

JAPANESE KNOTWEED™ TO BE IGNORED

CASE STUDY: CELL BURIAL

Eradication of Japanese knotweed from a large site in Southampton, using on-site burial (cell-burial). The site also contained asbestos that required removing.



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MANAGEMENT PLAN | SURVEY | TREATMENT | REMOVAL | TRAINING RESOURCES

THE BRIEF

In May 2018 Japanese Knotweed Ltd (JKL) were contacted to discuss plans to develop a large plot affected by Japanese knotweed in Southampton, Hampshire. The site possessed large areas of Japanese knotweed, which JKL had been chemically treating since 2015 under a knotweed management plan for the previous landowner.

SURVEY FINDINGS

JKL surveys had recorded nine stands of knotweed impacting the site. For the proposed development six of these stands (totalling 1,295m²) would be disturbed, necessitating excavation of the knotweed. Two other stands were located on the boundary and could continue to be treated in-situ with herbicide. One further stand fell outside the site boundary and had undergone remediation by excavation the year prior.

THE CHALLENGES

The large space allowed for a range of remedial methods to be evaluated. Sustainable on-site remediation was most favourable due to the space available to accommodate relocation or burial and cost in comparison to removing the waste to landfill.

Although excavation and relocation were the most cost-effective solution, the client wanted to immediately eradicate the knotweed, so the most optimal solution was on-site burial (cell-burial).

PREVIOUS USE OF SITE

Planning the cell-burial involved detailed work between our client, planning consultants, construction consultants and JKL. Under the site was an old landfill and the location of the burial had to not only avoid disturbing the landfill, but also be away from proposed tree and shrub planting.

VOLUME OF SOIL

JKL confirmed the estimated volume of knotweed soils to be buried (3,000m³) and the specification of burial. The total area of ground required to be opened was 2,700m². The construction consultants took these quantities and planned the location of the burial to avoid the old buried landfill and fit proposed landscape plans.

The cell-burial would be completed in accordance to PCA Code of Practice for the management of Japanese knotweed, and the Environment Agency RPS 178 statement. The ground investigation report (GIR) for the site confirmed the ground makeup was suitable for deep burial.

POOR DRAINAGE

The GIR also identified that the ground had poor drainage qualities. Consultants were keen to avoid the potential for water pooling in the ground above the cell-burial. To help avoid this JKL specified a specialist porous root barrier that could be used in the cell design, allowing for water to drain off the top of the finished burial cell. This solution satisfied the consultants.

Pre-dig checks were completed and a permit to dig obtained. All operatives were given a Toolbox Talk and debriefed in accordance to the Knotweed Management Plan, Risk Assessment and Method Statement. Knotweed locations were marked out, routes for double handling knotweed oversite defined and plant/personnel decontamination points created.

ASBESTOS & WATER

Accurately identifying dead and viable knotweed rhizome in the ground, JKL undertook complete methodological excavation to remove all vertical and lateral rhizome spread, up to the boundary of the site.

JKL staff receive Asbestos Awareness training and in undertaking the excavation they encountered an area of ground containing buried asbestos. JKL immediately stopped works and hired the services of ABP asbestos specialists. ABP handpicked the bulk asbestos from the soils for hazardous waste disposal. Further knotweed impacted soils identified as containing tiny fragmented asbestos were also removed to landfill, instead of being buried on site.

INCLEMENT WEATHER

Although there were plans in place to dampen the site to provide dust control, for the majority of our work programme, JKL experienced inclement weather. This had the undesirable result of filling the burial pit with rainwater. Being unable to pump the excess standing water to a local water course, JKL recalled on previous experiences and excavated a temporary balancing pond adjacent to the burial pit and pumped the water to there. This kept the burial pit workable and rainwater had time to free drain from the pond.



THE SOLUTION

The base and flanks of the burial pit were lined with root barrier, with barrier joins completed using heated butyl seams by trained JKL staff. The base sheet was covered with a blinding to prevent puncturing. The bottom of the burial pit was filled with the excavated knotweed soils. The soils were installed into the pit in shallow layers with a sheep's-foot compaction roller used to compact each layer before another was added. This compaction will help avoid ground settlement on completion, which could have left a depression in the finished surface of the new park.

Before capping the cell, all plant was decontaminated, with arising from the cleaning added to the cell. A final root barrier capping sheet was added covering the knotweed soils and welded to the flanking sheets to form a complete encapsulation cell. Where knotweed rhizome was found transcending the boundary, vertical root barrier was installed to prevent potential future ingress of knotweed back into site.

The remaining void over the finished cell was backfilled with site won soils. The location, dimension and depth of the burial was recorded in JKL's completion report and provided to the client for inclusion in their operations and maintenance manuals for the site.



THE OUTCOME

JKL successfully completed the works to the client's timetable. 4,500 tonnes of knotweed were buried, with an additional 8,500 tonnes of clean soils excavated for the burial pit. Total soil movements to complete the operation totalled 19,400 tonnes.

Works took 26 days from the 10th October to the 11th November 2018 excluding the asbestos removal and disposal of affected soils at landfill.