



Remediation of Heavily Contaminated Soil Close to Water

The Issue

Soils and groundwater impacted with pesticides, preservatives, solvents and hydrocarbons as well as asbestos impacted soils. The proximity of the River Frome and residents in an adjacent housing estate were an additional complication.

The Objective

Design a turn-key solution for the 9 acre site to enable the sale of the site to a housing developer, together with the transfer of environmental liabilities ensuring acceptability for future residential development.

Design a geotechnical solution to address the stability, future foundation design and reduce future liability to ICI for additional costs associated with abnormal ground conditions. Minimise the impact to neighbours and residents adjacent to site boundaries.

Client

ICI Paints Limited

Location

Frome, Somerset

The EDSR Solution

- Excavation of the existing unstable bank immediately adjoining the River Frome and the design and construction of an earth retaining wall, incorporating at the toe, a Permeable Reactive Barrier (PRB) to intercept residual groundwater from entering the river. This earthwork design enabled a further 17 riverside units to be constructed as a result of increasing the angle of the slope from the site down to the river.
- The delivery of an integrated environmental and geotechnical solution optimised the area of site that could be developed and hence maximised land value.
- Design a Permeable Reactive Barrier (PRB) to remain in place for five years post remediation, to deal with any residual contamination in groundwater and provide ongoing analysis for water passing through the PRB.
- The complex processing of excavated materials and the removal to landfill of soils, which were unsuitable for re-incorporation in the scheme.
- The import of 25,000m³, of clay to fill the site to the required levels, compacted to achieve the geotechnical specification and to remove a potential infiltration pathway for surface water entering into the River Frome.
- Maintain the stability of the existing river bank and retaining walls whilst carrying out the remediation works
- Decommission existing site pump interception scheme protecting the River Frome.
- Foundation design and ground engineering to minimise the number of piles used on the site as a result of poor ground conditions – substantial savings were obtained by the client as a result of this solution.
- Compiling and submitting a validation report to discharge all relevant planning conditions and achieve sign off by the Regulators, Statutory Bodies and the Independent Validation Engineer to enable the environmental liability transfer and sale of the land by ICI.



For more information please contact:

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