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Subject: Billet Road Romford – Development Platform
Non-Technical Summary
Our ref: NTS-21912s-23-126

It is proposed to redevelop land at Billet Road, Romford. The current proposal is for the formation of a development platform to enable construction works for a new housing development. The construction of the platform is essential to enable the delivery of the proposed development and the current Planning Application is for the formation of the development platform.

Historic records indicate that the site was a former unlicensed landfill that operated between 1970 and 1973.

The published geological records indicate that site is underlain by drift deposits of the Boyn Hill Gravel Member, which is classed by the Environment Agency as a Secondary 'A' aquifer. Beneath the drift deposits, is the solid geology London Clay Formation, which is classed as an Unproductive Stratum.

Several phases of site investigation have been undertaken. The identified ground conditions (Made Ground/Landfill, River Terrace Deposits and the London Clay Formation) were consistent with the published geology.

The made ground/landfill materials were highly variable comprising predominantly construction and demolition wastes, but also industrial, domestic and clinical wastes in places. The landfill generally comprised varying consistencies of black-grey or green-grey sand, gravel and clay which were typically recovered as a dark grey slurry with anthropogenic inclusions. Anthropogenic content comprised brick, concrete, wood, metal (occasional scrap mechanical parts), paper, plastic, cardboard, glass and wire. There was some evidence of landfill capping materials encountered above the landfilled waste. This material was highly variable but often comprised gravelly clay with inclusions of brick and flint.

Numerous exploratory holes encountered visual and olfactory evidence of hydrocarbon contamination, predominantly in the made ground landfill waste deposits. The landfill capping material was largely free from field evidence of contamination.

The drift deposits were variably granular and cohesive. Evidence of hydrocarbon contamination in natural ground was limited to a single occurrence of hydrocarbon odour, just outside the inferred landfill boundary, where made ground was absent. No visual or olfactory evidence of contamination was noted in any of the other exploratory holes in natural strata.

Shallow groundwater was encountered across the site with resting levels as shallow as 0.3 m bgl. Based upon the groundwater level data and regional data, the prevailing groundwater flow direction has been determined to be towards the west in the direction of the Seven Kings Water and mirroring the flow direction of the smaller surface water features in the vicinity of the site. Groundwater monitoring has indicated that the water table is disjointed within the landfill, but may be at least partially in hydraulic continuity with groundwater in the Boyn Hill Gravel.

Site investigation data has identified contamination of soil by asbestos, lead and PAH compounds. Groundwater was found to be contaminated by ammoniacal nitrogen, sulphate, hydrocarbons and phenol. A detailed quantitative risk assessment has been undertaken. This has identified the requirement for remediation with regard to certain hydrocarbon chains.

In order to enable the development is it considered necessary to create a suitable development platform. This will have the following advantages:

- Raising site levels will lift the development platform above the shallow water table.

- In the absence of a raised development platform, the drainage and servicing solution of the site would be very complex.
- Raising site levels also means that future construction works will not disturb the landfill materials.

The landfill material is very soft in places and therefore ground improvement is required to limit future settlement.

The following processes have therefore been recommended:

i. Vegetation Clearance:

ii. Processing and flattening of existing earth bunds.

iii. Removal of free product, where encountered during excavations.

iv. The removal of a punctured drum of bitumen-type material discovered in MTP213. The drums will be excavated and associated gross contamination removed.

v. Construction of a slurry wall barrier with permeable reactive sections. The slurry wall will control the movement of groundwater, whilst the reactive sections will treat the groundwater as it leaves the site.

vi. Creation of the development platform in phases. This requires approximately 125,000 cubic metres of imported soil (including surcharge materials).

vii. Ground improvement through the placement of surcharge material (soil to be incorporated into the development platform). Band-drains will be required to enable settlement. These are plastic pipes installed at close centres that release pore water. The band drains will not penetrate the full thickness of landfill material. A granular blanket will be installed to collect water from the band drains.

The band-drains will alleviate pore water pressure but will not dewater the landfill. The volume of water generated is not anticipated to be large, and it will be diverted to sumps where it will be collected for treatment and suitable disposal.

Based upon the groundwater risk assessment, it is not envisaged that the ground improvement works will significantly alter the existing groundwater regime beneath the site. However, the inclusion of the inground barrier and reactive gates will provide protection.

All of the material imported as part of the surcharge will be used on site as part of the final development platform (typically in areas outside the landfill where level raising is still required).

The imported material will be clean naturally occurring soils and will be subject to chemical and geotechnical testing to ensure that it is suitable for use.

A period of groundwater monitoring, as well as noise and dust monitoring are proposed.