

# SMARTER SOIL MANAGEMENT FOR BROWNFIELD REGENERATION OF INDUSTRIAL LAND & COMAH INSTALLATIONS



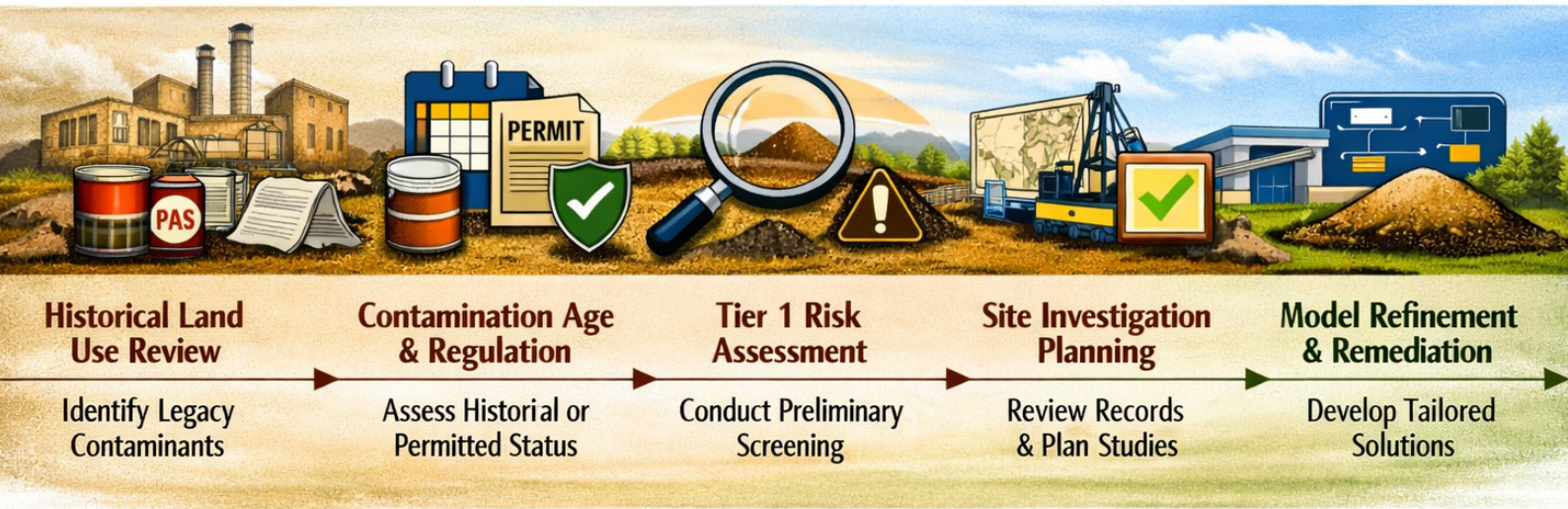
Industrial sites often carry decades of operational history — storage, waste handling, leaks, legacy processes — all of which shape the subsurface environment. These conditions influence redevelopment timelines, regulatory expectations, and soil management strategies.

## Key Drivers for Redevelopment

- 1** **End of life assets** requiring demolition, decommissioning or repurposing
- 2** **Process changes or decarbonisation programmes** necessitating new plant layouts or reduced spatial footprint.
- 3** **Compliance needs**, including Regulation 61 notices, permit surrender conditions, or Part 2A concerns at older installations.
- 4** **Strategic reuse of land** to support new operations, expand capacity, or prepare for divestment.

As structures are removed, subsurface constraints such as historic footings, variable backfill, and localised contamination become visible, requiring robust characterisation and early planning.

# Contaminated Land Assessment



## Contaminated Land Assessment (LC:RM)

A contaminated land assessment must follow the Environment Agency's Land Contamination: Risk Management (LC:RM) framework. The foundation is a Tier 1 Preliminary Risk Assessment supported by a Conceptual Site Model (CSM) — together identifying potential contaminant linkages and informing investigation design.

Common legacy contaminants on COMAH and industrial sites include:

- » Hydrocarbons
- » Solvents
- » PFAS from historical fire-fighting foams
- » Metals from manufacturing and waste handling
- » Asbestos in soil near legacy structures

Understanding whether contamination is historical or associated with a permitted installation shapes compliance points and regulatory expectations. As assessment progresses, the CSM is refined and used to guide proportionate, risk-based remediation.

## Why Soil Reuse Matters for Industrial Redevelopment

Redevelopment commonly generates large quantities of soil from:

- » Excavation for new foundations.
- » Removal of legacy structures and buried utilities.
- » Remediation of hotspots linked to past leaks or poor housekeeping.

A structured soil reuse strategy directly benefits redevelopment by:

- » Reducing disposal costs for hazardous or surplus soils.
- » Avoiding delays linked to waste classification and haulage constraints.
- » Supporting planning conditions requiring sustainable materials use and reduced carbon emissions.
- » Advancing ESG goals, particularly where redevelopment supports consolidation or decarbonisation.

Frameworks such as CL:AIRE's Materials Management Plan (MMP) and Hub & Cluster models enable lawful, transparent, and auditable reuse of soils both onsite and offsite.

# Managing Soils During Demolition & Redevelopment

Demolition and plant removal often expose previously inaccessible soils, including:

- » Hydrocarbon-impacted soils from historic pipe runs and drainage systems
- » Chlorinated solvent plumes beneath production buildings
- » Asbestos in soil near legacy structures
- » Unrecorded backfill or construction waste

Effective soil management requires three core steps:



# Regulatory & Planning Alignment

Local planning authorities increasingly expect:

- » Demonstration of material circularity
- » Consideration of treatment options before landfill
- » Carbon impact assessments for soil handling and transport
- » Clear phasing that integrates remediation with construction

Environmental permitting also shapes soil management. Permit surrender requires demonstrating land is in a satisfactory state, while waste compliance demands transparent soil tracking and auditability. MMP documentation provides a defensible framework for demonstrating sustainable soil stewardship.

# Environmental Permitting and Compliance

Industrial sites face several regulatory touchpoints:

- » Permit surrender requires proving land is in a “satisfactory state,” necessitating comprehensive soil investigation and risk assessment.
- » Regulation 61 notices may drive more detailed characterisation of soils before redevelopment.
- » Waste management compliance requires robust soil tracking, data transparency, and auditability.

Using the Hub & Cluster model provides a legally defensible method for moving materials between donor and receptor sites without requiring individual permits for each receiving location—provided a CL: AIRE compliant MMP is in place.



## Treatment Hubs & Their Limitations

Soil treatment hubs offer significant advantages for industrial redevelopment:

- » **Centralised treatment** of multiple soil streams
- » **Economies of scale** reducing remediation costs
- » **Reduced regulatory burden** under a single permit
- » **Transparent material tracking** and reduced carbon footprint

However, some contaminants remain unsuitable for hub-based treatment — notably PFAS and free-phase hydrocarbons, which require specialist approaches. Early recognition of these limitations prevents programme delays and supports realistic planning.



## A Modern, Sustainable Pathway for Industrial Land Reuse

Soil reuse is a powerful tool for reducing cost and programme risk, improving regulatory alignment, supporting planning approvals, and advancing ESG objectives.

By embedding soil reuse principles from the earliest stages of demolition, decommissioning, and design, operators can transform legacy constraints into strategic opportunities - demonstrating leadership in sustainable industrial redevelopment.

## Article Contributors:

Neil Chalmers  
Principal, Geosciences  
[neil.chalmers@arthian.com](mailto:neil.chalmers@arthian.com)

Richard Howarth  
Associate, Waste & Resource Management  
[richard.howarth@arthian.com](mailto:richard.howarth@arthian.com)