



Site Regeneration Case Study

Leeds Road Huddersfield

History

The former Huddersfield Gas Manufacturing Works is located to the northeast of Huddersfield Town Centre and covers a total area of 3.2ha.

Gas had been manufactured on the site since around 1850 until it was decommissioned following the switch over to natural gas in 1972. At the peak of production, the site housed five gasholders and numerous structures and equipment associated with the manufacture and processing of the 'town gas' including purifiers, retorts, condensers, scrubbers, tar and liquor storage tanks and a Carburetted Water Gas (CWG) plant.

The southern area of the site was used as a Dye Works and did not originally form part of the gasworks until around 1950 when it was incorporated into the main works. Following decommission, the site was used as a distribution centre and depot until closure in 2001.

Characterisation & Regeneration Strategy

National Grid Property Ltd commissioned several phases of intrusive and desk top based site investigation between 1997 and 2001 to determine the extent and nature of soil and groundwater contamination at the site.

A detailed quantitative risk assessment (DQRA) was undertaken to assess the risk from the identified areas of soil and groundwater contamination to impact upon identified environmental receptors (namely the nearby River Colne and underlying Groundwater Aquifer) and future site users and to derive site specific target levels (SSTLs) for the remediation works.

The investigation identified areas of the site as Remediation Zones where soils and groundwater were impacted by contaminants associated with gas production by-products including polycyclic aromatic hydrocarbons (PAHs), ammonia, spent iron oxide, aliphatic and aromatic hydrocarbons and toxic metals at levels above the derived SSTLs.



The remediation works were managed by National Grid Property Ltd and supervised by White Young Green Environmental Ltd following regulatory approval from Kirklees Metropolitan Council and the Environment Agency. The works were carried out by VHE over a phased 18 month period.

The first phase of the remediation works, undertaken in 2004, involved primary source removal of contaminated soil and water contained within below ground former gasholder structures and tar wells up to 40m in diameter and 10m deep. Due to the extent and nature of the contamination, almost all of the material was disposed to landfill under the current Waste Licensing Regulations.

The second phase of the works, undertaken between October 2005 and October 2006 generally involved the excavation and disposal or on-site treatment of soils from contamination zones or 'hot spots' outside of the below ground structures. The works were complicated by the presence of up to 4m of overburden material which required excavation to facilitate the removal of the contaminated soils below.

A small proportion of the tar impacted material was successfully treated on-site by bio-physical remediation to reduce hydrocarbons to acceptable levels to enable the soils to be re-used. The materials unsuitable for on-site treatment were disposed to landfill under current Waste Licensing Regulations.

The second phase of works was focused on maximizing re-use of materials and minimising disposal of waste to landfill. This was achieved by selective excavation and recovery of suitable materials and utilising process based on-site treatment methods wherever possible.

Materials were physically screened to segregate inert brick and concrete etc. from the contaminated fine fraction which were then crushed and reused as fill following confirmatory geotechnical and chemical laboratory analysis.

The works were validated by a comprehensive programme of laboratory testing on recovered soil and groundwater samples. Almost 1000 soil samples were analysed during the course of the works.

A summary of the final breakdown of materials excavated and processed during the works is shown below:

- A total of 150,000 tonnes of materials were excavated from the site.
- 48,000 tonnes of materials were contaminated above SSTLs and unsuitable for on-site treatment and disposed off site as hazardous or non-hazardous waste.
- 14,000 tonnes of material were contaminated above SSTLs and re-used following on site treatment by ex-situ bio-physical remediation.
- 88,000 tonnes of material comprising suitable overburden material and recovered hard fraction was found to be below SSTLs and available for re-use as fill following confirmatory geotechnical and chemical analysis.

The phased works were carried out over a period of 18 months.

A comprehensive programme of environmental monitoring was undertaken during the works to ensure that levels of dust, odour, vapour, noise and vibration were minimised so neighbouring land users were caused minimum disruption.



Future

The remediation of the former gasworks site has provided land suitable for a mixed use development to include the construction of residential apartments and housing close to the town centre. The development forms part of a larger regeneration master plan for this former area of industrial land.

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