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Arnold's Field Capping Options Appraisal Summary for London Borough of Havering Council

The Environmental Protection Group Ltd have been instructed by London Borough of Havering to undertake an options appraisal with regards to the capping of a site known as Arnold's Field. This document summarises the findings of the options appraisal.

The site is a former landfill that was restored with a simple soil cover layer. It has since been subject to the illegal deposits of around 50,000 tonnes of illegal waste which is contaminated and contains domestic waste. Fires occur within the waste at the surface.

Due to the regular fires potentially impacting air quality, and the presence of potentially harmful material on the surface of the site in areas of the illegally deposited waste, London Borough of Havering is exploring options on how to make the site safe in the long term.

The current potential contaminant pathways are considered to be via:

- direct contact with/inhalation of contaminated soils due to unauthorised use of the site as public open space;
- off site inhalation due to impacted air quality, either as a result of contaminated dust being lifted off site by winds; and
- by fire emissions.

There are three basic options to break the contaminant linkages:

- Receptor removal;
- Source removal; or
- Breaking the pathway.

Receptor and source removal are not viable options. Three options for breaking the pathway have been considered:

1. Import fill to level the site and then soil cap the whole site:
2. Cut and fill of waste to level the site and then soil cap the whole site:
3. Innovative capping option comprising of some soil placement combined with spray applied cement polymer and hydro seeding.

Both earthworks-based solutions Option 1 and Option 2 have a high financial cost, that is somewhat prohibitive of making these appealing options for the site. Option 2 is slightly less expensive based on our cost appraisal, however, Option 1 may have lesser environmental requirements, although both would require a permit. Option 1 may also have more scope for soil imports to generate revenue to off-set the costs of the work, as there is a greater import volume. The potential for soil imports to generate revenue has not been accounted for in this appraisal and requires input from a specialist contractor on likely rates. Options 1 and 2 have similar scores in terms of the other environmental and social factors that have been considered. The main issues with these two options are: the prohibitive cost, and, as they will require an Environmental Permit, there is uncertainty in additional assessments, environmental controls and significant lead-in timescale involved. The lead-in time for applying for and obtaining the type of Environmental Permit needed is estimated to take from 12 months to 3 years.

Option 3 is an innovative solution that has not been routinely applied in the UK. This option comprises the use of a sprayed cover layer, application of some soil as a growing medium and a spray applied vegetation layer. It is likely to be the most cost-effective solution but requires further specialist contractor engagement to assess the technical suitability for the site. Some discussions with suppliers and contractors have been completed, but further consultation is required. This option is considered likely not to require an Environmental Permit, but this should be confirmed through discussion with the Environment Agency permitting team. Two important aspects of the success of this option long-term are:

1. Allowance for long-term management and maintenance via re-application in certain locations.
2. Stopping public access to the site via robust security measures.

For Option 3 the site landform would remain irregular. This is considered suitable as a short to medium term solution for the site to manage the currently active pollutant linkages associated with fires and dust generation. This option would mitigate the human health hazards posed by the site until such time as a permanent solution can be found, this could be via a permanent soil capping option (as options 1 or 2) or via redevelopment of the site.

Currently Option 3 is the preferred option for further investigation and assessment. However, before any decision can be made on a final strategy for the capping at the site further work is required, and the recommended next step are:

- Consultation with the Environment Agency, to confirm the permitting implications for Option 3.
- Accurate topographic survey of the site recording ground cover conditions, in combination with high resolution drone survey.
- Determine areas that require treatment, and plan access routes across the site.
- Further consultation with suppliers and contractors to inform budget costing and programme.

Signed:

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