

Phase 1 Contamination Desk Study Report

Top Garage (Bromyard) Ltd, Hereford Road, Bromyard, HR7 4QU

Mr N Davies & Mr R Mason



Environmental Management Solutions - EMS Geotech

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SUMMARY REPORT - TOP GARAGE, HEREFORD ROAD, BROMYARD, HR7 4QU			
SUBJECT	COMMENTS		
CURRENT USE & DESCRIPTION	Irregular in plan, the site is relatively flat, covers approximately 0.30 hectares and is orientated roughly north to south. The current uses of the site are as a Petrol station, Car sales garage, car servicing and repairs and car wash. These are all served within the same site which sits just north of the junction between the A465 and Panniers Lane. Access can be utilised from both roads.		
PROPOSED USE	It is proposed to develop the site into 10 individual residential dwellings.		
HISTORICAL SUMMARY	Used as agricultural land/pastoral land until construction of the Garage building sometime between 1964-1967. It has remained as a garage providing car services until present day.		
PUBLISHED GEOLOGY	The published geology consists of the St Maughans Formation, which itself is comprised of interbedded mudstones and sandstones. No superficial deposits are recorded.		
RADON GAS	The site is not within an area where radon protection measures are required in new dwellings.		
HYDROGEOLOGY	The underlying St Maughans Formation is designated as a Secondary A Aquifer. The site is not located within a Groundwater Source Protection Zone (SPZ).		
HYDROLOGY	The nearest recorded surface water feature is the River Frome approximately 1km east of the site at its most proximal location.		
	The site is not indicated to be at risk from flooding.		
	The nearest water abstraction zone is some 670m north of the site and topographically higher by more than 10m.		
RECOMMENDATIO	RECOMMENDATIONS		
Phase 2 Assessment	It would be prudent to undertake Phase 2 Intrusive investigation works either prior to or immediately following the demolition works of all existing structures and surface concrete. The investigation works' aim being to assess the presence, nature and contamination potential of historical Made Ground beneath the site. It is recommended that this desk study report is passed to the relevant Environmental Health Department for comment as soon as possible. As part of any future intrusive works, it is recommended that intrusive geotechnical investigation works are undertaken to characterise the underlying ground conditions and to aid with design.		



1. Introduction

1.1 General

Environmental Management Solutions Limited (EMS) have been commissioned to undertake a Phase 1 Contamination Desk Study at Top Garage, a fuel station and vehicle maintenance garage in Bromyard off Hereford Road (A465). Hereafter, referred to as 'the site'. The works have been commissioned by Myles Bailey of K4Architects through direct instruction by Mr N Davies & Mr R Mason (the client).

It is understood that the client intends to develop the site for residential purposes.

The purpose of this Phase 1 Geo-Environmental desk study is to assess the likely contamination constraints associated with the proposed development. The report also provides a preliminary assessment of ground conditions in terms of likely geotechnical constraints that could impact on the proposed development.

A walkover survey was completed on 17^h November 2022.

1.2 Scope of Works

The agreed scope of work was:

- Purchase of a Landmark Envirocheck report and historical Ordnance Survey Maps.
- Interpretation of the geological, hydrogeological, hydrological and environmental site setting.
- Undertaking a site walkover by a suitably experienced Geo-Environmental Engineer involving the inspection of the site and the surrounding area for indications of contamination and other ground related issues.
- Provide information relating to the past and current uses of the site and surrounding area and the nature of any related hazards and physical constraints.
- Identification of current and likely future receptors, potential sources of contamination and likely pathways, and any features of immediate concern, including those that could be introduced in future.
- Production of a Phase 1 Desk Study Report including preliminary conceptual model for the site along with a preliminary contamination risk assessment.

1.3 Management Limitations

 This report has been prepared under the express instructions and solely for the use of the Client and the Client's agents in performance of EMS's duties under its contract with the Client. Should the Client wish to release this report to a Third Party for that party's reliance, EMS agree to such release provided that EMS assumes no duties, liabilities or obligations



to the Third Party, that the Third Party does not acquire any rights whatsoever against EMS, and EMS accepts no responsibility for any loss incurred by the Client through the Client's release of the report to the Third Party.

- Copyright of this report is held by EMS.
- The findings of this report represent the professional opinion of experienced contaminated • land consultants. EMS relied on the accuracy of third-party documentary information contained in the consulted and is in no circumstances responsible for the accuracy of such information or data supplied. When considering this report due regard should be given to the terms and conditions of EMS's contract with the Client under which the report was prepared.
- EMS does not provide legal advice and the advice of legal professionals may also be required. All advice, opinions or recommendations within this report should be read and relied upon only in the context of the report as a whole. The advice within the report is based upon the information made available to EMS within the financial and timeframe constraints imposed.
- All work carried out in preparing this report has utilised and is based upon EMS's current professional knowledge and understanding of current relevant UK standards and codes, technology and legislation. Changes in this legislation and guidance may occur at any time in the future and cause any conclusions to become inappropriate or incorrect. EMS does not accept responsibility for advising the Client or other interested parties of the facts or implications of any such changes.
- The report is limited to the site boundaries identified by the Client and confirmed within this report. All boundary lines depicted on plans included within this report are approximate only and do not imply legal land ownership.
- The extent of the investigation was designed in-line with the Client's budget, which is considered suitable, and not limiting, for the proposed development.
- The recommendations, interpretations and conclusions within this report are based solely • on desk study information and a site walkover. This report represents the conditions and findings on the date of desk study. Over time, site conditions may alter.
- All observations relating to tree species, asbestos containing materials within structures or • invasive weeds, such as Japanese Knotweed, does not constitute a formal survey of such features. The identification of such features is therefore tentative only. The report does not consider whether sensitive ecology or archaeology is present as these require consideration by professionals specialising in these matters. It should be recognised that the collection of desk study information may not be exhaustive and that other information pertinent to the site may be available.
- This report is restricted to a contamination assessment only and does not include any form • of geotechnical advice. Although this investigation is concerned solely with addressing the potential contamination risks on the site, there will also be a requirement to undertake a geotechnical assessment with regards to the proposed development.
- It is emphasised that a desk study and walkover can only indicate the potential for risks relating to on-site contamination, certain types of ground conditions and geotechnical Rev: 0 Date 5th December 2022 7



hazards. This study aims to highlight potential pollutant linkages and / or ground related risks in line with current guidance.

- Only through undertaking intrusive investigation works can the plausibility of pollution linkages and other ground related risks be proven. The scope of this investigation excludes a formal slope stability study and any observations made regarding slopes are for information only.
- Following final issue of this report, EMS has no further obligation to advise the Client on any matters such as changes in legislation or codes of practice that may affect the advice contained within the report.



2. Land Use and Setting

2.1 Site Location

Top Garage is located off Hereford Road (A465), Bromyard, HR7 4QU. The site is located 1.3km south-west of the town of Bromyard, in Herefordshire.

The approximate National Grid Reference (NGR) for the centre of the site is 364436 253792.

A Site Location Plan is included in Appendix A.

2.2 Site Description

The site is irregular in plan, relatively flat at a level of approximately 169mAOD and 0.30 hectares. The current uses of the site include;

- Filling station
- Car sales garage
- Car servicing and repairs
- Car washing

Access to Top Garage can be utilised from both Hereford Road (A465) to the east and Panniers Lane to the west.

Top Garage's site structures include, the main building located near the centre of the site which has a canopy on the east and a lean-to on the north. There are several other small outbuildings and sheds which mainly feature on the west and north of the site, housing pump and commercial storage.

The northern boundary includes two storage/refuse areas relating to the Top Garage site. Further north lies a community centre and a mix of private and commercial premises including blacksmiths, ironmongers and steel fabrication beyond.

Both the east and west of the site are bound by Hereford Road (A465) and Panniers Lane respectively. The junction to Panniers Lane and Hereford Road (A465) lies directly south of the site.

Further east, south and west lie open agricultural fields.

A plan showing the existing site layout is included in Appendix A.

2.3 Site Walkover

A site walkover was conducted on 17th November 2022. A Site Walkover Plan is presented in Appendix A highlighting potential sources of contamination. It was noted that the Top Garage (Bromyard) site is an active vehicle maintenance and service station. Herefordshire Council has



also been contacted to provide their records for Top Garage. The Council's search results are outstanding.

The ground surfacing (apart from structures) is predominantly covered in bituminous hardstanding. There was also some concrete hardstanding at the garage forecourt and some small grassy areas around the exterior boundary to the site.

There were 10 underground tanks recorded on site plans (Created by Zoe Palmer – July 2015). Some of these are noted as redundant but they are mainly situated on the western edge of the site, however 1 tank does exist on the southern extent of the site.

- 1. 8730ltrs, Diesel, In use. (Pump 8)
- 2. 4365ltrs, Diesel, In use (Pump 1&2).
- 3. 4365ltrs, Unused.
- 4. 4365ltrs, Diesel, In use. (Pump 1&2).
- 5. 2500ltrs, Unused.
- 6. 2500ltrs, Diesel, 'Spare tank' In Use
- 7. Unrecorded capacity, unused.
- 8. 2500ltrs, Red Diesel, In Use (pump 10)
- 9. Unknown capacity, unknown fuel type, unused.
- 10. 43650ltrs, Unleaded Petrol, In Use. (Pumps 3, 4, 5 & 6)

There were several above ground bunded storage tanks and vessels, mostly modern and UPVC

- 1. 2500ltrs, Oil, In Use.
- 2. 2500ltrs, Oil, In Use.
- 3. <2500ltrs, Oil, In Use.

There were some smaller PVC IBC type and metal containers with unknown contents.

- 1. 1000ltrs IBC, Unknown contents, unknown use.
- 2. 1000ltrs IBC, Unknown contents, unknown use.
- 3. 1000ltrs IBC, Unknown contents, unknown use.
- 4. 160ltr metal drum, Unknown contents, unknown use.

At least one interceptor tank is suspected in the northern area of the site.

Several storage areas on the north of the site, particularly the north-west were noted for damaged vehicles, chemical liquid storage, possible asbestos cement, tyres and other waste.



Surface water over impermeable surfaces is collected by the site drainage. The hard standing gently fell to the northeast. Surface waters are anticipated to be collected by at least one interceptor tank. Surface water on limited landscaped areas is anticipated to drain freely to the soils below.

Car parking is situated on the east and south of site, with designated car parking spaces along these boundary lines. There are other areas on site where cars are stored or parked which is the north-west of the site and adjacent to the workshop.

2.4 Site History

Copies of the historical Ordnance Survey Maps contained within the Envirocheck Report, reference 303723493_1_1, are included in Appendix C. The maps have been used to determine the historical use of the site and surrounding area, which is presented in the following table:

MAPPED HISTORY			
DATE	ON-SITE	SURROUNDING AREA	
1887 (1:2,500)	The site is lies within an open agricultural field. Panniers Lane and Hereford Road lie in their current positions.	The surrounding land is mostly agricultural fields.	
1904 (1:2,500)	No significant change since 1887.	No significant change since within the immediate surrounding area since 1887.	
1926 (1:2,500)	No significant change since 1887.	No significant change since within the immediate surrounding area since 1887.	
There is a signifi	icant gap in 1:2,500 scale mappin	g between 1926 and 1974	
1938 (1:10,560)	No significant change since 1887.	No significant change since within the immediate surrounding area since 1887.	
1953 (1:10,560)	No significant change since 1887.	No significant change since within the immediate surrounding area since 1887.	
1964 (1:10,560)	No significant change since 1887.	No significant change since within the immediate surrounding area since 1887.	



MAPPED HISTORY		
DATE	ON-SITE	SURROUNDING AREA
1974 (1:2,500)	The site has been developed and now includes a 'garage'.	Buildings are now shown north of site, including directly north of the site boundary where the current community centre locates. There is also a commercial 'yard' with associated buildings some 50m beyond this. The area surrounding to the east south and west are agricultural fields.
1982 (1:10,560)	No significant change since 1974.	No significant change since within the immediate surrounding area since 1974
1995 (1:2,500)	The main structure has been extended with canopy and lean to and a storage area to the west of the site.	No significant change since within the immediate surrounding area since 1974
2000 Aerial Photograph	No significant change since 1995.	No significant change since within the immediate surrounding area since 1974.
2006 (1:10,560)	No significant change since 1995.	No significant change since within the immediate surrounding area since 1974.



MAPPED HISTORY		
DATE	ON-SITE	SURROUNDING AREA
2022 (1:10,560)	No significant change since 1995.	The structures north of the site were demolished allowing Hope Centre to have been built immediately north of the site.
		There are no further significant changes within the immediate surrounding area.

2.5 Proposed Development

The proposed development includes several residential dwellings with associated gardens and parking. A proposed development plan is presented in Appendix A.

2.6 Geology

The site overlies the St Maughans Formation of comprisingof interbedded mudstones and sandstones. There are no reported superficial deposits on site.

There are no nearby BGS Boreholes recorded.

The site is located at the eastern end of an east west trending fault. The underlying bedrock locally may be fractured and weathered.

A summary of the geological information presented within the Envirocheck Report, is included in Appendix D.

2.7 Hydrogeology

The site is not located within a Groundwater Source Protection Zone (SPZ).

There are no recorded groundwater abstraction entries on-site or within 250m of the site.

The underlying bedrock is identified as being a high vulnerability, secondary aquifer.

2.8 Hydrology

The site is relatively flat, predominantly covered with concrete or bituminous hardstanding and slopes towards the north and easterly directions. It would be assumed surface water migration would propagate towards these areas and Hereford Road. It is assumed that the majority of meteoric waters will be captured by surface water drainage.

The nearest recorded surface water feature is the river Frome approximately 1km east of the site and topographically lower.

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There are no recorded surface water discharge consent or abstraction entries on-site or within 250m of the site. The nearest water abstraction zone is 670m north on the western edge of the Town of Bromyard and is topographically higher than the site by 13-14m AOD.

The site is identified as being located within an area designated by the Environment Agency as Flood Zone 1. Flood Zone 1 areas have been shown to be at less than 0.1% chance of flooding in any year.

2.9 Mining and Mineral Extraction

The site is not located within an area likely to have been affected by mining and there are no mineral extraction entries on-site or within 250m of the site.

2.10 Ground Stability

The potential risk from ground stability hazards associated with compressible ground, running sands and ground dissolution is recorded by the BGS National Geoscience Information Service as no hazard. For collapsible ground, landslides, shrinking & swelling clays the recorded risk is very low.

2.11 Radon

The site is situated within a lower probability radon area (where less than 1% of homes are estimated to be at or above the action level). Therefore, no radon protection measures are required in the construction of new dwellings or extension.

2.12 Soil Geochemistry

The BGS soil chemistry dataset suggests naturally elevated concentrations of arsenic, cadmium, chromium, lead or nickel are unlikely.

2.13 Landfills and Infilled Land

No local authority landfill site, registered waste transfer site or waste management facility entries are recorded on-site or within 250m of the site.

2.14 Contemporary Trade Directories and Fuel Sites

There are 5No. recorded contemporary trade directories relating to the current site use as an active car garage. These on-site entries include inactive entries for;

• Garage services, Agricultural Engineers, Car dealership.

There is 1 No. recorded fuel station entry. Top Garage is recorded as an open Gulf Petrol Station.

Other commercial points of interest on site include;

• Vehicle cleaning service, vehicle repairs and servicing and car wash.



With petrol station/vehicle repair trade directories there will be associated storage tanks and waste facilities with a potential risk from hydrocarbon & heavy metals to users, developers or end users of the site.

2.15 Registered Hazardous Sites

The site is registered with the local authority (Herefordshire Council Environmental Health Department) as a petrol filling station with associated Local Authority Pollution prevention and Control measures in place. There are no other registered hazardous sites within 250m of the boundary.

2.16 Pollution Incidents to Controlled Waters

No pollution incidents to controlled waters entries are recorded on-site or within 250m of the site. The closest recorded entry is 488m north of site where a Category 3 (Minor incident) was recorded in 1991.

A request for information from the Herefordshire council relating to local authority pollution and control has been made. Any development or following investigations will need this information prior to commencement.

2.17 Sensitive Land Uses

The site lies within a Nitrate Sensitive Area.

Areas of Ancient Woodland are recorded some 560-900m southeast of the site.

None of the following sensitive land uses are located with 1km of the site.

Areas of Adopted Green Belt	Special Areas of Conservation
Areas of Unadopted Green Belt	Special Protection Areas
Areas of Outstanding Natural Beauty	World Heritage Sites
Environmentally Sensitive Areas	

Forest Parks

Local Nature Reserves

Marine Nature Reserves

National Nature Reserves

National Parks

Nitrate Vulnerable Zones

Ramsar Sites

Sites of Special Scientific Interest

2.18 Unexploded Ordnance

According to the ZeticaUXO website (https://zeticauxo.com) the site is located within an area identified as being at low risk (15 bombs per 1000 acres or less) from unexploded ordnance.

2.19 Previous Investigations

EMS is not aware of any previous ground investigation works having been undertaken at the site itself. This Phase 1 Desk Study comprises the first occurrence EMS have had with this site address.

2.20 Planning Portal

Herefordshire Planning Portal's records since 1997 record one planning application on site.

- P212393/F Demolition of an existing garage and petrol station. Proposed 5 no. Town Houses and 15 no. apartments.
 - A Phase 1 Environmental Risk Assessment was completed for Top Garage Site, Bromyard, Herefordshire by Dice Consulting Engineers, report Ref: 100574/HG/MAY-21/01 dated May 2021.

Herefordshire Planning Portal's records since 1997 record the following immediately north of the site;

- P132566/CD Variation of condition 2 of planning permission DCNC0009/1820/CD to allow the use of the multi-use room for the purpose other than ancillary to the Hope Centre, up to 4 no Council staff as part of the Council's better ways of working policy.
- P123415/CD Variation of condition 2 of planning permission DCNC0009/1820/CD.
- P140397/F Variation on Condition 15 of NC09/1820/O.
- N123414/CD- Variation of condition 15 of planning permission DCNC0009/1820/CD.
- N111678/F Variation of Condition 14 of planning permission DCNC0009/1820/CD -No time restrictions on use of building to be able to use the building passed allocated times for events such as charity fundraising dinners and occasional training events.

No geotechnical or geo-environmental data was available for the above applications.

- NC091939/CD Proposed construction of phase 2 of the H.O.P.E. Family Centre, development to include day care facilities, office space, workshop space, multi-use community room and cafe, with associated car parking facilities.
 - A Geo-environmental Desk Study Report was completed for The HOPE Family Centre, Bromyard, by Wilson Associates, report Ref: 3292 dated August 2009.

This Phase 1 report does not rely upon any additional information from the aforementioned Phase 1 Environmental Risk Assessment or Geo-environmental Desk Study Report.

3. Preliminary Contamination Risk Assessment

The methodology for undertaking the contamination risk assessment is include within the supplementary information at the back of this report.

3.1 Potential Contamination Sources

3.1.1 Invalid Sources

No invalid contamination sources have been identified for this site.

3.1.2 On-site Sources

Historically the site was an agricultural field until Top Garage was built.

The current site use is predominantly a fuel station and car servicing garage. Department of Environment (DoE) Industry Profiles provide information on the processes, materials and waste associated with individual industries with regard to land contamination. The Industry Profile for Road vehicle fuelling, service and repair - garages and filling has been referred to. The following on-site contaminant sources were identified; -

- Spillage of fuel from refuelling procedure
- Leakage from USTs

There were 10 underground tanks recorded on site plans (Created by Zoe Palmer – July 2015). Some of these are noted as redundant. Tanks 1-9 are situated on the western edge of the site; Tank 10 lies in the southern area.

Western Area

- 1. 8730ltrs, Diesel, In use. (Pump 8)
- 2. 4365ltrs, Diesel, In use (Pump 1&2).
- 3. 4365ltrs, Unused.
- 4. 4365ltrs, Diesel, In use. (Pump 1&2).
- 5. 2500ltrs, Unused.
- 6. 2500ltrs, Diesel, 'Spare tank' In Use
- 7. Unrecorded capacity, unused.
- 8. 2500ltrs, Red Diesel, In Use (pump 10)
- 9. Unknown capacity, unknown fuel type, unused.

Southern Area

10. 43650ltrs, Unleaded Petrol, In Use. (Pumps 3, 4, 5 &6)

- Leakage from gas vent pipes to the west and south of the site.
- Leakage from ASTs. (Mostly modern and UPVC)
 - o X2 2500ltrs, Oil, In Use.
 - o <2500ltrs, Oil, In Use. (Adjacent to the West of the main building)
- Leakage from some smaller PVC IBC type and metal containers with unknown contents. Possibly brake fluid, screen wash, etc
 - o 1000ltrs IBC, Unknown contents, unknown use.
 - o 1000ltrs IBC, Unknown contents, unknown use.
 - o 1000ltrs IBC, Unknown contents, unknown use.
 - o 160ltr metal drum, Unknown contents, unknown use.
- Leakage from gas vent pipes to the west and south of the site.
- Leakage from Interceptor Tanks At least one within the northern area.
- Chemical liquid storage areas West of the main building and the northern lean to.
- Possible uncovered asbestos cement stockpile or damaged asbestos cement from previous removal or poor management. (North-western corner)
- Waste from car mechanics West of the main building and the northern lean to.
- Waste from car washing Northeast of the site.
- Vehicular storage and damaged vehicles on site Northern Area and northwest corner. At least one interceptor tank is suspected in the northern area of the site.

3.1.3 Off-site Sources

No significant potential off-site contamination sources have been identified for the surrounding area.

3.1.4 Ground Gas and Vapors

There are potential contaminants of a volatile nature associated with use, storage and spillage of fuels and chemicals.

No significant potential ground gas (carbon dioxide and methane) sources have been identified for this site.