



## **GEO-ENVIRONMENTAL CONSULTING**

### **BEK Geo-Environmental Consulting**

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Our Ref: BEK/23136/231027/FPC

27<sup>th</sup> October 2023

FAO Jane Fox

#### **FOX PLANNING CONSULTANCY**

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### **Former Baguleys Garden Centre - Local Authority Response & Site Investigation Proposals**

BEK Enviro (BEK) has been commissioned by Fox Planning Consultancy (FPC) to provide a letter detailing site investigation proposals for a site located at the former Baguleys Garden Centre, Midgeland Road, Blackpool (hereafter referred to as 'the site').

The works will be carried out to support the discharge of planning condition 9 which states:

*Prior to the commencement of development; (a) a scheme of site investigation into potential land contamination shall be submitted to and agreed in writing by the Local Planning Authority; and (b) the scheme of site investigation agreed pursuant to part (a) of this condition shall be carried out in full and in full accordance with the approved details, and a report of the findings submitted to and agreed in writing by the Local Planning Authority; and (c) In the event that remediation works are identified as being necessary through site investigation report required pursuant to part (b) of this condition, a scheme of remediation shall be submitted to and agreed in writing by the Local Planning Authority; (d) Any scheme of remediation agreed pursuant to part (c) of this condition shall be carried out in full and in full accordance with the approved details, and a validation report verifying the remediation shall be submitted to and agreed in writing by the Local Planning Authority. Appeal Decision.*

#### **Development Proposals**

It is proposed to erect 5 detached bungalows with associated garages and landscaping, utilising existing access from Midgeland Road (via Birchwood Gardens). An area of public open space (POS) is located in the south-west of the site which at present is to remain unchanged, however may be subject to further application of a single plot.

#### **Previous Reports**

##### **Sub Surface Desk Study**

The site is an area of land located within a wider development area which has been subject to a previous 'Desk Study and Walkover Survey' by Sub Surface, Report No: 6824, dated September 2019.

The Desk Study was carried out for the whole development area, encompassing the site, and includes a review of available site information to produce a Conceptual Ground Model and provides recommendations and proposals for ground investigation.

It is noted that the wider development area adjacent to the site has since been developed with residential properties.

Figure 1 below shows the current site within the whole development:



**Figure 1:** The Site (red line) and Whole Development Area Covered in the Sub Surface Desk Study (purple line)

Based on a review of available information, Sub Surface identified potential sources of contamination at the site, as well as potential pathways and receptors for the proposed development. Sub Surface produced a Conceptual Ground Model for the whole development area based on identified sources, pathways and receptors and the model is shown below:

Potential Source	Nature of Hazard	Contaminants Associated with the Source	Pathway	Receptor	Preliminary Risk Rating
Made Ground (possibly present on site)	Contaminants in Made Ground	<u>Gen. Contaminants</u> Arsenic Cadmium Chromium Lead Mercury Nickel Selenium Boron Copper Zinc Cyanide Sulphide Sulphate pH Phenols Polynuclear Aromatic Hydrocarbons (PAH) Total Petroleum Hydrocarbons (TPH)	Ingestion of soil	Site Operatives	Low
			Ingestion of dust	End Users	
			Dermal contact		
			Inhalation of dust		
			Inhalation of vapours		
			Uptake via contaminated groundwater	Vegetation	Low
			Vertical and lateral movement of mobile contaminants	Controlled Waters Adjacent Properties	Low
			Direct contact	Structures and Services	Low
Asbestos on/ in ground	Asbestos fibres	Asbestos fibres	Inhalation of fibres	Site Operatives End Users	Low



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Tanks/ Machinery/ Vehicles	Fuel/ oil spillage and/or leakage from machinery, fuel/oil tanks and/or vehicles	Total Petroleum Hydrocarbons (TPH)  and/ or Benzene/ Toluene/ Ethylbenzene/ Xylene (BTEX)	Ingestion of soil	Site Operatives  End Users	Low
			Ingestion of dust		
			Dermal contact		
			Inhalation of dust		
			Inhalation of vapours		
			Uptake via contaminated groundwater	Vegetation	Low
			Vertical and lateral movement of mobile contaminants	Controlled Waters  Adjacent Properties	Low
			Direct contact	Structures and Services	Low
Nursery	Use of/ spillage/ leachate of Pesticides	Pesticides	Ingestion of soil	Site Operatives  End Users	Moderate
			Ingestion of dust		
			Dermal contact		
			Inhalation of dust		
			Uptake via contaminated groundwater	Vegetation	Moderate
			Vertical and lateral movement of mobile contaminants to surface water and groundwater	Controlled Waters	Moderate
			Direct contact	Structures and Services	Moderate
Landfill (registered/ unregistered)	Ground Gas (Asphyxiation, fire and explosion)	Methane Carbon Dioxide	Inhalation of gas Ignition of gas	Site Operatives  End Users	Low

**Figure 2: Conceptual Ground Model Taken from the Sub Surface Desk Study**

The conceptual ground model indicates that intrusive ground investigation is required to assess the ground conditions. The ground investigation should obtain soil samples for contamination analysis and asbestos detection and, where possible, groundwater and surface water samples for contamination analysis. In addition, gas standpipes would need to be installed and monitored over an extended period of time to allow an assessment to be made.

*BEK Comments*

BEK has reviewed the Sub Surface Desk Study and considers it to be concise and well written and generally conforms to current guidance on the assessment of potential risks associated with contamination. Risks from ground gas are associated with landfill sites within 250 m of the site.

The Conceptual Ground Model has been produced for the whole development area encompassing both the current site and wider development area BEK considers the pollutant linkages and recommendations detailed remain relevant to the current site.



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### Sub Surface Remediation Statement

A 'Remediation Statement' has been produced by Sub Surface, Report No: 6824F, dated April 2021 for the adjacent development area (purple boundary on Figure 1). The report summarises site investigation information as well as gas monitoring results for the adjacent land. It is noted that site investigation was not undertaken within the current site.

The ground investigation encountered elevated levels of lead, PAHs and potentially aromatic TPH >C21-C40 within the near surface made ground. A clean capping system was recommended in rear gardens of the adjacent development area.

Ground gas monitoring was undertaken on ten scheduled occasions. The gas risk assessment classified the site as Characteristic Situation 1 (CS1), therefore indicating no protection and remedial measures were required. This was subsequently agreed and confirmed by the Contaminated Land Officer.

### BEK Comments

BEK considers the Sub Surface ground gas risk assessment to be thorough and conform to current guidance on the assessment of risks from ground gas. This risks from ground gas identified in the Sub Surface Desk Study for the whole development area (current site and adjacent development) are associated with the same sources (landfill sites within 250 m of the site). The adjacent development has been classified as CS1 with regards to ground gas. Given the fact that the potential sources of ground gas are the same for both sites and the two areas are immediately adjacent, BEK considers the very low risk classification (CS1) to be appropriate for the current site and further gas risk assessment is not considered necessary. However, ground conditions on the subject site will need to be assessed to finalise this conclusion.

Contaminants of concern have been identified within the shallow soils of the adjacent development. Based on the Desk Study and the history of the two sites, BEK considers it likely that similar contaminants are likely to be encountered at the current site. Notwithstanding, no ground investigation has taken place within the current site, therefore the nature of the shallow soils is currently unknown. Site investigation is recommended within the current site to confirm ground conditions. The investigation will be designed to prove the nature and extent of any made ground present at the site as well as characterise the natural strata.

### Site Investigation Proposals

Considering the above information and planning conditions, BEK recommends an intrusive site investigation to characterise the shallow ground conditions and to inform a geotechnical assessment for foundation design.

The intrusive site investigation will comprise the drilling of a series of window sample boreholes (drilled to a proposed depth of 5 m bgl) over one day. Ground conditions will be recorded by an experienced engineer and representative samples recovered for chemical and geotechnical testing. In-situ strength testing (shear vane/SPT's) will be undertaken to inform foundation options.



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The works undertaken will be detailed in a Site Investigation & Ground Assessment report along with full justifications for the assessment and the conclusions/recommendations.

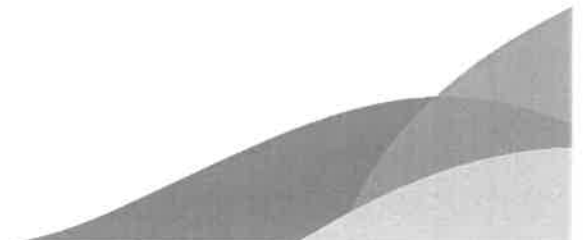
I trust the above is satisfactory, should you require anything further please do not hesitate to contact the undersigned.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Michael Buckley', written over a scribbled-out area.

**Michael Buckley**

*BSc (Hons) MSc MEnvSci CEnv*

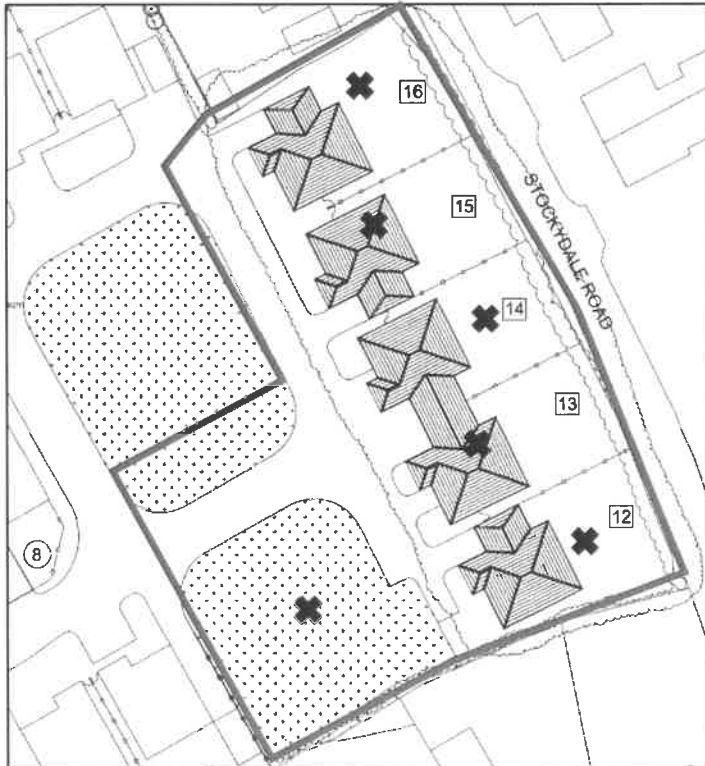




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Utility plans will be acquired prior to the site investigation and all borehole locations will be CAT scanned prior to drilling to help avoid below ground services.

The investigation should specifically target the area below the proposed plots, as well as a single location within the current POS area. The proposed window sample locations are shown below:



**Figure 2:** The Site (red line) and Proposed Borehole Locations (black crosses)

Six soil samples will be recovered for chemical testing. The samples will be delivered to the UKAS accredited laboratory of Envirolab for the following selected analysis:

*Arsenic (Total), Cadmium (Total), Copper (Total), Lead (Total), Nickel (Total), Zinc (Total), Chromium (Total), Selenium (Total), Mercury (Total), Boron (Soluble), Hexavalent Chromium, Cyanide (Total), pH, 16 EPA Poly-Aromatic Hydrocarbons (PAH), Total Phenols, Total Sulphate, Sulphate 2:1 extract, Soil Organic Matter and Total Petroleum Hydrocarbon Compounds (TPH-CWG).*

It may be necessary to recover additional samples or test for other contaminants of concern based on the ground conditions encountered.

The site investigation will be assessed as part of a quantitative risk assessment to amend the conceptual site model and identify any potential significant pollutant linkages. The assessment will be undertaken in accordance with UK guidance and policy. The site investigation data and laboratory test results will also be assessed as part of a geotechnical assessment to inform foundation design for the new build.