Appendix 7 - Attachment H

Purpose:	To provide guidance on handling and disposal of contaminated soil.
Scope:	All sites and activities.
Responsibility:	Contract/Project Manager, Environmental Representative, Site Safety Officer

Regulatory Requirements:

- Local Government (Water Pollution) Act 1977-90
- Waste Management Act 1996 to 2003
- Waste Management (Licensing) Regs 2004
- Waste Management (Collection Permit) Regulations 2007 (amend) 2008
- Waste Management (Facility Permit and Registration) Regs 2007 (amend) 2008
- Waste Management (Hazardous Waste) Regulations 1998 and amend 2000
- Environmental Liability Regulations 2008
- European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011.

Management Requirement:

Contaminated soils may be encountered on site as a result of previous land use or soils may become contaminated during construction activities as a result of a spill of fuel or other chemicals. In either case the contaminated material must be managed with due care to prevent further contamination and ensure the safety of personnel. Contaminated soil is likely to be considered a Hazardous Waste under Schedule 2 of the Waste Management Act and must be disposed to an appropriately licensed facility.

Movement and disposal of hazardous waste is controlled by the following legislation:

- Waste Management Act 1996 to 2008
- Waste Management (Collection Permit) Regulations 2007 and amend 2008
- Waste Management (Hazardous Waste) Regulations 1998; and amend 2000
- European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011.

Assessing the potential for contaminated soils needs to be undertaken as early as possible in the planning phase of a project as remediation can be costly and time-consuming. Contaminated soils are most likely to be found on brownfield development sites, and are particularly associated with old gasworks, landfills, dockyards, railways and fuel depots/stations.

Contaminated soils may be identified in existing reports for a site (refer to EP-01), or may be identified as a potential environmental impact during the environmental risk assessment (refer to EP-02). Alternatively, contaminated soils may be discovered on site without prior warning.

What to look for:

- Evidence of illegally dumped material (stockpiles, fill areas);
- Soils that are different in colour and texture to the surrounding material;
- Oily residues in the soil or on the surface of runoff or pond water;
- Petroleum or other odours;
- Ash in the soil.

Investigation Process:

Where contaminated soils are suspected, the decision process would include carrying out an investigation to identify and characterise potential contamination resulting from previous activities carried out on the land. These investigations involve a **risk based approach** which has now become EPA best practice and involves three main stages including site investigation and risk assessment; corrective action feasibility and design; and corrective action implementation and aftercare. The main purpose of such an approach is to identify if a pollutant linkage exists from the contaminated soil to the nearest receptor and to implement measures which will minimise the risk and harm to the receptors (people and the environment). Note that without a pollutant linkage, there is not a risk – even if a contaminant is present.

Site investigation must be undertaken by a suitably qualified environmental consultant, and usually involves the

analysis of the soil, rock and groundwater samples. Typically, samples should be analysed for hydrocarbons (TPHs - Total Petroleum Hydrocarbons, PAHs – Poly Aromatic Hydrocarbons) and heavy metals. Results of site investigations and test analysis will be assessed to establish a Conceptual Site Model (CSM) for the land and groundwater environment . The CSM describes the potential sources of contamination at a site, the migration pathways it may follow and the receptors it could impact. If complete source-pathway-receptor scenarios exist then there is a potential pollutant linkage which will need to be characterised and assessed (via formal risk assessment).

Analytical results for soil, groundwater and leachate will usually be compared against various published Generic Assessment Criteria (GAC). Where no GACs are available, the assessment is of a qualitative nature and considers the concentrations and nature of contaminants reported and their potential toxicity in relation to the future site use and sensitivity of identified receptors. The appropriate assessment and classification of soils is required to determine the correct disposal route for excavated materials suspected of contamination and / or for verification that the material is suitable for recovery and re-use. The environmental consultant or soil specialist will carry out this investigation.

A Waste Acceptance Criteria (WAC) will be used to establish acceptance in landfills. This criteria includes absolute entries, mirror entries and non-hazardous entries. Absolute being hazardous, mirror, indicating the waste may be considered hazardous waste depending on the concentrations of certain constituents and indeed, the extent of these substances contained within the materials and non-hazardous meaning this can go to a non-haz landfill or inert depending on the level of TOC (total organic carbon).

The EPA has set waste acceptance criteria (WAC) for the acceptance of waste at licenced Landfills in Ireland based on Annex II of the Landfill Directive 1999/31/EC, which lists the criteria, procedures and limit values for waste acceptable at landfills for inert, hazardous and non-hazardous waste.

NOTE: The level of contamination will determine whether the soil is regarded as a hazardous waste

1. The site SHE officer should be immediately notified of any potentially contaminated soils. Reference must be made to the H&S risk assessment and procedure for Excavating in Contaminated Ground (PRA31-1).
2. Contaminated soil should not be excavated until an appropriate risk assessment including the determination of the level of contamination has been made. Where this is not feasible the excavated contaminated material must not be mixed with other soils and should be stockpiled separately in on a hardstand area away from surface waters, sensitive habitats or site boundaries and where runoff is prevented from mixing with other drainage or surface waters.
3. Contaminated stockpiles to be covered with polythene or other impervious material to prevent ingress of rainwater and windblown dust emissions where appropriate
4. Depending on the type and level of contamination there are a number of options for contaminated soils:

   Waste companies including Rilta and Enva operate facilities which are authorised to treat up to 60,000 tonnes of contaminated soil each year. Any additional contaminated soil arising is treated on-site of generation or exported for treatment abroad. Treatment abroad can be as simple as screening to remove rubble or may involve other physical or biological processes. Exported materials may go to Belgium, Germany, Netherlands or elsewhere in Europe. We would comply with the Waste Management (Shipment of Hazardous Waste) for the above and also if waste was to be exported outside Europe.
5. Contaminated soils may be disposed to a number of different outlets, depending on the nature and extent of contamination, and may include:

Waste Permitted Sites	Clean Soils (Inert)	Local authority will provide list
Waste Licensed Facilities	Contaminated Soils (slight, moderate)	EPA will provide list of all appropriate waste licence holders.
Hazardous Waste Treatment Facilities	Contaminated Soils (heavy)	Specialist hazardous waste contractor will provide details. Most likely overseas facilities.

6. Keep detailed records of any contaminated soil discovered and the disposal routes used, for a minimum period of three years.

For any further information or advice contact the Environmental Coordinator

References:

EPA (2003) 'The Remediation of Contaminated Land in the Republic of Ireland' Proceedings Sardinia 2003, 9th International Waste Management and Landfill Symposium

British Standards Institute (2001) BS10175 'Code of Practice for Investigation of Potentially Contaminated Sites' BSI, London

CIRIA (1999) C502 Environmental Good Practice On Site

Waste Management (Hazardous Waste) Regulations 1998 and amend 2000

National Hazardous Waste Plan 2008-2012

EA (2004) Model Procedures for the Management of Land Contamination

EPA (2012) Draft Framework for the Management of Contaminated Land and Groundwater at EPA Licensed Facilities

DEFRA Circular Sep 2006 Assessing Risks from Contaminated Land