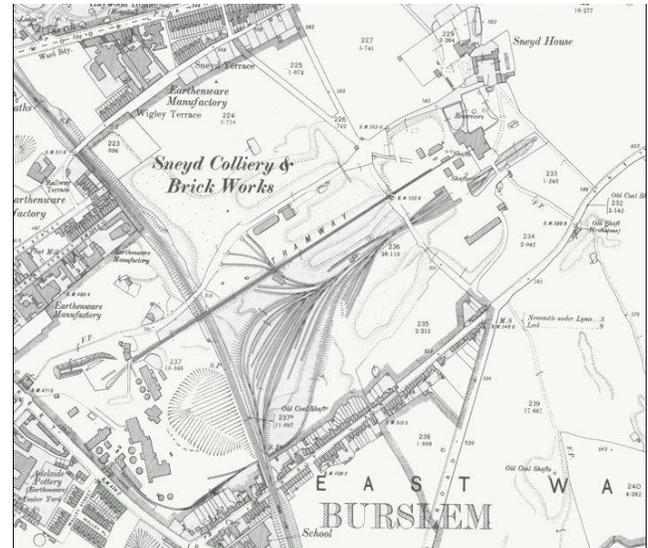




Figure 1 – Map of the Area (Early 1900's)



Site Background & History

Stoke on Trent College commissioned Thomas Vale to deliver their new £10.5million Technology Hub at their Burslem College facility. The new build was completed in September 2015 – the facility focuses on construction and engineering courses.

The new build, car parking, roads and landscaped areas were all located within the existing college site footprint and replaced existing building and car parking areas.

Historically the site formed part of the Sneyd Colliery and Brickworks with associated railway sidings and other infrastructure dating back to the 1800s. The map of the area in the early 1900s is shown in Figure 1 below.

Previous site investigations had shown the presence of made ground across the site to depths of 5.3m below ground level [bgl] – the made ground consisted of brick, concrete, ash and colliery spoil. Elevated levels of metals and PAHs were noted in the soils together with a number of groundwater exceedances. Analysis also indicated the presence of asbestos containing materials within the made ground.

A number of the existing buildings required demolition to enable the new build. No previous site investigations had been carried out in relation to the ground underlying the buildings.

The planning consent contained a number of planning constraints, fairly typical for the proposed redevelopment of a brownfield site. The planning conditions relating to land contamination were as follows:

- A requirement for the necessary site investigation and risk assessment
- A requirement for the submission and approval of a remediation strategy
- A requirement for the submission and approval of a validation / verification report on completion
- Necessary protocols to assess / address unexpected contamination.

Envirotrat were commissioned by Thomas Vale to undertake the required remediation measures to address the site contamination issues and to enable the discharge of the relevant planning conditions.

Site Works

Initial investigation:

Enviro-treat initially undertook a series of shallow trial pits across the site to gain a better understanding of the contamination concerns associated with the made ground. This included drilling boreholes within the existing building. The initial investigations are shown in Figure 2 below.

Figure 2 – Initial Investigations



The findings were incorporated into a comprehensive remediation strategy and method statement for the proposed works. These documents were approved by the regulators, primarily Stoke-on-Trent City Council (the prime concerns related to the protection of human health – there was no identified risks to groundwater and / or controlled waters).

These documents addressed a number of key requirements:

- Site investigation and risk assessment in accordance with CLR11
- Detailed remediation scheme in the event that previously unidentified contamination was deemed to pose a risk to human health and / or controlled waters and therefore required remediation

This requirement was addressed by the provision of a Discovery Strategy – this included the necessary protocols to address previously unidentified contamination without the need to delay site works – the protocols included the possible need to quarantine any unexpected contamination to establish whether the contaminated materials could be addressed to enable reuse on-site or whether the contaminated materials

- Details of the proposed ‘watching brief’ to be provided by Enviro-treat for the effective management of soils on-site (and for offsite disposal purposes)
- Details of the verification and validation process (provision of a validation plan)

A ‘cut and fill’ assessment indicated a net surplus of material in relation to the actual development area. There was, however, a requirement for fill material elsewhere on site. Enviro-treat therefore managed the soil management on-site enabling the reuse of suitable surplus materials on-site for use as fill, sub-base, etc (thereby minimising the requirement for offsite disposal of surplus soils).

Enabling Works:

The proposed enabling works included the requirement for an extensive reduced level dig to accommodate foundations etc. Further excavations would be required for drainage runs etc. The excavated soils were effectively managed on-site by Enviro-treat through the ‘watching brief’.

Enviro-treat provided full site attendance during the reduced level dig excavations and regularly attended site at subsequent key stages of the enabling works / groundworks to assess excavations, arisings and stockpiles.

The foundation works and service installations are shown in Figures 3 and 4 below.

Figure 3 – Foundation Works



Figure 4 – Service Installations



Validation and Verification:

Enviro-treat were able to retain the majority of soils on site by demonstrating compliance with the agreed remediation criteria (for retention on-site).

Enviro-treat produced summary interim reports at key stages of the project.

Following completion of the development Enviro-treat produced a comprehensive Validation and Verification Report documenting all works undertaken and the necessary conclusions to address all remaining planning conditions relating to the development from the land contamination perspective. There was no unexpected contamination.

Conclusions

Enviro-treat was able to generate significant added benefit to the project. These benefits included:

- Significant cost saving by eliminating any requirement for non-hazardous / hazardous waste disposal (estimated at circa £120/tonne) by delineation of contaminated soils and effective soil management on-site
- Additional cost saving by negating the need for offsite disposal of made ground in lieu of import of suitable fill
- Time saved in relation to the potential risks posed by unexpected contamination (including a pre-agreed remediation plan to address if required)

The completed college development is shown in Figure 5 below.

Figure 5 – Completed Development



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