Toprain & 511 Sites, Hawthorne Road, Sefton, Liverpool

Project Profile

Client: Bellway Homes/Sefton Council, HMRI Partnership

Designer: Wardell Armstrong (Remediation), Lees Roxburgh (Infrastructure)

Value: £8.5m

Reclamation of two adjacent former industrial sites located in Hawthorne Road, Bootle for residential development as part of Bellway Homes 'Housing Market Renewal Initiative' partnership with Sefton Council. The remediation work has been part funded by English Partnerships. We were also been engaged to complete the infrastructure, roads, sewers and foundations on the sites as part of the construction phase.

Previous uses of these sites had included industrial processes such as; Tin smelting, asphalt and tar works, chemical works and latterly a transport and haulage depot. Site Investigations had revealed large areas of contamination which posed a significant risk to groundwater and human health and required preparation, design and implementation of an agreed remediation strategy prior to site development.

Remediation work included;

- Site investigation boreholes to facilitate barrier design and determine integrity and permeability of underlying clay soils.
- Breakout and crush for re-use 2,000m^3 of hard standings, slabs, and foundations in accordance with WRAP protocol to enable re-use on site as approved by the EA.
- Install of groundwater cut-off barriers to prevent on – site migration of contamination, constructed in engineered puddle clay together with single or double sided permanent steel sheet piled support - 5Nr barriers totalling 650m in length and depth ranging from 2m to 5m.
- Excavate, monitor and dispose of 12,500m^3 of radioactive tin slag, 350tonnes of hazardous waste (Galigu - chemical waste), 50m^3 of Asbestos contaminated fills, and 10m^3 of hazardous waste for incineration (LOI and TOC levels)
- Excavation and removal of 43,015m^3 non-hazardous contamination in oversite made ground fills and hotspots.
- Establishment of a 200m^3 'tank farm' facility for collection and storage of contaminated groundwater
- Sampling and chemical testing with appropriate QA procedures.

- De-commission, purge and clean out 1No. fuel interceptor tank from former haulage depot including disposal off-site (tankering) of contaminated liquors and redundant tank.

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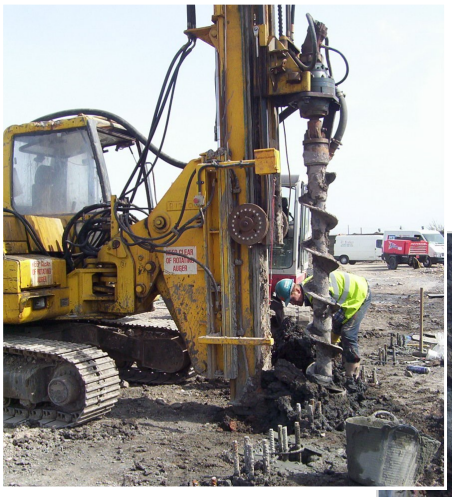

- Pump to storage, test and dispose off-site (tanker) 600m^3 of hydrocarbon contaminated perched groundwater. Test, pump and discharge to sewer acceptable levels of groundwater in accordance with license agreement provided by United Utilities

- Design and instal secant piled wall together with lateral support beam to facilitate removal of chemical waste at significant depth and additionally ensure the integrity of the canal. Method approved by BWB and EA.
- Re-profile and regrade natural clay formation to receive engineered up-filling with imported first generation quarried material - 42,860m^3.
- Construct land drainage system comprising 1370m of 150 to 300mm diameter pipework including pumping station and associated chambers to deal with surface water collection from open space/garden areas to facilitate a controlled discharge to canal
- Placement of imported clean cover subsoil and topsoil in garden and public open space areas - total volume 8,990m^3.

Infrastructure works comprised the following:

- Construct 159 Nr house plot foundations comprising apartments, linked and semi-detached dwellings including associated drainage, drives, external paving, kerbs, shed bases and boundary walls
- Design & installation of piled foundations and ground beams to 5Nr apartment/linked accommodation blocks.
- Construct 3,000m^2 of adoptable roads including associated footways, sewers, utilities, outfall connection and tie-in to existing highway infrastructure.