**Former Scrap Yard**

Developed for a social housing landlord to provide 28 x 1-bedroom apartments, 2 x 2-bedroom mobility bungalows, 12 x 2-bedroom terraced houses and 2 x 4-bedroom semi-detached houses.

The scrap yard had ceased trading a number of years before the land was redeveloped in 2019, but as this aerial image from Google dated 2006 shows, it was still in a contaminated state. Dark patches can be seen on the site's surface, most likely oil/hydrocarbon staining originating from its former use as a scrap yard.

Planning consent was granted subject to several conditions requiring the developer to investigate the land for contamination and identify a remediation strategy to reduce any risks to an acceptable level. The site was investigated and found to be contaminated with petroleum/diesel range hydrocarbons, asbestos fibres and heavy metals.

To prevent the future residents' exposure to these contaminants, the consultants specified a vapour membrane within the foundations, areas of hardstanding and a clean cap of soil within gardens / soft landscape.

Remediation was undertaken by the developer and evidence was collected by their consultants to validate the work.

The photograph below shows the clean soil capping in the garden areas. The depth of cover and the quality of the soils were confirmed by measurement and chemical testing at a laboratory.

During a site visit it was noted that areas of loose stone were present in some gardens. This finish was not in accordance with the approved remediation strategy and it was not considered  to provide sufficient protection for the residents. Before the homes could be occupied the developer had to remove the chippings and replace them with concrete. Permanently removing the exposure routes to the soil beneath.

**Former Chemical Manufacturing site**

The buildings on the former chemical manufacturing site had already been demolished and stockpiles crushed demolition material were present on the hardstanding which had been left in place to reduce rainwater infiltration and the mobilisation of contamination within the soils on site.

Investigations had already identified key process areas and drainage runs where contamination was present. The remedial strategy required the removal of the worst impacted soils.

The concrete floor slabs were broken out in these areas to gain access to the soils.


Areas of gross contamination were clearly visible and enabled these to be quickly identified and removed.

The following photograph shows hydrocarbon contamination (rainbow-coloured sheen) escaping from an underground drainage pipe.

Where contamination had been present in the soils for much longer the soils were stained dark and had a strong chemical odour.

The two photographs below show historical solvent contamination (black deposits) in soils associated with drainage runs.

Diggers were able to chase out the contamination and impacted soils were sent off site for disposal.

Some of the resulting excavations were deep as the solvents had tracked along permeable layers to greater depths.
Soils samples were collected from the base and sides of the excavations and tested at the lab to provide evidence of the standard of the clean-up work.

The excavations were then backfilled with clean materials to leave a site which, after further phase of investigation and groundworks, was subsequently developed for housing.

Whilst the gross solvent/hydrocarbon contamination was dealt with through the process of excavation and removal of impacted soils, other possible contamination remained within the soils on site. This required the house developer to provide each house with a specialist gas membrane at foundation level and a clean cap of soils in the gardens placed above a marker geotextile.

The photograph below shows the depth of clean cap cover being verified (approx. 600mm) within one of the gardens (last photograph).