning Regime referred to in paragraph 5.3.5. However, where recommendations for planning conditions are rejected, a development site may require remediation to satisfy The Building Regulations, in which case the site would not be determined as ‘contaminated land’ within the meaning of Part 2A and should not need to be investigated further.

5.4 Prioritisation of Sites for Inspection

5.4.1 The Guidance requires that the assessment of potential contaminated land sites is prioritised.

5.4.2 Information obtained by Wrexham CBC on former potentially contaminative land uses has been digitised and entered onto a database. The sites are being prioritised primarily based on the former contaminative use of the site (very high, high, medium or low risk), current land use sensitivity, proximity and sensitivity of controlled water receptors, proximity and sensitivity of other Part 2A receptors and, to a lesser extent, any other relevant information known at the time e.g. geology and drainage. Paragraph 2.3.1 lists receptors in order of sensitivity for Wrexham.

5.4.3 Appendix X presents lists of potentially contaminating activities. The sites referred to in paragraph 5.5.2 will have been identified primarily based on this list of land uses. Sites will have been identified mainly from Ordnance Survey (OS) maps of various editions and scales. Maps will have been checked starting with the earliest edition for an area first, followed by later editions in date order so as to identify uses which have become discontinued. In addition to marked features on the maps, e.g. chemical works, less obviously contaminating features such as mineral pits which ‘disappear’ from subsequent editions are noted since these may have been developed into a landfill site. Precautions in using such maps, as detailed in the former Department of the Environment ‘Contaminated Land Research Report 3’ will be borne in mind.

5.4.4 Sites are being inspected in order of priority as far as possible and based on information known at that time.

5.5 Inspection of Sites

5.5.1 Management of a land contamination assessment will be undertaken in accordance with best practice guidance documents, for example Model Procedures for the Management of Land Contamination CLR11, Parts 1-3 Guiding Principals for Land Contamination and BS10175:2011.
5.5.2 Risk assessments help decide whether land contamination is currently a problem and understanding the risks is the first step in the process of managing land contamination. The site characterisation and risk assessment commences with a Phase I Preliminary Risk Assessment (PRA) and if deemed necessary continues to a Phase II Quantitative Risk Assessment (QRA). If remediation works are required then the remediation and verification work commences with a Remediation Options Appraisal, followed by a Remediation Strategy and finally Implementation and Verification. Wrexham CBC will ensure that any site investigation works it conducts or commissions comply with good practice procedures for the identification of land contamination and contaminated land. Documents listed in Appendix IX will be referred to where appropriate.

5.5.3 A conceptual model is developed at the earliest stage of the risk assessment i.e. the PRA and is refined as works progress. It is an understanding of the three dimensional site characteristics and identifies the sources of contamination, contamination migration and exposure pathways and receptors and the possible interaction between them (potential contaminant linkages).

5.5.4 It is likely that an Environmental Consultancy will undertake the works detailed in paragraph 5.5.2 on the Council’s behalf. The works would be commissioned in compliance with the Wrexham CBC’s Financial Regulations and procurement procedures.

5.5.5 For sites which may be defined as Special Sites, liaison with NRW will take place prior to any risk assessment works commencing. Wrexham CBC would consider asking NRW to investigate the site on their behalf.

5.5.6 Where land is privately owned, entry to the land will not take place unless prior permission from the owner or occupier of the land has been sought or appropriate legal powers of entry are held. The site owner/occupier will first be contacted to determine whether or not further information is available which could assist in determining the contamination status of the site. Care will be taken to avoid causing alarm and blight.

5.5.7 Powers of Entry - Under Section 108(6) of the Environment Act 1995, Councils are granted powers of entry to carry out investigations to obtain sufficient information to determine whether the site does or does not qualify for contaminated land. Before exercising these powers Wrexham CBC will endeavour to gain the land owner’s permission voluntarily. Furthermore, Wrexham CBC will also ensure that it is satisfied that there is a likelihood that a contaminant linkage exists. In the case of an intrusive site investigation powers of entry will only be used if it is likely that the contaminant is actually present and/or the receptor is actually present or likely to be present due to the current land use. The statutory powers of entry may not be used to perform an intrusive investigation if: detailed information concerning the condition of the land has already been provided which permits a decision as to whether the land is contaminated land or not; or a person offers and actually provides the necessary information within a reasonable and specified time. At least seven days notice will be given of proposed entry onto any premises, unless there is an immediate risk to human health and/or to the environment.

5.5.8 In the unlikely event that emergency access is required, Wrexham CBC will still attempt to seek the co-operation of the landowner and/or land occupier before entering onto the site. Where permission is not forthcoming, or the land owner and/or land occupier of the site can not be found, Wrexham CBC will seek entry under a warrant where it is satisfied that a significant risk is present.

5.5.9 Health and Safety - The health and safety of Wrexham CBC officers and contractors employed by Wrexham CBC will be a key issue for all site investigations. Before undertaking any works a site specific health and safety risk assessment will be undertaken. All work will be carried out in accordance with Wrexham CBC’s Health and Safety Policy and with regard to the Health and Safety Executive document ‘Protection of Workers and the General Public During Development of Contaminated Land’, 1991. Specific advice may be obtained from the appropriate Occupational Health and Safety Officer.
5.6 Liability

5.6.1 On completion of the investigations where the land is deemed to be contaminated land, liability will be established. Primary liability is assigned to the ‘Appropriate Person(s)’ i.e. anyone who has caused or knowingly permitted the contamination and who is consequently responsible for the remediation of the site. However, where those responsible for the primary liability cannot be traced, the owner/occupier of the land will become liable and identified as the ‘Appropriate Person(s)’. Where more than one person is liable due to the change in historical uses and ownership of the site, then Wrexham CBC will apportion liability for the remediation.

5.6.2 Reasonable efforts will be made to identify and contact the appropriate person/s but in some cases this may not be possible and the contaminated land is likely to become the responsibility of Wrexham CBC or NRW as an orphan linkage.

5.6.3 Having established the appropriate persons, Wrexham CBC will then need to examine if those persons are exempt from their liability, in accordance with the situations stipulated in the Guidance. If all appropriate persons benefit from the exemptions, the site becomes an orphan linkage for which Wrexham CBC may bear the responsibility.

5.7 Determination of Contaminated Land

5.7.1 Where Wrexham CBC has little or no evidence to suggest that land under investigation is contaminated land under Part 2A, Wrexham CBC will issue a written statement to that effect, providing an explanation for such.

5.7.2 Should Wrexham CBC conclude that land is in such a condition that it meets the definition if contaminated land in accordance with Part 2A, then the following procedures will be followed to ensure the remediation of that land.

5.7.3 Wrexham CBC's approach will be to seek voluntary action before taking enforcement action both before the service of the Determination Notice and the Remediation Notice. Before making a formal determination of contaminated land, Wrexham CBC will provide written information (informally as described for the Determination Notice in Paragraph 5.8.4) to: the owners and occupiers of the land and any other person who appears to the authority to be liable to pay for remediation (to the extent that the authority is aware of these parties at the time); and NRW; of its intention to determine the land unless the authority considers there is an overriding reason for not doing so. The authority will also consider:

- giving such persons 21 days to make representations (for example to seek clarification of the grounds for determination, or to propose a solution that might avoid the need for formal determination) taking into account: the broad aims of regime; the urgency of the situation; any need to avoid unwarranted delay; and any other factor the authority considers to be appropriate.
- whether to inform other interested parties as it considers necessary, for example owners and occupiers of neighbouring land.

Should a Determination Notice be served, 3 months will be given to permit those liable to take necessary steps to achieve a satisfactory standard of remediation. A Remediation Notice will only be served on the appropriate person(s) under the Contaminated Land (Wales) Regulations, 2006 after this period of 3 months has passed.

5.7.4 Determining an Area of Contaminated Land (including Special Sites) - A written record of determination of land as contaminated land will be produced including (in accordance with paragraphs 5.17 to 5.19 of the Guidance):

- the location, boundaries and area of the land in question, making appropriate reference to Ordnance Survey grid references;
an explanation as to why Wrexham CBC has made the determination by writing a risk summary (in accordance with paragraph 3.35 of the Guidance) with a description of:

- the contaminants involved, the contaminant linkages (source, pathway and receptor), the potential impact(s) and possibility of their occurrence and timescale over which the risk may manifest itself;
- Wrexham CBC’s understanding of the uncertainties behind its assessment;
- the risks in context, for example by setting the risk in local or national context, or describing the risk from land contamination relative to other risks that receptors might be expected to be exposed to in any case;
- Wrexham CBC’s initial views on possible remediation broadly describing what this will entail, timescales, likely effects on local people and businesses and an initial assessment of whether it will produce a net benefit;
- a relevant conceptual site model, if not already included within the risk summary;
- a summary of the relevant assessment of this evidence; and
- a summary of the way in which Wrexham CBC considers the requirements of the Guidance have been satisfied.

5.7.5 Serving a Remediation Notice - The following procedures will be taken where a formal Remediation Notice is required subsequent to the consultation period referred to in paragraph 5.7.3:

- the Council will ensure that the remediation actions are reasonable as discussed in paragraph 5.7.8;
- the Council will consult with the persons concerned with the remediation prior to the service of the Remediation Notice, with regard to the remediation methodology; and
- following consultation regarding the remediation methodology, a written Remediation Notice will be sent to the appropriate person(s) and/or owner and/or occupier of the land and NRW specifying the action required.

5.7.6 Wrexham CBC will wait for a period of 21 days to allow sufficient time for an Appeal against the Remediation Notice to be lodged at a Magistrates court. The suspension of the notice will continue until the Appeal is determined or withdrawn by the appellant.

5.7.7 Voluntary Remediation - If the remediation is to be carried out by agreement i.e. voluntarily, then the person responsible for the remediation will prepare and publish a Remediation Statement. This will describe the remediation actions, the persons who will carry them out and the time scales involved. The Statement should be prepared in close consultation with the Environmental Protection team to ensure that the required standard and approval of Wrexham CBC is obtained and to avoid unnecessary delays and costs. Wrexham CBC will review and monitor the actions to ensure the remediation is carried out satisfactorily. It will be necessary for the remediation works to be inspected and verified throughout by a suitably qualified third party to confirm the level of performance and compliance is met (where standards are not met consideration will be given to serving a Remediation Notice).

5.7.8 Reasonable Remediation Requirements - When determining the appropriate remediation option, the following issues will be considered:

- the standard of remediation (to make the land ‘suitable for use’ and ensure the land is no longer contaminated within the statutory definition i.e. to ensure that the effects of any significant harm or pollution are remedied);
- the seriousness of the harm or water pollution being addressed;
- reasonableness (cost/benefit analysis approach);
- practicality (the technicalities, site, time and regulatory constraints);
- durability (a durable solution will be required where land is not going to be redeveloped in the immediate future);
- effectiveness (to ensure the remediation is achievable and takes into account time delays before the remediation becomes effective); and
- the potential impact on human health and the environment during the remediation process does not outweigh the benefits of reducing/removing the risk posed by the contamination.
5.7.9 **Urgent Remediation** - Where it appears to Wrexham CBC that there is an imminent danger of serious harm or serious pollution of controlled waters being caused as a result of a significant pollutant linkage (at any stage of these procedures), it may be necessary to ensure that urgent remediation is carried out. In these cases the requirements for prior consultation and a three month interval between the identification of the land as contaminated and the service of the Remediation Notice do not apply. Depending on the circumstances, it is possible that Wrexham CBC may use its powers to undertake the remedial action itself. This could be in an emergency or when there is a failure to comply with a Remediation Notice. Wrexham CBC will then recover the reasonable costs it has incurred in undertaking the remediation works.

5.7.10 **Contaminated Land Register** - If the site is determined to be contaminated land under Part 2A, Wrexham CBC will keep a Contaminated Land Register including Determination Notices, Remediation Notices, details relating to revocation of notices, Remediation Statements and declarations, convictions and offences, details of the remediation actions and other information regarding the condition of the site in question. In certain circumstances relating to national security and the release of confidential information, such records may be excluded from the register.

5.8 **Wrexham County Borough Council’s Land Interests**

5.8.1 Wrexham CBC has a large estate portfolio which includes land likely to be linked with potentially sensitive uses, for example, housing, schools, allotments, recreational ground or public open space. It is also likely that Wrexham CBC has leased, inherited or acquired known problem sites linked with past waste management or industrial activities i.e. a source of pollution with a view to remediating it. Wrexham CBC may be the party responsible for a historical activity which has caused potential contamination, but is no longer the landowner. Such land will need to be investigated. The arrangements and procedures for assessing Wrexham CBC’s land will be the same as that applied to all of the other land within the Council i.e. as described in section 5.5 above. To ensure that this land is investigated management procedures have been put in place as discussed in paragraphs 5.8.2 to 5.8.4.

5.8.2 Details of the Wrexham CBC’s estate portfolio are held by the Assets and Economic Development Department on an electronic database, including the potentially sensitive uses referred to in paragraph 5.8.1 and commercial and industrial premises. The database also records land previously owned by the Wrexham CBC. The Deeds to the Wrexham CBC’s estate are held with the Corporate and Customer Service Department.

5.8.3 The Asset and Economic Development Department have included the Environmental Protection team on their list of consultees, in respect of land disposal (sales) and the purchase of land.

5.8.4 Elected members will be informed at the earliest opportunity of any plans to determine an area of Wrexham CBC owned land, or land where the Wrexham CBC is the ‘appropriate person’ and may therefore be liable in respect of remediation costs.

5.9 **Inspection Progress**

5.9.1 As a previous owner and operator of landfill sites, Wrexham CBC is responsible for a significant number of the ‘old’ landfill sites within the County Borough which do not fall under the regulation of the current waste management regime. These sites have been investigated to assess whether they require remediation in accordance with Part 2A.

5.9.2 Following the investigations on the landfill sites, some sites have been found to require no remedial work, while others now have management systems put in place to remove potential risks, as appropriate to the relevant landfill. These include the following remedial measures:

- installation and ongoing management of landfill gas flares;
- reinstatement of a landfill caps;
- installation and management of surface water drainage to reduce leachate volume and leachate collection wells;
- collection and appropriate disposal of leachate;
- ongoing monitoring of landfill gas, leachate, groundwater and surface water.

5.9.3 In total there are 1130 Wrexham CBC sites (non housing) which have been reviewed to establish the necessity for further PRA work or intrusive site investigations. Work on these assessments has commenced and is on going.

5.9.4 A large scale Preliminary Risk Assessment has been undertaken for all the land in the County Borough which may have been impacted by historical lead metal mining. A list of 189 sites was compiled and prioritised to inform Wrexham CBC on the order of further assessment.

5.9.5 The Llwyneinion Complex - Wrexham CBC owns two sites known as the 'Llwyneinion Acid Tar Lagoon and the Monsanto Chemical Waste Tip'. Both have undergone extensive site investigation works over a number of years by both Wrexham CBC and the Environment Agency Wales (now NRW). To date neither site meets the definition of contaminated land although ongoing routine monitoring continues. A liaison group has been set up to inform the relevant stakeholders of the work that has been undertaken and the ongoing routine monitoring. In addition Officers regularly make reports to the Environment & Regeneration Scrutiny Committee. Two further former landfill sites also in the Llwyneinion area, which are privately owned, are being assessed under Part 2A too.

5.9.6 Part 2A assessments of privately owned land in the County Borough have been carried out/are underway on the following former types of land (in addition to the 2 former landfills referred to above in the Llwyneinion Complex) - 2 former gas works, 2 former metal processing sites, 2 former lead smelting sites and a former landfill site.

5.9.7 Some of the sites referred to above were funded through the Contaminated Land Capital Funding Programme referred to in paragraph 3.2.4. Between 2005-2011 approximately £445,000 was awarded for site investigations in the County Borough.
6 REVIEW MECHANISMS

6.1 Overview

6.1.1 Part 2A requires Councils to inspect their areas from ‘time to time’ in order to identify land which may fall within the statutory definition of contaminated land. Therefore review procedures will be implemented periodically to evaluate:

- assumptions made;
- information used to assess problems in different areas; and
- management of new information taking into account local circumstances.

6.1.2 Therefore, there will be two main aspects of review within the Inspection Strategy:

- triggers for reviewing past inspection decisions; and
- review of the Inspection Strategy itself.

6.2 Review of Assumptions and Information (Triggers for Past Inspections)

6.2.1 The status of a site that contains contamination may alter with changes in circumstance. Some of the most likely circumstances which may affect the land’s status and subsequently require a review of the inspection decisions are:

- proposed changes in the use of the site or surrounding land i.e. re-development. This will normally be covered under the Planning Regime (see paragraph 5.3.5), in which case the land contamination database will require amending but detailed assessment of the status of the site should have been carried out in the planning process;
- unplanned changes in the use of the land (e.g. persistent, unauthorised use of the land by the public);
- unplanned significant events (e.g. localised flooding, landslides, accidents (fires and spillage’s)) where consequences cannot be addressed through other relevant environmental protection legislation;
- reports of localised health effects which appear to relate to a particular area of land;
- verifiable reports of unusual or abnormal site conditions received from business, members of the public or voluntary organisations;
- establishment of significant case law or other precedent;
- revision of guideline values for exposure assessment;
- responding to information from other statutory bodies;
- responding to information from owners or occupiers of land and other relevant interested parties; and
- receipt of anonymous information.

6.2.2 Where changes in circumstance occur, the risk assessment process for the particular site will be reviewed to determine an appropriate level of response. Review of assumptions and information will take place as and when information becomes available and/or events take place, such as new developments/designations for statutory habitat designations (SSSIs), private water supplies etc...:

6.2.3 All review procedures and subsequent decisions made will be documented in detail in a consistent manner (see paragraph 6.3.4 and section 8.1).

6.3 Review of the Inspection Strategy document (Triggers for Review)

6.3.1 Wrexham CBC will audit the inspection procedures in this Strategy on an annual basis to ensure that:
the procedures represent an efficient use of resources and are effective in meeting the requirements of the legislation; and

any necessary modifications are carried out as part of a routine internal quality management control, including reviewing the inspection and investigation techniques in light of ongoing best practice procedures.

6.3.2 The Strategy will be reviewed at least once every five years in order to recognise key changes in the review of assumptions and information discussed in section 6.2, Part 2A, the Contaminated Land (Wales) Regulations 2006 and the Guidance. Should any authoritative guidance or legislation be amended or introduced in the meantime, then Wrexham CBC will comply with that.

6.3.3 Should key changes in this Strategy be made then the elected members will be consulted prior to adoption of the revised Strategy.

6.3.4 The public will be able to view a copy of this document at Wrexham CBC’s office on Ruthin Road and on Wrexham CBC’s web site (www.wrexham.gov.uk).
7 Liaison and Communication

7.1 Principal Contacts

7.1.1 The principle internal and external contacts in connection with the Strategy and Part 2A are identified in Appendices IV and V. Procedures for responding to communication from others and the arrangements for communication with others are detailed in this section.

7.2 Information from the Public, Businesses, Voluntary Organisations and Other Interested Parties

7.2.1 Information which is provided by any external person or organisation with regard to identifying potentially contaminated land will be taken seriously and assessed appropriately. Depending on the type of information provided, Wrexham CBC will carry out a detailed assessment in accordance with the procedures listed in section 5 of this Strategy.

7.2.2 The information will be assessed in terms of the following factors:

- strength of evidence already available to suggest that contamination exists;
- apparent urgency, in terms of imminent harm being caused; and
- the quality of the information (for example, whether the information was provided anonymously or not (i.e. whether it is possible to ask further questions) and the reliability of the information being provided).

7.2.3 When information is received, an acknowledgement letter will be sent to the supplier of the information and if appropriate the person will be kept informed of the situation (see section 7.4).

7.3 Trans-boundary Pollutant Linkages

7.3.1 It is possible that a pollutant linkage may occur across Wrexham CBC’s administrative boundary. Mutual boundaries are shared with:

- Cheshire West and Chester Council;
- Flintshire County Council;
- Denbighshire County Council;
- Powys County Council; and
- Shropshire Council.

7.3.2 Where this situation arises, Wrexham CBC will notify the appropriate Council within ten working days and will subsequently work with the neighbouring Council to agree a mutually acceptable method of assessing and, if necessary, remediating the site. The Councils will agree an action plan identifying each of their roles in determining the status of the site and associated issues. Should Wrexham CBC consider that urgent action may be required then this notification will take place without undue delay.

7.3.3 The enforcing authority will be the Council in whose area the contamination source is situated. All parties accept that the above agreement is without prejudice to the statutory guidance and legislation and any legal advice received. The Welsh Ministers will be asked to determine any disputes.

7.4 Communication with Stakeholders

7.4.1 Wrexham CBC recognises that land that may be contaminated is not just of relevance to the person who owns it. The use and condition of land will have an impact on the wider community especially if the contamination poses a risk to human health. Therefore, it is essential that those who may be affected be:
informed of any risk posed to their health;
consulted on proposed actions in relation to contaminated land; and
kept informed of decisions taken.

7.4.2 Conversely, it is also important to prevent needless anxiety and blight. A delicate balance must therefore be achieved concerning when and to whom information is given. The vast majority of sites where contamination is suspected are unlikely to pose any threat to public health or risk to other receptors. However, in order to ensure that this is so, each site will need to be investigated by Wrexham CBC and assessed. The initial investigations will therefore be conducted as discreetly as circumstances permit, with information on site findings shared only between Wrexham CBC and where appropriate NRW and Public Health Wales. Should investigations require more than an initial assessment it will become necessary to consult with the site owner and/or occupier regarding the grounds for concern, the investigation procedure and potential implications. The information will remain confidential if and until a significant contaminant linkage is established. The only exception will be where redevelopment of the site is proposed and the Wrexham CBC determines that the information should be supplied to the potential developer, in relation to the planning regime, discussed in paragraph 5.3.5.

7.4.3 If the site investigation confirms that the land is determined as contaminated land, Wrexham CBC will consult and advise the individuals or organisations as detailed in section 5.8. In addition, consideration will be given to contacting others who may be affected in relation to: the reason for the determination; the potential health effects (if any); and the likely consequences of the determination:

- residents and landowners within 250m of the site (or a greater distance in specific circumstances);
- local councillors;
- statutory consultees where applicable (e.g. NRW); and
- Community Councils.

7.4.4 Should a site have a large number of stakeholders, in order to ensure that the communication strategy remains focussed, communication may be undertaken with a limited number of people who will represent the remaining stakeholders – in the form of a liaison group. Following any initial contact, the stakeholders will continue to be kept informed of any developments. Wrexham CBC will treat any concerns raised by members of the public seriously and as a result a clear, transparent response will be provided to all queries.

7.5 Risk Communication

7.5.1 As highlighted in the Scotland & Northern Ireland Forum for Environmental Research’s (SNIFFER) document ‘Communicating Understanding of Contaminated Land Risks’, 2010, it is possible to anticipate some of the issues and communication difficulties that are likely to be posed by land contamination. These issues are likely to concern a lack of understanding of the process of risk assessment and management and terminology used in relation to land contamination. Wrexham CBC will have regard to the SNIFFER document when addressing issues with stakeholders and the general public. Communication with stakeholders will be documented to ensure that all stakeholders are equally informed.

7.6 Provision of Information to NRW

7.6.1 NRW is required to produce a report on the state of contaminated land from time to time. Wrexham CBC will follow the ‘Land Contamination Protocol’, 2001, drawn up by the Environment Agency and the Local Government Association with regard to how and what information will be exchanged for the NRW’s report.

7.6.2 In addition, information on sites determined as contaminated land, Remediation Notices and information on regulatory activities in relation to these sites will be provided to NRW, as and when each action takes place.
7.7 Complaints

7.7.1 Wrexham CBC has a Corporate Complaints Team should anyone be unhappy with the service they have received. Concerns may be forwarded to the Team via e-mail, letter, telephone or face to face. Contact details are noted on Wrexham CBC’s web page and are listed in Appendix XI.

7.7.2 Anonymous complaints will be dealt with on a separate, case by case basis and will ultimately depend on the nature of the complaint.
8 INFORMATION MANAGEMENT

8.1 Data Storage

8.1.1 The Environmental Protection team is responsible for the management of information concerning contaminated land issues. This enables a consistently precise and accurate system of data management to exist.

8.1.2 Data is stored using the following formats:
- MVM & Civicca databases, both are secure ‘stand alone’ systems;
- Windows software on a specific computer drive, only accessible to the Environmental Protection team;
- A GIS system, used to log information with respect to individual areas of land in a spatial format and to retain historical maps;
- Paper format, due to the use of paper maps in addition to those on GIS. Site specific information and correspondence will also be stored on separate, paper files.

8.1.3 Information will be audited to ensure that it is both accurately recorded and up to date. Only the Environmental Protection team will carry out amendments/additions to data stored on the land contamination database.

8.2 Accessibility to Information

8.2.1 The only information accessible to the public is that held on the Contaminated Land Register (information to be held on the Register is listed in Appendix III). All other information will be regarded as confidential and therefore public access will be restricted. Wrexham CBC officers dealing with contamination matters should discuss the availability of information with the Environmental Protection team.

8.2.2 The Contaminated Land Register will be available for inspection on the Wrexham CBC web-site (www.wrexham.gov.uk) or by contacting the Environmental Protection team of the Housing and Public Protection Department at the Council offices in Ruthin Road during office hours (9:00am to 5:00pm Monday to Friday). Inspection is free, but if copies are required then Wrexham CBC’s standard charge is payable per sheet. To avoid the possibility of delay or of a knowledgeable officer not being available, appointments can be made. An index of the contents of the register will be prepared for publication on the Wrexham CBC web-site.

8.2.3 Data information or reports on sites will generally be a matter which comes within the scope of the Environmental Information Regulations 2004. Where information is provided to Wrexham CBC by third parties, its status will be confirmed at the time of provision by the third party, providing justification where they consider it should remain confidential (for commercial reasons) or subject to national security considerations and should not therefore be put on the Contaminated Land Register. The fact that information has been excluded from the Contaminated Land Register has to be recorded. Before any information provided by third parties is released by Wrexham CBC to other third parties, there will be a mechanism to check whether it is confidential.

8.2.4 The Regulations recognise that some information may be commercially confidential and as a result the information can be excluded from the Contaminated Land Register.
REFERENCES


Environment Agency, GPLC1 – Guiding Principles for Land Contamination, March 2010

Environment Agency, GPLC2 – FAQs, Technical Information, Detailed Advice and References, March 2010

Environment Agency, GPLC3 – Reporting Checklists, March 2010

‘Environmental Protection Act 1990’

‘Environment Act 1995’

Health and Safety Executive, ‘HS(G)66 Protection of Workers and the General Public During the Development of Contaminated Land’, 1991


National Groundwater and Contaminated Land Centre (Environment Agency), ‘Groundwater Source Protection Zones’


SNIFFER (Scotland & Northern Ireland Forum for Environmental Research), ‘Communicating Understanding of Contaminated Land Risks’, May 2010

Welsh Statutory Instruments, ‘Private Water Supplies (Wales) Regulations 2010’

Statutory Instrument, ‘Environmental Information Regulations 2004’

Statutory Instrument, ‘Building Regulations 2010’

Statutory Instrument, ‘Environmental Permitting (England and Wales) Regulations 2010’

National Assembly for Wales Statutory Instrument, ‘The Contaminated Land (Wales) Regulations 2001’

National Assembly for Wales Statutory Instrument, ‘The Contaminated Land (Wales) Regulations 2006’

Water Resources Act 1991
Welsh Statutory Instruments, ‘Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009’

Welsh Statutory Instruments, ‘The Contaminated Land (Wales) (Amendment) Regulations 2012’


http://www.assemblywales.org/sub-ld9043-e.pdf, (sourced 15.04.13)


Wrexham CBC, ‘Council Plan 2012 – 2016’


Wrexham CBC, ‘Housing and Public Protection Department, Public Protection Enforcement Policy’, May 2010
### Categories of Significant Harm

<table>
<thead>
<tr>
<th>Type of Receptor</th>
<th>Description of harm to that type of receptor that is to be regarded as significant harm</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Human beings</strong></td>
<td>Some effects should always be considered to cause significant harm: death; life threatening diseases (e.g. cancers); other diseases likely to have serious impacts on health; serious injury (e.g. caused by chemical and biochemical properties of substances, such as injury resulting from explosive or asphyxiating properties of gases - not injury caused by only physical properties of substances); birth defects; and impairment of reproductive functions. Other effects may or may not cause significant harm: physical injury; gastrointestinal disturbances; respiratory tract effects; cardio-vascular effects; central nervous system effects; skin ailments; effects on organs such as the liver or kidneys; or a wide range of other health impacts</td>
</tr>
</tbody>
</table>

**Any ecological system, or living organism forming part of such a system, within a location which is:**
- a site of special scientific interest (under section 28 of the Wildlife and Countryside Act 1981)
- a national nature reserve (under s.35 of the 1981 Act)
- a marine nature reserve (under s.36 of the 1981 Act)
- an area of special protection for birds (under s.3 of the 1981 Act)
- a “European site” within the meaning of regulation 8 of the Conservation of Habitats and Species Regulations 2010
- any habitat or site afforded policy protection under paragraphs 5.2.2-5 TAN 5 Nature Conservation and Planning (i.e. candidate Special Areas of Conservation, potential Special Protection Areas and listed Ramsar sites); or
- any nature reserve established under section 21 of the National Parks and Access to the Countryside Act 1949.

The following types of harm should be considered to be significant harm:
- harm which results in an irreversible adverse change, or in some other substantial adverse change, in the functioning of the ecological system within any substantial part of that location; or
- harm which significantly affects any species of special interest within that location and which endangers the long-term maintenance of the population of that species at that location. In the case of European sites, harm should also be considered to be significant harm if it endangers the favourable conservation status of natural habitats at such locations or species typically found there. In deciding what constitutes such harm, the local authority should have regard to the advice of the Countryside Council for Wales and to the requirements of the Conservation of Habitats and Species Regulations 2010.

**Property in the form of:**
- Crops, including timber;
- Produce grown domestically, or on allotments, for consumption;
- Livestock;
- Other owned or domesticated animals;
- Wild animals which are the subject of shooting or fishing rights.

For crops, a substantial diminution in yield or other substantial loss in their value resulting from death, disease or other physical damage. For domestic pets, death, serious disease or serious physical damage. For other property in this category, a substantial loss in its value resulting from death, disease or other serious physical damage.

The local authority should regard a substantial loss in value as occurring only when a substantial proportion of the animals or crops are dead or otherwise no longer fit for their intended purpose. Food should be regarded as being no longer fit for purpose when it fails to comply with the provisions of the Food Safety Act, 1990. Where a diminution in yield or loss in value is caused by a pollutant linkage, a 20% diminution or loss should be regarded as a benchmark for what constitutes a substantial diminution or loss.

In the Guidance, this description of significant harm is referred to as an “animal or crop effect”.

**Property in the form of buildings.**

For this purpose, “building” means any structure or erection, and any part of a building including any part below ground level, but does not include plant or machinery comprised in a building, or buried services

Structural failure, substantial damage or substantial interference with any right of occupation.

For this purpose, the local authority should regard substantial damage or substantial interference as occurring when any part of the building ceases to be...
<table>
<thead>
<tr>
<th>Type of Receptor</th>
<th>Description of harm to that type of receptor that is to be regarded as significant harm</th>
</tr>
</thead>
<tbody>
<tr>
<td>such as sewers, water pipes or electricity cables.</td>
<td>capable of being used for the purpose for which it is or was intended.</td>
</tr>
<tr>
<td></td>
<td>Additionally, in the case of a scheduled Ancient Monument, substantial damage should be regarded as occurring when the damage significantly impairs the historic, architectural, traditional, artistic or archaeological interest by reason of which the monument was scheduled.</td>
</tr>
<tr>
<td></td>
<td>In the Guidance, this description of significant harm is referred to as “building effect”.</td>
</tr>
<tr>
<td>Controlled waters.</td>
<td>(a) Pollution equivalent to “environmental damage” to surface water or groundwater as defined by The Environmental Damage (Prevention and Remediation) Regulations 2009, but which cannot be dealt with under those Regulations.</td>
</tr>
<tr>
<td></td>
<td>(b) Inputs resulting in deterioration of the quality of water abstracted, or intended to be used in the future, for human consumption such that additional treatment would be required to enable that use.</td>
</tr>
<tr>
<td></td>
<td>(c) A breach of a statutory surface water Environment Quality Standard, either directly or via a groundwater pathway.</td>
</tr>
<tr>
<td></td>
<td>(d) Input of a substance into groundwater resulting in a significant and sustained upward trend in concentration of contaminants (as defined in Article 2(3) of the Groundwater Daughter Directive (2006/118/EC)8).</td>
</tr>
<tr>
<td></td>
<td>In some circumstances, the local authority may consider that the following types of pollution may constitute significant pollution: (a) significant concentrations of hazardous substances or non-hazardous pollutants in groundwater; or (b) significant concentrations of priority hazardous substances, priority substances or other specific polluting substances in surface water; at an appropriate, risk based compliance point.</td>
</tr>
</tbody>
</table>
## APPENDIX II

### TABLE A - SIGNIFICANT POSSIBILITY OF SIGNIFICANT HARM

| All ecological system effects. | Conditions would exist for considering that a significant possibility of significant harm exists to a relevant ecological receptor where the local authority considers that:  
   • significant harm of that description is more likely than not to result from the contaminant linkage in question; or  
   • there is a reasonable possibility of significant harm of that description being caused, and if that harm were to occur, it would result in such a degree of damage to features of special interest at the location in question that they would be beyond any practicable possibility of restoration. Any assessment made for these purposes should take into account relevant information for that type of contaminant linkage, particularly in relation to the ecotoxicological effects of the contaminant. |
| All animal and crop effects. | Conditions would exist for considering that a significant possibility of significant harm exists to the relevant types of receptor where the local authority considers that significant harm is more likely than not to result from the contaminant linkage in question, taking into account relevant information for that type of contaminant linkage, particularly in relation to the ecotoxicological effects of the contaminant. |
| All building effects. | Conditions would exist for considering that a significant possibility of significant harm exists to the relevant types of receptor where the local authority considers that significant harm is more likely than not to result from the contaminant linkage in question, taking into account relevant information for that type of contaminant linkage, particularly in relation to the ecotoxicological effects of the contaminant. |

### TABLE B – SIGNIFICANT POSSIBILITY OF SIGNIFICANT POLLUTION

| Controlled waters | Before making its decision on whether a given possibility of significant pollution of controlled waters is significant, the Council should consider:  
   (a) The estimated likelihood that the potential significant pollution of controlled waters would become manifest; the strength of evidence underlying the estimate; and the level of uncertainty underlying the estimate.  
   (b) The estimated impact of the potential significant pollution if it did occur. This should include consideration of whether the pollution would be likely to cause a breach of European water legislation, or make a major contribution to such a breach.  
   (c) The estimated timescale over which the significant pollution might become manifest.  
   (d) The authority’s initial estimate of whether remediation is feasible, and if so what it would involve and the extent to which it might provide a solution to the problem; how long it would take; what benefit it would be likely to bring; and whether the benefits would outweigh the costs and any impacts on local society or the environment from taking action. |
APPENDIX III

INFORMATION TO BE MAINTAINED ON THE PUBLIC REGISTER

In accordance with Section 78R(1) the following information will be maintained on the Public Register:

1. Determination Notices served;
2. Remediation Notices served;
3. Appeals against such Remediation Notices;
4. Remediation Statements or Remediation Declarations prepared and published under Section 78H of Part 2A;
5. Appeals against charging Notices served;
6. Notices under subsection of 78C(1)(b) or 78C(5)(a) which have effect by virtue of subsection (7) of that section as the designation of any land as a Special Site;
7. Notices under subsection of 78D(4)(b) which have effect by virtue of subsection (6) of that section as the designation of any land as a Special Site;
8. Notices given by or to Wrexham CBC under section 78Q(4) above terminating the designation of any land as a Special Site;
9. Notifications given to Wrexham CBC by persons (i) on whom a Remediation Notice has been served or (ii) who are or were required by virtue of section 78H(8)(a) above to prepare and publish a Remediation Statement, of what they claim has been done by them by way of remediation;
10. Notifications given to Wrexham CBC by owners or occupiers of land (i) in respect of which a Remediation Notice has been served, or (ii) in respect of which a Remediation Statement has been prepared and published, of what they claim has been done on the land in question by way of remediation;
11. Convictions for such offences under section 78M as may be prescribed;
12. Other matters relating to contaminated land as may be prescribed.
## APPENDIX IV

### CONTACTS WITHIN WREXHAM CBC WITH REGARD TO CONTAMINATION ISSUES

<table>
<thead>
<tr>
<th>Department</th>
<th>Key Contact Name</th>
<th>Contact Details (01978)</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing and Public Protection Department</td>
<td>Toni Slater (Public Protection Service Manager)</td>
<td>297010</td>
<td>Management of the Implementation of the Strategy</td>
</tr>
<tr>
<td></td>
<td>Robert Johnston (Principal Environmental Protection &amp; Enforcement Manager)</td>
<td>315725</td>
<td>Management of the Implementation of the Strategy</td>
</tr>
<tr>
<td></td>
<td>Angela Guy (Contaminated Land Officer)</td>
<td>315733</td>
<td>Production and Implementation of the Contaminated Land Strategy</td>
</tr>
<tr>
<td></td>
<td>Stacey Inglis (Contaminated Land Officer)</td>
<td>315735</td>
<td>Production and Implementation of the Contaminated Land Strategy</td>
</tr>
<tr>
<td></td>
<td>Helen Bradshawe (Contaminated Land Officer)</td>
<td>315736</td>
<td>Production and Implementation of the Contaminated Land Strategy</td>
</tr>
<tr>
<td></td>
<td>Paul Sleeman (Contaminated Land Officer)</td>
<td>315734</td>
<td>Production and Implementation of the Contaminated Land Strategy</td>
</tr>
<tr>
<td></td>
<td>Paul Campini (Technical Officer)</td>
<td>315731</td>
<td>Private Water Supplies</td>
</tr>
<tr>
<td>Environment Department</td>
<td>John Bradbury (Chief Environment Officer)</td>
<td>729705</td>
<td>Wrexham CBC owned landfill sites</td>
</tr>
<tr>
<td></td>
<td>Martin Howarth (Countryside Services Manager)</td>
<td>729630</td>
<td>Wrexham CBC owned land which is recreational public open space</td>
</tr>
<tr>
<td>Legal and Administration Department</td>
<td>Louise Edwards (Solicitor)</td>
<td>292211</td>
<td>Legal Advice and Enforcement Action</td>
</tr>
<tr>
<td>Planning Department</td>
<td>David Williams (Planning Control Manager)</td>
<td>298775</td>
<td>Development Control</td>
</tr>
<tr>
<td></td>
<td>Dave Sharp (Principal Building Control Surveyor)</td>
<td>298876</td>
<td>Building Control</td>
</tr>
<tr>
<td></td>
<td>Emma Broad (Biodiversity Officer)</td>
<td>298762</td>
<td>Policy and Implementation – advice on protected habitats and species</td>
</tr>
<tr>
<td>Assets &amp; Economic Development Department</td>
<td>Denise Garland (Strategic Assets Manager)</td>
<td>297214</td>
<td>Wrexham CBC owned and previously owned land</td>
</tr>
</tbody>
</table>
## Appendix V

### External Contacts with Regard to Contamination Issues

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Key Contact Name</th>
<th>Contact Details</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRW</td>
<td>Elaine Wort (Technical Officer, Geoscience) 01244 894533</td>
<td>Joint Regulator and Statutory Consultee Matthew Ellis (Area Species &amp; Biodiversity Officer) 01352 706600</td>
<td>Statutory Consultee</td>
</tr>
<tr>
<td>Food Standards Agency (FSA)</td>
<td>Dr Sarah Rowles (Chemical Contaminants and Animal Feed Division) 02072 768731</td>
<td>Statutory Consultee Keith Blake (Higher Executive Officer) 02920 678902</td>
<td>Statutory Consultee – advice.</td>
</tr>
<tr>
<td>Welsh Government (Local Environment Quality Branch)</td>
<td>Robert Bailey 02920 826737</td>
<td>Statutory Consultee</td>
<td></td>
</tr>
<tr>
<td>Welsh Water</td>
<td>Tony Andrews (Environment Quality Scientist) &amp; Scott Webster (Regulation Scientific Assistant) 01286 832283</td>
<td>Interested Organisation</td>
<td></td>
</tr>
<tr>
<td>CADW: Welsh Historic Monuments</td>
<td>Richard Kevern (Section Manger for Scheduled Ancient Monuments) 02920 826430</td>
<td>Statutory Consultee</td>
<td></td>
</tr>
<tr>
<td>Health and Safety Executive</td>
<td>Brian Niele (Principal Inspector (Health &amp; Safety) 01978 290500</td>
<td>Interested Organisation</td>
<td></td>
</tr>
<tr>
<td>Public Health Wales (Health Protection Team)</td>
<td>Huw Brunt (Consultant in Environmental Health Protection) 02920 402478</td>
<td>Interested Organisation</td>
<td></td>
</tr>
<tr>
<td>Cheshire West &amp; Chester Council</td>
<td>Martin Wright (Environmental Protection Practitioner) 01606 288664</td>
<td>Neighbouring Local Authority Contaminated Land Lead Officer</td>
<td></td>
</tr>
<tr>
<td>Flintshire County Council</td>
<td>Rachael Davies (Technical Officer) 01352 703400</td>
<td>Neighbouring Local Authority Contaminated Land Lead Officer</td>
<td></td>
</tr>
<tr>
<td>Denbighshire County Council</td>
<td>Andrew Lord (Environmental Health Officer) 01824 706080</td>
<td>Neighbouring Local Authority Contaminated Land Lead Officer</td>
<td></td>
</tr>
<tr>
<td>Powys County Council</td>
<td>David Jones (Contaminated Land Officer) 0870 1923757</td>
<td>Neighbouring Local Authority Contaminated Land Lead Officer</td>
<td></td>
</tr>
<tr>
<td>Shropshire Council</td>
<td>Dominic Levy (Public Protection Officer) 01743 254151</td>
<td>Neighbouring Local Authority Contaminated Land Lead Officer</td>
<td></td>
</tr>
</tbody>
</table>
## APPENDIX VI

### Sites of Special Scientific Interest

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Grid Reference</th>
<th>Total Area (ha)</th>
<th>Site overlap into Neighbouring Authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Berwyn</td>
<td>SJ 125 418</td>
<td>24267.5</td>
<td>Denbighshire, Gwynedd &amp; Powys</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2956 in Wrexham)</td>
<td></td>
</tr>
<tr>
<td>Chirk Castle &amp; parkland</td>
<td>SJ 268 381</td>
<td>308.4</td>
<td>-</td>
</tr>
<tr>
<td>Chwarel Singret</td>
<td>SJ 347560</td>
<td>0.5</td>
<td>-</td>
</tr>
<tr>
<td>Cloy Brook Pastures</td>
<td>SJ 392 422</td>
<td>5.4</td>
<td>-</td>
</tr>
<tr>
<td>Fenn’s Whixall, Bettisfield, Wem &amp; Cadney Mosses</td>
<td>SJ 490 365</td>
<td>690.7</td>
<td>North Shropshire</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(all within Wrexham)</td>
<td></td>
</tr>
<tr>
<td>Gatewen Marsh</td>
<td>SJ 317 515</td>
<td>4.5</td>
<td>-</td>
</tr>
<tr>
<td>Hanmer Mere</td>
<td>SJ 453 392</td>
<td>53.7</td>
<td>-</td>
</tr>
<tr>
<td>Llay Bog</td>
<td>SJ 322 554</td>
<td>1.9</td>
<td>-</td>
</tr>
<tr>
<td>Llyn Bedydd</td>
<td>SJ 471 391</td>
<td>7.2</td>
<td>-</td>
</tr>
<tr>
<td>Marford Quarry</td>
<td>SJ 357 560</td>
<td>15.8</td>
<td>-</td>
</tr>
<tr>
<td>Nant-y-Belan and Prynela Woods</td>
<td>SJ 305 408</td>
<td>35.5</td>
<td>-</td>
</tr>
<tr>
<td>Old Pulford Brook Meadows</td>
<td>SJ 404 581</td>
<td>9.6</td>
<td>-</td>
</tr>
<tr>
<td>Pandy Quarries</td>
<td>SJ 195 362</td>
<td>34.2</td>
<td>-</td>
</tr>
<tr>
<td>River Dee (inc. Afon Ceiriog)</td>
<td>variable</td>
<td>1489.8 (within Wrexham)</td>
<td>Chester City, Shropshire, Flintshire, Denbighshire &amp; Gwynedd</td>
</tr>
<tr>
<td>Ruabon/Llantysilio Mountains and Minera</td>
<td>SJ 215 495</td>
<td>4795 (2023 in Wrexham)</td>
<td>Denbighshire</td>
</tr>
<tr>
<td>Shell Brook Pastures</td>
<td>SJ 364 393</td>
<td>11</td>
<td>-</td>
</tr>
<tr>
<td>Sontley Marsh</td>
<td>SJ 339 478</td>
<td>13</td>
<td>-</td>
</tr>
<tr>
<td>Stryt Las a Hafod</td>
<td>SJ 298 459</td>
<td>69.4</td>
<td>-</td>
</tr>
<tr>
<td>Vicarage Moss</td>
<td>SJ 359 541</td>
<td>21.1</td>
<td>-</td>
</tr>
</tbody>
</table>
APPENDIX VII

Hydrogeology and Aquifers


Carboniferous Limestone

The limestone outcrop occupies only limited areas within Wrexham CBC. While it has some potential for groundwater supply from boreholes, drilling for water is highly speculative as the limestones have minimal porosities and permeabilities, and groundwater movement is restricted to fissures enlarged by solution. There are no records of shafts or boreholes constructed specifically for water supply at the time of writing. However, two spring sources are licensed for a total take of 54 cubic metres per day (m$^3$/d) for agricultural and domestic purposes.

Halkyn Formation (Millstone Grit)

This formation also comprises a multi-layered aquifer with groundwater obtainable from shafts and boreholes intersecting sandstone and grit beds; the intervening mudstones and shales are rarely permeable. Although the arenaceous beds offer some intergranular storage, groundwater flow is generally through joints and fissures. Shallow shafts and boreholes may yield small supplies of the order of a few cubic metres per day, sufficient for domestic and small agricultural demands. Licensed sources comprise three springs and one shallow shaft with a total hardness of less than 300 mg/l as CaCO$_3$. The main problem is generally with iron which is locally present in concentrations of more than 1.0mg/l; such values may impart a taste to the water and also cause staining of laundry and bathroom fittings.

Bettisfield Formation (Productive Coal Measures)

This formation also comprises a multi-layers aquifer with groundwater being found in the sandy beds. The total licensed abstraction from the Bettisfield Formation is 32,654 m$^3$/d. Of this, only 37 m$^3$/d is taken from shallow shafts and springs for agricultural and domestic use, while the rest is used for public supply and for industrial purposes, mainly from old coal workings.

Under natural conditions, groundwater in the Bettisfield Formation may be of fair quality, with a total hardness of less than 300mg/l and a chloride ion concentration of less than 30mg/l (as Cl). Iron, in shallow shafts and boreholes, may be present in low concentrations, but does tend to increase with depth. Water drawn from old coal workings may be significantly more mineralised.

Permo-Triassic sandstones

This is the only aquifer, in the generally recognised sense, within the Council. The sandstones are generally weakly cemented with a porosity ranging from 20% to 30%. Intrinsic permeabilities vary, but even the higher values are significantly less than the hydraulic conductivities encountered in the field. This is because groundwater movement is controlled by fissures that provide by far the greater part of the permeability and are present even to depths of 100 metres.

The total licensed abstraction from the Permo-Triassic sandstones is 1402 m$^3$/d. Of this 311 m$^3$/d are taken from 22 boreholes and shallow shafts for agricultural and domestic use, while the remainder is for a single industrial source. There are no public supply sources located within this aquifer in Wrexham CBC.
The quality of groundwater from the Permo-Triassic sandstones is generally very good, with a total hardness of 250 to 350mg/l. The chloride ion concentration is usually less than 30mg/l. While analytical data are rather sparse, the concentrations of iron and manganese may approach 0.3mg/l.

Drift Deposits

Groundwater has also been exploited from the more permeable drift deposits, notably the sands and gravels. These are most widespread around Wrexham and Gresford; they also extend eastwards for some distance under impermeable cover and give rise to artesian conditions on the Wrexham Industrial Estate and elsewhere. In 1991 there were 18 sources, mainly shallow shafts and boreholes, but with a few springs, licensed for domestic and agricultural use. Under natural conditions, the groundwater is characterised by a low total hardness (less than 200mg/l) and often by high concentrations of iron and manganese. In agricultural areas, high concentrations of nitrate are commonly found.

Pollution of Groundwater

Groundwater from bedrock aquifers is generally less vulnerable to pollution than that from superficial aquifers because of the filtering and attenuating effects of the unsaturated zone above the saturated aquifer. Consequently, it usually receives little treatment before being pumped into supply, and it is important that aquifers are protected from potential pollutants. The most vulnerable aquifers are those where water passes rapidly from the surface into the saturated zone. Such aquifers include the Carboniferous Limestone where most of the groundwater flow is through joints widened by solution, and sandstone in the Bettisfield Formation close to old workings.

There are two main types of potential pollutant sources, point and diffuse. Point sources include landfill and other waste disposal sites (such as sewage treatment works), and storage tanks for silage, fuels, industrial solvents and other chemicals. There are several sites that have accepted in the past or are currently accepting both household and industrial waste. In general, these pose few potential problems for groundwater, whether because they are located upon the outcrop of strata such as the Bettisfield Formation where any lateral spread of leachate is limited by the faulted and multi-layered aspects of the strata, or because the bedrock is covered by extensive deposits of relatively impermeable drift. Where the aquifer outcrop is drift-free, as is the case with the Carboniferous Limestone and some of the sandstones in the Halkyn and Bettisfield formations, storage tanks can represent a serious risk to groundwater quality, particularly so where they are poorly constructed or in a bad state of repair.

Diffuse sources of pollution are largely represented by nitrates, applied to the ground as fertiliser, and biocides; both are widely used in agriculture. However, the risks in this district are generally low in respect of the two major water-yielding formations, the Bettisfield Formation and the Permo-Triassic sandstones, due to the extensive cover of relatively impermeable drift.
## APPENDIX VIII

### SOURCES OF INFORMATION

<table>
<thead>
<tr>
<th>Information Source</th>
<th>Type of Information Provided by the Source</th>
<th>Access to the Information Source</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Historical Ordnance Survey Maps</strong></td>
<td>Parish Plans dating from c.1825&lt;br&gt;Public Health Act Plans dating from c.1848 (prepared for the installation of the Victorian sewer systems).&lt;br&gt;County Series Maps: 1&lt;sup&gt;st&lt;/sup&gt; Edition c. 1880&lt;br&gt;2&lt;sup&gt;nd&lt;/sup&gt; Edition c. 1900&lt;br&gt;3&lt;sup&gt;rd&lt;/sup&gt; Edition or 1&lt;sup&gt;st&lt;/sup&gt; Revision c. 1924&lt;br&gt;3&lt;sup&gt;rd&lt;/sup&gt; Edition (revised) often called 4&lt;sup&gt;th&lt;/sup&gt; Edition c. 1938&lt;br&gt;National Grid maps (post 1945): c. one set each decade up to the present day.</td>
<td>Wrexham CBC Library (on computer database and some paper copies).&lt;br&gt;Wrexham CBC Housing and Public Protection Department (on computer database and some paper copies).&lt;br&gt;British Library Map Library, Great Russell Street, London, WC1B 3DG&lt;br&gt;Department of Maps, Prints and Drawings, National Library of Wales, Aberystwyth, SY23 3BU&lt;br&gt;National Register of Archives, Quality House, Quality Court, Chancery Lane, London, WC2A 1HP&lt;br&gt;Ruthin Records Office (and possibly Hawarden Records Office and the Public Records Office in Kew)&lt;br&gt;Landmark Data</td>
</tr>
<tr>
<td><strong>Locations of historic tanks, electrical substations and water infilled sites</strong></td>
<td>GIS format</td>
<td>Landmark Data</td>
</tr>
<tr>
<td><strong>Survey Reports and Borehole Logs</strong></td>
<td>Data from site investigations carried out by others.</td>
<td>Available to purchase from BGS. Some borehole logs available free on website: <a href="http://www.bgs.ac.uk/data/boreholescans/home.html">http://www.bgs.ac.uk/data/boreholescans/home.html</a>&lt;br&gt;Soil Survey and Land Research Centre</td>
</tr>
<tr>
<td><strong>Mining Records</strong></td>
<td>Mining Reports, Plans of Abandoned Mines, Shaft Registers.</td>
<td>Available to purchase from the Coal Authority. The Health and Safety Executive and County Records Office may also have records of mines other than coal.</td>
</tr>
<tr>
<td><strong>Trade Directories</strong></td>
<td>Information and location of industries and businesses.</td>
<td>Kelly’s Town and County Directories c.1850 onwards and Wrexham Commercial Directories are in the Wrexham CBC Library.</td>
</tr>
<tr>
<td><strong>Local History Books</strong></td>
<td>Information and location of industries and businesses, and other information.</td>
<td>1956 Dodds History of Wrexham Town; 1893 Palmer History of Wrexham Town; 1892 19&lt;sup&gt;th&lt;/sup&gt; Century Wrexham (published by the Council); and Victoria County History publication; All of which are in the Wrexham CBC Library.</td>
</tr>
<tr>
<td><strong>Hydrology</strong></td>
<td>Information on the location and quality of surface waters.</td>
<td>NRW</td>
</tr>
<tr>
<td>Subject</td>
<td>Information Provided</td>
<td>Responsible Authority</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td>Landfill Sites and other Waste Management Facilities</td>
<td>Information on closed landfill sites, such as location, monitoring works, waste inputs.</td>
<td>Wrexham CBC Housing and Public Protection Department NRW</td>
</tr>
<tr>
<td>Planning Registers</td>
<td>Information on developments permitted (and by whom) and site investigations undertaken.</td>
<td>Community Wellbeing &amp; Development Department at Wrexham CBC</td>
</tr>
<tr>
<td>Wrexham CBC Unitary Development Plan</td>
<td>Information on existing and proposed land uses within the Borough and planning policies.</td>
<td>Wrexham CBC Community Wellbeing &amp; Development Department</td>
</tr>
<tr>
<td>Computer databases administered by Wrexham CBC</td>
<td>Location of Council owned land</td>
<td>Assets &amp; Economic Development and Housing &amp; Public Protection Departments at Wrexham CBC</td>
</tr>
<tr>
<td>Parish Newsletters</td>
<td>Various information on Council activities and work in progress.</td>
<td>Wrexham CBC Library</td>
</tr>
<tr>
<td>Community Councils</td>
<td>Information on industries and activities within their areas.</td>
<td>Community Councillors</td>
</tr>
<tr>
<td>Wrexham CBC Minutes and Quarterly Reports</td>
<td>Various information on Council activities and work in progress.</td>
<td>Wrexham CBC Library</td>
</tr>
<tr>
<td>Photographic Reports and Press files</td>
<td>Information on events within the Borough.</td>
<td>Wrexham CBC Library</td>
</tr>
<tr>
<td>County Record Offices</td>
<td>Collections of maps, documents and photography.</td>
<td>Denbighshire, Ruthin and Hawarden Record Offices</td>
</tr>
<tr>
<td>Trading Standards within Housing &amp; Public Protection Department</td>
<td>Information on Pollution Incidents.</td>
<td>Trading Standards within Housing &amp; Public Protection Department, Wrexham CBC</td>
</tr>
<tr>
<td>Landmap</td>
<td>GIS information database on environmental features of the Borough</td>
<td>Wrexham CBC Community Wellbeing &amp; Development Department</td>
</tr>
<tr>
<td>Habitat Plans</td>
<td>Information on the location of protected wildlife habitat sites</td>
<td>NRW Wrexham CBC Community Wellbeing &amp; Development Department</td>
</tr>
<tr>
<td>Sludge Disposal</td>
<td>Dedicated sites used for the disposal of sludge under the Sludge (Use in Agriculture) Regulations 1989</td>
<td>Welsh Water Company</td>
</tr>
<tr>
<td>Company Records (Register of archives not the archives themselves)</td>
<td>Company histories may contain plans of sites and other useful information. A major collection of company histories is available at the Business Archives Council, but local firms may be covered by local libraries. Archives of firms that have ceased trading may be deposited in the Local Authority Record Office.</td>
<td>Business Archives Council, 185 Tower Bridge Road, London, SE1 2UT. Wrexham CBC Library</td>
</tr>
</tbody>
</table>
APPENDIX IX

Documents to be Referred to for the Identification of Land Contamination and Contaminated Land.

General good practice

- Environment Agency, GPLC1 – Guiding Principles for Land Contamination, March 2010
- Environment Agency, GPLC2 – FAQs, Technical Information, Detailed Advice and References, March 2010
- Environment Agency, GPLC3 – Reporting Checklists, March 2010
- Environmental Permitting (England and Wales) Regulations 2010;
- NRW/NHBC – Guidance for the Safe Development of Housing on Land Affected by Contamination;
- Private Water Supplies (Wales) Regulations, 2010
- The Water Supply (Water Quality) Regulations, 2010; and

Desk Studies

- DoE – CLR 3 – Documentary Research on Industrial Sites, 1994
- DoE – Contaminated Land Research Report 6 (CLR 6) – Prioritisation and Categorisation Procedure for Sites which may be Contaminated, 1995

Site Reconnaissance


Intrusive Site Investigation and Remediation

- British Standards Institute, BS5930+A2:2010: Code of Practice for Site Investigations, 2010;
- CIRIA Special Publication 103, Remedial Treatment for Contaminated Land: Volume III: Site Investigation and Assessment, 1995;
- CIRIA Report 131. The Measurement of Methane and other Gases from the Ground, 1993;
- CIRIA – Report 149 Protecting Development from Methane, 1995;
- CIRIA 665, Assessing Risks Posed by Hazardous Ground Gases to Buildings, 2007;
- DoE – Contaminated Land Research Report 1 (CLR 1) – A Framework for Assessing the Impact of Contaminated Land on Groundwater and Surface Water, 1994
- DoE – Contaminated Land Research Report 4 (CLR 4) – Sampling Strategies for Contaminated Land, 1994
- DoE Industry Profiles, 1995
- DoE – Waste Management Paper 26A – Landfill Completion;
Human Health Risk Assessment


APPENDIX X

Department of the Environment Industry Profiles

1. Airports
2. Animal and animal products processing works
3. Asbestos manufacturing works
4. Ceramics, cement and asphalt manufacturing works
5. Chemical works: coatings (paints and printing inks) manufacturing works
6. Chemical works: cosmetics and toiletries manufacturing works
7. Chemical works: disinfectants manufacturing works
8. Chemical works: explosives, propellants and pyrotechnics manufacturing works
9. Chemical works: fertiliser manufacturing works
10. Chemical works: fine chemicals manufacturing works
11. Chemical works: inorganic chemicals manufacturing works
12. Chemical works: linoleum, vinyl and bitumen-based floor covering manufacturing works
13. Chemical works: mastics, sealants, adhesives and roofing felt manufacturing works
14. Chemical works: organic chemicals manufacturing works
15. Chemical works: pesticides manufacturing works
16. Chemical works: pharmaceuticals manufacturing works
17. Chemical works: rubber processing works (including works manufacturing tyres or other rubber products)
18. Chemical works: soap and detergent manufacturing works
19. Dockyards and dockland
20. Engineering works: aircraft manufacturing works
21. Engineering works: electrical and electronic equipment manufacturing works (including works manufacturing equipment containing PCBs)
22. Engineering works: mechanical engineering and ordnance works
23. Engineering works: railway engineering works
24. Engineering works: shipbuilding, repair and ship breaking (including naval shipyards)
25. Engineering works: vehicle manufacturing works
26. Gas works, coke works and other coal carbonisation plants
27. Metal manufacturing: refining and finishing works: electroplating and other metal finishing works
28. Metal manufacturing: refining and finishing works: iron and steel works
29. Metal manufacturing: refining and finishing works: lead works
30. Metal manufacturing: refining and finishing works: non-ferrous metal works (excluding lead works)
31. Metal manufacturing: refining and finishing works: precious metal recovery works
32. Oil refineries and bulk storage of crude oil and petroleum products
33. Power stations (excluding nuclear power stations)
34. Pulp and paper manufacturing works
35. Railway land
36. Road vehicle fuelling, service and repair: garages and filling stations
37. Road vehicle fuelling, service and repair: transport and haulage centres
38. Sewage works and sewage farms
39. Textile works and dye works
40. Timber products manufacturing works
41. Timber treatment works
42. Waste recycling, treatment and disposal sites: drum and tank cleaning and recycling plants
43. Waste recycling, treatment and disposal sites: hazardous waste treatment plants
44. Waste recycling, treatment and disposal sites: landfills and other waste treatment or waste disposal sites
45. Waste recycling, treatment and disposal sites: metal recycling sites
46. Waste recycling, treatment and disposal sites: solvent recovery works
47. Profile of miscellaneous industries incorporating:
   - Charcoal works
   - Dry-cleaners
   - Fibreglass and fibreglass resins manufacturing works
   - Glass manufacturing works
   - Photographic processing industry
   - Printing and bookbinding works
CIRIA RP440 Industry/Site Profiles

1. Iron and steel industry
2. Metal processing industry
3. Mining and extractive industries
4. Non-ferrous metal smelting and refining
5. Power stations (Gas/Oil/Coal)
6. Shipbuilding sites
7. Animal processing works
8. Asbestos works
9. Gas works
10. Paper Manufacture
11. Printing industry
12. Textile industry
13. Wood treatment works
14. Chemical plants
15. Garages/Petrol stations
16. Oil refineries/Storage sites
17. Biocide production plants
18. Incineration facilities
19. Landfill sites
20. Sewage works and farms
21. Dockland sites
22. Ministry of Defence land (munitions manufacture)
23. Railway land
24. Scrap yards

A list of additional potentially contaminative uses not listed in either of the above lists:

1. Brickworks;
2. Food processing industry;
3. Laboratories for educational or research purposes;
4. Premises housing dry cleaning operations;
5. Intensively cultivated agricultural land or buildings used for the storage of agro-chemicals;
6. Canal basins and wharves;
7. Waste heaps (including colliery spoil, lagoons, metalliferous waste etc…);
8. Electricity supply industries;
9. Industries using radioactive substances; and
10. Demolition of buildings, plant or equipment used for any of the activities listed in Appendix A.
APPENDIX XI

Comments, Compliments and Complaints

You can express your concern to the Corporate Complaints Team in any of the ways below:

- E-mail: complaints@wrexham.gov.uk;
- Telephone: 01978 292087;
- By post: Corporate Complaints Team, 16 Lord Street, Wrexham LL11 1LG;
- Face to Face: Contact Wrexham, 16 Lord Street, Wrexham LL11 1LG;
- Fill in the online Comments, Compliments and Complaints Form.