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CASE STUDY

Enabling Works, Soil Management & Japanese Knotweed Removal

Former Elliot's Car Accessories Site, Coventry

Client

NSG Developments

Project Management

gleeds

Site Background & History

The site was previously occupied by a vehicle parts and accessories retail unit located in the north-western corner of the site (i.e. 'Elliots Car Accessories') with a car servicing and MOT Garage to the rear. The remainder of the site was being used as a public open car park with a hand car wash located in the centre of the site. The building structures had been demolished prior to remediation.

The site occupies an area of 0.39 hectares and is located in close proximity to the Coventry Ring Road. The site is bound to the north by Gulson Road and to the west by a public house with London Road beyond. The site is bounded to the south and east by residential properties (the site is raised approximately 1m – 2m above surrounding ground levels in the east and south east areas of the site). The site was covered by hardstanding comprising of asphalt and crushed concrete. The site prior to demolition is shown in Figure 1 below.

Following remediation and enabling works, the site will be redeveloped for residential purposes - the proposed development comprises of two buildings up to a maximum height of 16 storeys and 5 storeys respectively including retail and / or a café with associated landscaping and infrastructure. The proposed development is shown in Figure 2 below.

Figure 1 – Site Prior to Demolition

Figure 2 – Proposed Development

The potential contaminative uses did not indicate gross contamination on the site – it was considered that localised contamination 'hot-spots' may be present particularly in relation to the former car servicing and garage activities previously carried out on-site. There was evidence of Japanese Knotweed contamination, both on the periphery of the site and more centrally in the eastern area which was considered to be as a consequence of spreading crushed concrete and other materials to create the car parking area. There was a reference to an infilled pit in the south-eastern corner of the site which could potentially contain contaminated materials.

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Identified Site Contamination

The site was subjected to a Phase 1 Desk Study investigation by RPS in 2017 and an intrusive site investigation by GRM Development Solutions in 2019.

RPS concluded that the site was potentially contaminated as a consequence of its historical usages and the presence of an infilled pit. Accordingly, RPS advised that a ground investigation should be carried out to establish the nature and magnitude of any contamination on the site and recommended the installation of groundwater monitoring boreholes (if contamination was identified as expected).

The GRM investigation comprised the installation of seven windowless boreholes to assess any potential contamination on the site and three rotary boreholes within the proposed building footprints.

The locations of the boreholes are shown in Figure 3 below.

Figure 3 – Locations of Exploratory Boreholes

The findings of the GRM site Investigation confirmed the presence of lead and polyaromatic hydrocarbons [PAHs] within the made ground across the site. In addition, asbestos cement sheets were observed on site (although soil analysis did not confirm the presence of fibres within the made ground).

Following completion of the demolition works, Gleeds requested a site visit to assess the suspected growth of Japanese Knotweed in the car park area of the site. The prime 'stands' were located in a bund in the north-eastern corner of the site (former car park area) and shoots were appearing in the centre of the eastern area of the site (as shown in Figures 4 and 5 below).

Figure 4 – Japanese Knotweed 'Stands' in the North-Eastern Corner

Figure 5 – Japanese Knotweed Shoots in the Centre of the Eastern Area

It was considered that the Japanese Knotweed shoots in the centre of the site were as a consequence of materials being spread across the eastern area of the site to create a temporary car parking area.

Remediation Strategy

Following planning approval by Coventry City Council, Gleeds engaged Envirotreat to produce a remediation strategy to enable the discharge of the pre-commencement planning conditions relating to contaminated land. The proposed strategy comprised of the following elements:

- Japanese Knotweed management (excavation and burial) and herbicide treatment
- Delineation of contaminated soils in the vicinity of the infilled pit (in the south-eastern corner of the site)
- Reduced level dig
- Effective soil management to protect the client from risks associated with potential disposal of hazardous soils
- Provision of a 'discovery strategy' to address the potential risks associated with 'unexpected' contamination
- Provision of a 'watching brief' for subsequent excavation works

Japanese Knotweed Management

The initial phase of the works was focused on addressing the identified Japanese Knotweed contamination on the site by the agreed management programme as summarised below.

The management plan included the following:

- Excavation of a burial pit for on-site deposition of Japanese Knotweed – the pit was constructed to a suitable depth below ground level to prevent regrowth
- Removal of Japanese Knotweed plants and associated soils and placement at the bottom of the burial pit
- Backfilling of the burial pit with excavated soils
- Monthly inspections following burial and spraying of any residual Japanese Knotweed with an appropriate herbicide as (and if) required

The excavation of the burial pit and the emplacement of Japanese Knotweed blighted soils are shown in Figures 6 and 7 below.

Figure 6 – Excavation of the Burial Pit

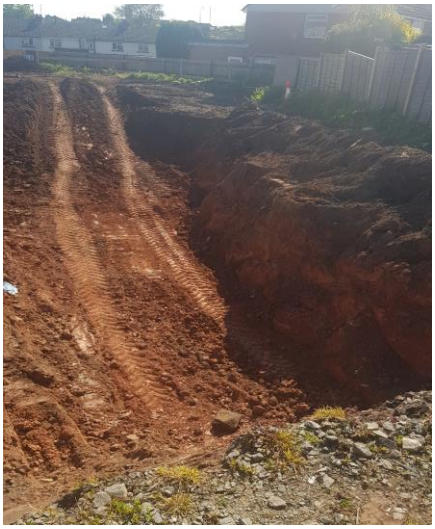

Figure 7 – Emplacement of Japanese Knotweed Blighted Soils within the Burial Pit

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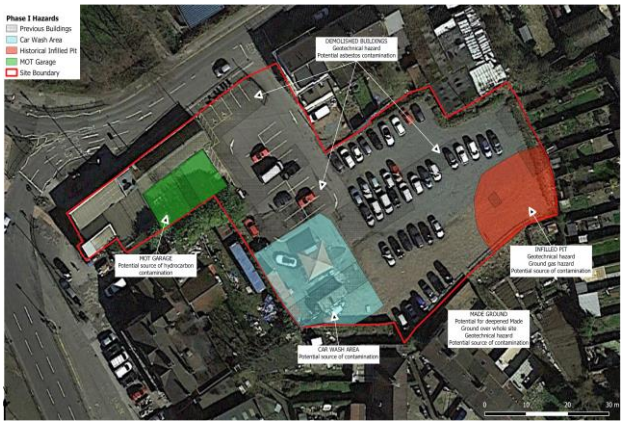
Following the burial of the Japanese Knotweed blighted soils, the original impacted areas were inspected monthly and sprayed with herbicide as required. Inspections are scheduled for the subsequent growing seasons throughout the development construction works. (i.e. March / April through to Mid-October). Spraying will be carried out (as and if required) at the same frequency.

Delineation and Excavation of the Infilled Pit Area

An historical infilled pit had been identified within the south-eastern corner of the site – this infilled pit was referenced in the site investigative reports. It was noted that the infilled materials were a potential source of contamination - GRM reported an elevated Total Petroleum Hydrocarbon [TPH] concentration of 1,700 mg/kg and an elevated Polycyclic Aromatic Hydrocarbon [PAH] concentration of 170 mg/kg.

The location of this pit is shown in red in Figure 8 below.

Figure 8 – Location of the Infilled Pit (Shown in Red)



Prior to undertaking any works within this area Envirotreat carried out a trial pit investigation to ascertain the extent of the pit and associated contamination. A sample of the made ground was assessed (chemically) to determine the extent of any contamination.

The infilled pit area was excavated - the excavated materials were removed and stockpiled on existing hardstanding pending subsequent disposal. The materials within the infilled pit comprised of soils mixed with general rubbish (i.e. bags / bottles / plastic / carpet / metal etc). The excavation of the pit is shown in Figures 9 and 10 below. The base and sides of the excavation were delineated by visual and olfactory means in combination with VOC headspace testing - samples were taken of the sides and base and assessed (chemically) to demonstrate and confirm effective delineation. The reinstated area is shown in Figure 11 below.

Figure 9 - Excavation of the Infilled Pit

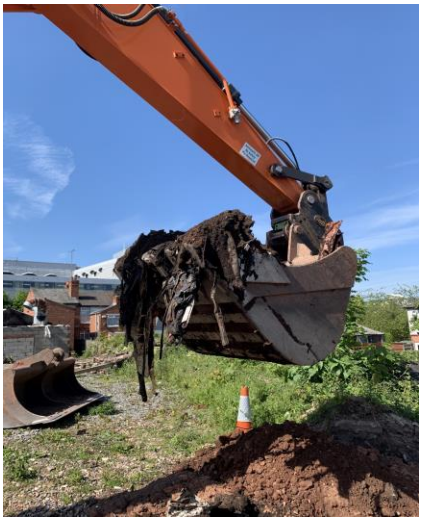


Figure 10 – Excavation of the Infilled Pit

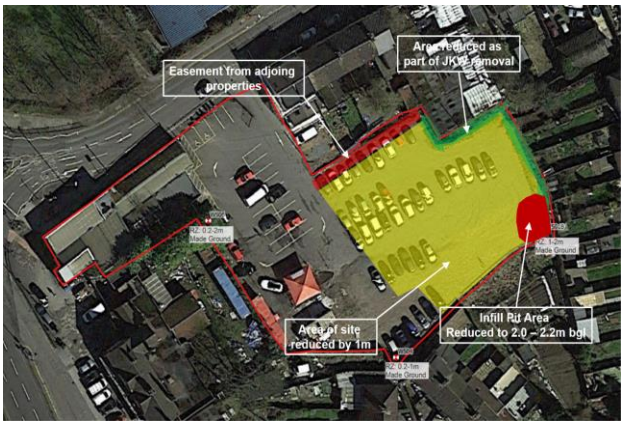
Figure 11 – Reinstated Pit Area

Reduced Level Dig

It was generally understood that the stoned / gravelled part of the site (i.e. the eastern part of the site associated with the former car park) had been built up / levelled with site won and / or imported soils / stone etc. The client required these levels to be reduced by at least 1m (below the existing ground level) or at least to the top of the existing natural ground.

Envirotreat was instructed to carry out a number of trial excavations to determine the overall depth of the made ground (i.e. where the depth of the made ground was >1m below the existing ground level) and whether the identified made ground below 1m was significantly contaminated. The area associated with the former gravel / stoned car park area is shown in yellow in Figure 12 below.

Figure 12 – Reduced Level Dig Area (Yellow)



The excavated soils were stockpiled on site to enable processing (primarily to remove oversize and unsuitable materials prior to offsite disposal). The reduced level dig works are shown in Figures 13 and 14 below.

Figure 13 – Reduced Level Dig Excavations

Figure 14 – Reduced Level Dig Excavations

Samples of the soil stockpiles were collected for assessment prior to offsite disposal. An appropriate evaluation against current WM3 guidelines was carried out to ensure any potential risks (especially regarding costly hazardous waste disposal) were effectively managed. The soils were classified as non-hazardous.

The stockpiled materials are shown in Figure 15 below.

Figure 15 – Stockpiled Made Ground Soils – Reduced Level Dig Works

Soil Management

Following completion of the reduced level dig, Gleeds engaged Envirotreat to undertake the processing and subsequent disposal of both the stockpiled non-hazardous soils and the surplus natural soils generated from the excavation of the Japanese Knotweed burial pit. Envirotreat also carried out the disposal of the following:

- General site rubbish (plastic, metal, wood etc)
- Materials removed / separated from the non-hazardous soil stockpile (wood, plastic, carpet, metal and hardcore) – mixed waste

The processing of the soil stockpiles is shown in Figure 16 below. The remaining soils were loaded into eight wheeled wagons for disposal at a local receiver site as restoration materials as shown in Figure 17 below. A road sweeper was utilised during the disposal works to ensure that site debris, mud and dust were not carried out into the road.

Figure 16 – Materials Separated from the Non-Hazardous Soil Stockpile

Figure 17 – Disposal of Non-Hazardous Soils

Surplus natural soils arising from the Knotweed burial pit were loaded onto wagons for disposal at a local receiver site (as restoration materials).

Figure 18 – Disposal of Surplus Natural Soils

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Watching Brief

Envirotreat provided a watching brief during subsequent construction works to evaluate and effectively manage any contamination encountered during these works. It was confirmed that no unexpected or additional contamination was encountered.

Conclusions

Envirotreat demonstrated that the remediation objectives for the site had been successfully achieved through the submission and approval of a comprehensive validation / verification report for the site. The remediation works enabled the discharge of the relevant planning conditions relating to land contamination. The proposed site development is now being progressed – the proposed development is shown in Figure 19 below.

Figure 19 – Proposed Development