

Bicester Heritage Centre

Phase 1 Land Contamination and Ground Condition Report

**In support of a Planning Application for the Development
of a Hotel at Bicester Heritage Centre, Buckingham Road,
Bicester, Oxfordshire
OX27 8AL**

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1 INTRODUCTION

1.1 BACKGROUND

1.1.1 Crestwood Environmental Limited has been instructed by Bicester Heritage Centre (**'the Client'**), to undertake a Phase 1 Land Contamination report to assess the potential of land contamination and ground condition impacts on the proposed development of a Hotel (**'the Site'**) at Bicester Heritage Centre, Buckingham Road, Bicester, Oxfordshire, OX27 8AL. The Site is centred on National Grid Reference SP 59237 24739 (Easting 459237) (Northing 224739).

1.1.2 This Report addresses the environmental quality of the land conditions at the Site and establishes the impact and extent of any potential contamination in addition to any risks they may pose. It accompanies submission of an application for outline permission to build a Hotel.

1.2 THE SITE

1.2.1 The red line boundary shown on Figure 1 below indicates the extent of the proposed development area (**'the Site'**). The Site area is circa 5.1 hectares.

1.2.2 The Site is positioned within the Bicester Heritage Centre, to the immediate east of the A4421 Buckingham Road. It forms part of the former RAF Bicester Site. It is currently accessible by road from the A4421 at the entrance to the Bicester Heritage Centre; internal roads then provide further access to the area of the proposed development. The Site forms part of the former RAF Airfield, which is currently utilised by a gliding club.

Figure 1 Site Boundary



- 1.2.3 The ground of the Site is largely level and predominantly comprises grassland. A former and now derelict RAF bunker is located near the western boundary of the Site, adjacent to the A4421. A small electrical substation is also located on Site. A Site Walker survey was undertaken on 29 May 2018. A number of recently backfilled trenches were observed and it was explained by the Site's Property Projects Manager that these were used for archaeological trial pitting investigations to support the Planning Application for the proposed development. Photos taken during the Site Walkover survey are shown below.
- 1.2.4 Part of the Site was formerly used for the storage of underground fuel tanks. There was no visible evidence of pollution or ground staining from fuels or oils during the Site Walkover Survey.

Plate 1 Grassland



Plate 2 Former Bunker (external view)



Plate 3 Former Bunker (internal view)



Plate 4 Electrical Substation



Plate 5 Backfilled Trial Pit



Plate 6 Backfilled Trial Pits



1.3 THE PROPOSED DEVELOPMENT

1.3.1 The Proposed Development' is located c. 1.5km north of the centre of Bicester and

immediately west of the former RAF airfield. It consists of the construction of a Hotel. In the vicinity of the Site land use comprises of mixed residential and agricultural land with access gained from the A4421 at the entrance to the Bicester Heritage site.

1.4 THE STUDY AREA

- 1.4.1 The Study Area comprises the planning application boundary and surrounding environs to an extent and distance that might reasonably be judged to constitute source material with potential to impact on the Proposed Development.

1.5 REPORT PURPOSE

- 1.5.1 The purpose of a Phase 1 Land Contamination and Ground Condition Report is to examine and establish the previous uses of the land at and near the Site and to identify potential sources of contamination, receptors and pathways. Information is then examined to indicate which likely source-pathway-receptor relationships can be identified and used to formulate a conceptual model. A Phase 1 report is a staged process involving data collection and interpretation. This is followed by reporting with recommendation of any further investigation which may be necessary.

1.6 LIMITATIONS

- 1.6.1 Crestwood Environmental Ltd have had access to third party data for Phase II Land Quality Assessments and accompanying Technical Notes in consideration of this Phase 1 Report. These intrusive ground investigations were conducted by Carl Bro in 2003 with an updated investigation re-evaluating the findings undertaken in 2008 by Grontmij (formerly Carl Bro). Results of these assessments have been accepted on face value and have not been verified by Crestwood Environmental. We can accept no liability for issues arising out of the accuracy of these results although it is considered unlikely that ground conditions have altered significantly since these investigations were completed.
- 1.6.2 We have undertaken a basic review of the potential for buried ordnance at the Site. A Preliminary Unexploded Ordnance Risk Assessment of the Site was purchased from Groundsure in June 2018. This reports a Medium Risk of British/Allied unexploded ordnance in proximity to the Site and a low risk of German unexploded ordnance.

2 METHODOLOGY AND APPROACH

- 2.1.1 The Phase 1 Report reviews information using a variety of sources of guidance as a basis, including the Environment Agency's Model Procedures for Management of Land Contamination CLR11 (Environment Agency, 2004), Section 2 of BS5930 (BSi, 2015) and Section 6 of BS10175 (BSi, 2013).
- 2.1.2 The Crestwood Environmental Ltd. methodology and approach aims to deliver a transparent and objective consideration toward assessment and evaluation of risk. The following process steps are followed to build up a preliminary model:

1. Assess the environmental setting;
2. Identify potential sources of contamination;
3. Identify receptors;
4. Formulate a conceptual model;
5. Assess information to inform likely source-pathway-receptor relationships; and
6. Evaluate risk.

2.1.3 Potential sources of contamination can be categorised according to the level of hazard (i.e. potential to lead to harm or pollution) as classified in Table 1.

Table 1 *Classification of sources of contamination*

Category	Examples of source potential for causing pollution/harm
Very Low	Greenfield land / Inert fill / made ground.
Low	Residential / office business / retail development on previously greenfield land.
Moderate	Light industry / engineering plant / pre-control landfill (pre mid-1970's).
High	Chemical works / heavy industrial works / non inert landfill (post 1970's).

2.1.4 Receptors can be classified as shown in the Table 2.

Table 2 *Categorisation of receptors*

Sensitivity	Examples of receptors by category
Very Low	Non-aquifer / low sensitivity watercourse / no WFD issues / no ecological designations / no business or properties.
Low	Minor aquifer / no WFD issues for surface water / industrial premises / low human exposure.
Moderate	Major aquifer / moderately sensitive water course / possible WFD compliance issues / human exposure (business / office).
High	Major aquifer-source protection zone / highly sensitive surface water / WFD compliance issues / SSSI or similar / extensive human access / residential land.

2.1.5 Desk top study, the Site Walkover Survey in 29th May 2018 and previous reports have been used to examine the Site setting, Site history, Site usage (historical and current), geology, hydrogeology and surface water drainage.

2.1.6 It is recognised that, depending on terrain and characteristics of both source and pathways (including geological atmospheric and hydrological factors), pollutants can potentially migrate away from a source distant to a site and have the potential to create impacts on receptors.

2.1.7 A conceptual model is then created which summarises the overall characteristics of the site under investigation relating to the geology, drainage, sources of contamination, pathways and receptors. Assessment is then made of the effectiveness of pollutant linkages in providing a pathway for any identified sources of contamination (hazards) being potentially

transferred to a receptor. Pollution linkage is categorised in terms of degrees of likelihood as shown in Table 3.

Table 3 *Probability of pollutant linkage*

Category	Definition (where pollutant linkage may be present)
High Likelihood	Long-term risk of occurrence almost certain or already evident.
Likely	Long-term risk of occurrence probable.
Low Likelihood	Long-term risk of occurrence possible, without certainty of any occurrence.
Unlikely	Circumstances for harm to occur are improbable.

- 2.1.8 Risk assessment is then carried out by use of a Risk Model which combines the relationship between the Source of contamination (the Hazard) and the Receptor which can be rated as potential severity of impact (or consequence of effect) categorised from severe to minor. This is shown in Table 4 with definitions of categories of severity.

Table 4 *Potential severity of impact*

Category	Definition
Severe	Acute risks to human health, catastrophic damage to property, major pollution of controlled waters.
Medium	Chronic risk to human health, pollution of controlled waters, significant damage to property.
Mild	Minor pollution of controlled waters, minor damage to property.
Minor	No measurable effect on humans or property, no observable effect on water quality or ecosystems.

- 2.1.9 The resulting risk is then evaluated for each receptor by considering the combined effects of potential severity of impact (Table 4) and the likelihood of effective pollutant linkage (Table 3). The overall Risk evaluation is shown in Table 5.

Table 5 *Resultant risk*

Probability ↓	Potential severity of impact			
	Severe	Medium	Mild	Minor
High Likelihood	Very high	High	Moderate	Moderate - Low
Likely	High	Moderate	Moderate - Low	Low
Low Likelihood	Moderate	Moderate - Low	Low	Negligible
Unlikely	Moderate - Low	Low	Negligible	Negligible

3 SITE HISTORY

- 3.1.1 Reference to historical maps and Groundsure Enviro-Insight Report show records from 1881 and indicates the Site and proximal environs to be predominantly agricultural land adjacent to the Roman Way to the west. There is a minor quarry to the south-east of the Site and the quarried area to the north, the site of the present day Stratton Audley Quarry. Hungerford Farm and Brashford Farm are located to the north while South Farm is towards

the south-east of the Site.

- 3.1.2 Up until 1899-1900 the Site and surrounding areas remain largely unchanged. The Site and adjoining fields to the south-east are noted as 'allotments' and the quarry to the north appears to be disused and marked as 'old quarry'.
- 3.1.3 On the 1922 map, the old quarry to the north is now operational and there are large buildings on the immediately north of the Site interspersed with smaller ones aligned along the western perimeter of the Site adjacent to the Roman Way. There are also buildings constructed on the south side of Skimmingdish Lane.
- 3.1.4 Between 1938 and 1952 the buildings described in the 1922 map are no longer depicted although there is a uniform line of single buildings on the opposite side of Roman Way. The map of 1955 shows no buildings and the Site contains no features other than the label 'Airfield'. From 1968 to contemporary maps, buildings on the Site are as the present day. A residential area is established on the opposite side of Roman Way (A4421) and what appears to be army barracks with parade ground and tennis courts.
- 3.1.5 It is understood that the Site was first occupied by the Royal Flying Corps in 1920 and the RAF in 1928. The Site was used as a logistical centre and training facility by the RAF in World War II and thereafter for storage, maintenance, repair and salvage of aircraft and equipment until 1976, when RAF Bicester ceased being an active station. The United States Air Force reopened the facility in 1978 until 1994. However, the airfield continued to be used by the RAF until 2004. Since 2004 the airfield has been used solely by a local gliding club.

4 SITE SETTING

4.1 LANDFORM

- 4.1.1 The Site currently forms a portion of the former RAF Bicester and comprises a largely level topography of 80mAOD predominantly comprising grassland. Landform to the east and north are surrounded by gradually sloping land lowering marginally from 79mAOD on the Airfield to 73mAOD further towards the Langford Brook and tributaries to the east.

4.2 LOCAL ENVIRONS AND RECEPTORS

- 4.2.1 Land to the immediate west of the Site comprises the A4421, beyond which to the west and north west is the residential area of Caversfield. The airfield is located to the immediate east and north east of the Site. Buildings and infrastructure associated with Bicester Heritage Centre (formerly RAF Bicester) are located to the immediate south.

4.3 GEOLOGY

- 4.3.1 The British Geological Survey maps (BGS, 2016), for the area indicate that Site is underlain by medium to fine grained limestones of the Cornbrash Formation, which were formed approximately 164 to 168 million years ago in the Jurassic Period. These strata form beds

and reefs locally and are biogenic and detrital, generally containing shell and coral fragments.

4.3.2 There are no superficial deposits or drift geology recorded that overlie the Cornbrash Formation. Artificial ground and made deposits cover the bedrock strata with infilled ground interspersed locally.

4.3.3 Groundwater gradients in the Cornbrash Formation aquifer is thought to fall to the southeast. It is likely that the aquifer is effectively separated by low permeability strata between, but it is possible that there is some interaction in view of the fissured nature of the formations.

4.4 HYDROGEOLOGY

4.4.1 The bedrock and solid geology on the Site is designated a Secondary A aquifer of variable permeability which relates to the strata from which water abstractions are viable at some horizons. Yields however are temporally and spatially variable therefore intergranular and/or fracture flow would be moderate with the corresponding permeability modest.

4.4.2 Secondary A aquifers are generally considered to be minor aquifers consisting of permeable strata capable of potentially supporting water supply at a local level rather than a strategic level and in some cases form an integral source of base flow for rivers.

4.4.3 There are no Source Protection Zones (designated protection zones around public water supply abstractions) within the Site or within a 500m buffer zone.

4.4.4 The Environment Agency uses the Catchment Abstraction Management Strategy (CAMS) to determine the amount of water that is available for abstraction from a water source whether it be surface or groundwater in origin. The Site is positioned within the Cherwell, Thame and Wye CAMS area and was formed through the amalgamation of the Cherwell CAMS and the Thame and South Chilterns CAMS areas. It includes the whole length of the rivers` Cherwell, Thame and Wye along with their tributaries and covers an area of 2,200km². Water is available for licencing in this area with new licences considered depending on local and downstream impacts.

4.4.5 In terms of groundwater, the principal resource is contained within the limestone unit of the Cornbrash Formation. Water resource availability for the Site itself is guided by surface water resource availability therefore varies greatly from high to low flows. Consumptive abstraction is thereby available for less than 30% of the time. During low flows, no water is available for licencing as the resource status of `Water available for licencing` is dictated and overridden by the flow requirements of the Thames.

4.5 WATER ABSTRACTIONS

4.5.1 Table 6 shows the ten identified historical and active Groundwater Abstraction Licences that have been granted within a 2km buffer zone of the Site.

Table 6 Groundwater Abstractions

Licence Number	Licence Holder	Point of Abstraction	Annual Volume (m ³)	Use
28/39/14/0291	Brashfield Management Ltd	Brashfield House, Nr Bicester	Not Specified	Household Purposes
28/39/14/0315	Elworthy	Fringford Lodge Farm, Bicester	Not Specified	Household Purposes
28/39/14/0311	O'Neill	Stratton Audley, Bicester	Not Specified	General Farming and Domestic
28/39/14/0034	Sunlight Services Group Ltd	Buckingham Road, Bicester	Not Specified	General Use
28/39/14/0333	Gibbs Holdings Ltd	Buckingham Road, Bicester	Not Specified	General Use
28/39/14/0172	Gosling	Stratton Audley, Broughton	5683	General Farming and Domestic
28/39/14/0322	Deeley	Moat Farm, Caversfield	Not Specified	General Farming and Domestic
28/39/14/0348	W V Malins & Sons	Lords Farm	17520	General Farming and Domestic
28/39/14/0073	P A Evans & Son	Hareleys Farm, Laughton	Not Specified	General Farming and Domestic
28/39/14/0289	P A Evans & Son	Hareleys Farm, Laughton	Not Specified	General Farming and Domestic

- 4.5.2 There are also two Potable Water Abstraction Licences within 2km of the Site which utilise groundwater as the source. Refer to Table 7 below for details.

Table 7 Potable Water Abstraction Licences

Licence Number	Licence Holder	Point of Abstraction	Annual Volume	Use
28/39/14/0291	Brashfield Management	Brashfield House, Nr Bicester	Not Specified	Household Purposes
28/39/14/0315	Elworthy	Fringford Lodge Farm, Bicester	Not Specified	Household Purposes

- 4.5.3 Within a 2km radius of the Site there is one Surface Water Abstraction Licence recorded, the details of which are shown in Table 8 below.

Table 8 Surface Water Abstractions

Licence Number	Licence Holder /	Point of Abstraction	Annual Volume	Use
28/39/14/0335	PASKIN	West End, Laughton (tributary of the River Ray)	Not Specified	Make-Up or Top-Up Water

4.6 SURFACE WATER

- 4.6.1 Within 1km of the Site surface water features includes a spring aligned to the south-east of the Site boundary; Langford Brook which is located to the west of the Site and flows in a north-west to south-west direction, and a tributary to the Langford Brook, the Audley Brook, is positioned to the east of the Site at c. 1km at the closest point and flows from the north-east to the south-east.

4.7 COAL MINING

- 4.7.1 The Groundsure Report purchased in June 2018 details Coal Authority records, which state that there are no coal mining areas or associated brine affected areas within 75m of the Site; likewise there are no non-coal mining activities within 50m of the Site. No records of geological disturbances have been identified and no evidence in Coal Authority documentation of recent coal mining likely to affect the Proposed Development.

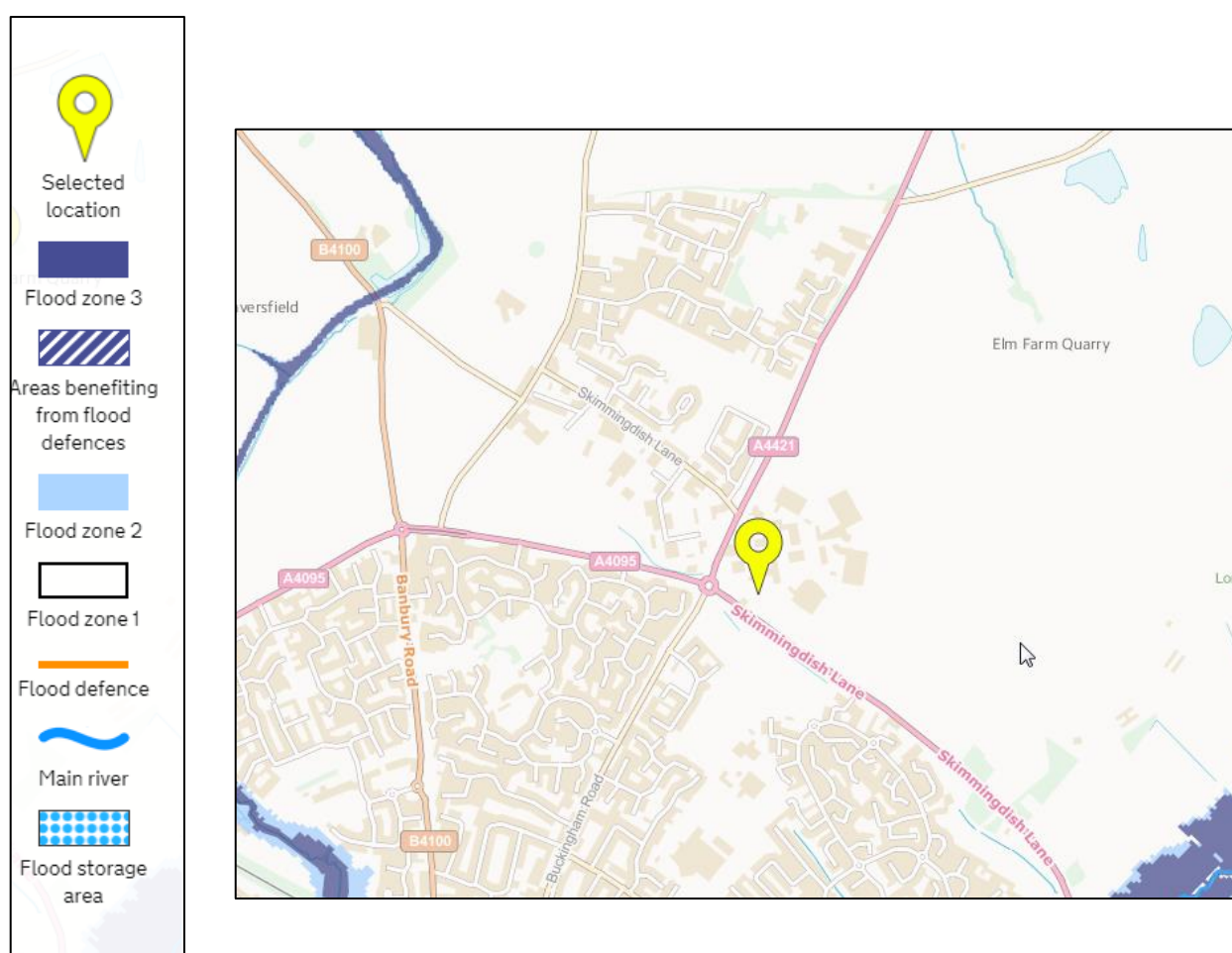
4.8 ENVIRONMENTALLY SENSITIVE SITES

- 4.8.1 Records show that there is a geological Site of Special Scientific Interest, the Stratton Audley Quarries, circa 650m north east of the Site at the closest point. The Stratton Audley Quarries SSSI is formed of two parts, both located within the Site. The Natural England citation states that a large part of the Jurassic White Limestone, as well as the entire Forest Marble and Lower Cornbrash Limestone were exposed by quarrying. The quarry was an important location for studying facies changes which occur in the upper part of the White Limestone and in the Forest Marble. They were probably deposited as lime muds in restricted, brackish to freshwater lagoons. Natural England records go on to state: *“Both parts of the SSSI are completely submerged. The southern part has been largely infilled with waste material and the remaining area has filled with water so that even if an exposure had been retained along the south or eastern edges of the pit, it is completely inaccessible and there is no visible exposure. The northern part has also completely filled with water to form a large lake.”* It further states there are no practical means of restoring access to the interest feature and therefore the features must be assessed as ‘destroyed’.
- 4.8.2 There is a small isolated pocket of Priority Habitat – Deciduous Woodland circa 65m south of the Site at the closet point. A Local Nature Reserve (LNR), Bure Park, is located circa 1.5km to the south-west of the Site at the closest point.
- 4.8.3 Natural England specify that The Upper Thames Tributaries, positioned 1.5km to the south-east are Designated Environmentally Sensitive Areas and, according to DEFRA, the Site itself is sited on an existing Nitrate Vulnerable Zone. No other designated environmentally sensitive sites such as National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), World Heritage Sites, Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Green Belt Land or Ramsar Sites occupy any areas within a radius of 2km.

4.9 FLOOD RISK

The Environment Agency's Flood Risk Maps for Planning <https://flood-map-for-planning.service.gov.uk/> places the Site within a Flood Zone 1 where the risk of flooding is less than 0.1% which indicates properties in this location are likely to be at low probability of flooding (less than 1 in 1000 chance of surface water flooding in any given year). When a Site is positioned in Flood Zone 1, a flood risk assessment is not required unless it is greater than 1ha and is unaffected by sources of flooding other than rivers or seas, for instance, surface water drains. The Langford Brook which is aligned to the east and west of the Site is attributed to both medium and high risk of flooding (i.e. Flood Zone 1 and 2) as shown in the map extract below (red circle denotes the location of the Site).

Diagram 1 Flood Risk Map



4.10 RADON

4.10.1 The Site lies in an area which is not reported to require any special measures for Radon Protection for residential or similar development as set out in the Building Research establishment publication BR211.

5 INTERPRETATION AND ASSESSMENT

5.1 POTENTIAL SOURCES OF CONTAMINATION

5.1.1 Table 9 lists any location or feature from which there may be a potential source of contamination, i.e. hazard which in certain circumstances could cause harm or pollution.

Table 9 Identification of potential sources and associated pollutants

	Source	Associated Contaminants
Historic Sources	Fuel storage	Fuels, oils, other hydrocarbons, ground gas.
	Vehicle and aircraft maintenance	Solvents and degreasing agents
Current Sources	Derelict, unused flat land (gliding club)	None

5.2 RECEPTORS

5.2.1 The Receptors for consideration within the Site are:

- Construction-related operatives, during development of the Site;
- Future residents of the proposed hotel;
- Ecological systems;
- Groundwater beneath Site; and
- Surface water on Site.

5.3 CONCEPTUAL MODEL

5.3.1 A conceptual model is a descriptive/diagrammatic representation of the subject site which examines both above and below ground aspects and which identifies and considers surrounding areas for potential impacts on the subject site. To do this potential sources of contamination (hazards) are identified, the pathways for possible transmission of contaminants are considered and the potential receptors are identified.

5.3.2 At the Phase 1 investigation stage, the conceptual model is based upon a preliminary site walkover and a desk based study examining the evidence compiled from historical surveys and available data searches described in previous sections.

5.4 MIGRATION PATHWAYS

5.4.1 The pathways for consideration which might allow transfer (migration) of potentially harmful pollutants between source and receptors are:

- From ground beneath the Site, i.e. former airfield facilities and

- Lateral migration through geological strata of gas and/or liquid contamination arising from former airfield activities.

5.4.2 It is noted that in view of the former use of the land it is essentially a flat well drained area.

5.5 PRELIMINARY RISK ASSESSMENT

5.5.1 The assessment and preliminary evaluation of risk from the information gained through desk study and Site Walkover Survey is presented in Table 10. This sets out the relationships between source and receptor and combines potential severity of impact and likelihood of the event occurring. This is then summated into an overall preliminary risk assessment, referencing the Resultant Risk Matrix (Table 5, above).

Table 10 Preliminary Phase 1 Risk Evaluation

Source	Pathway	Receptor	Severity	Probability	Risk
Ground gas from made ground and natural strata	Migration in to excavations	Site workers	Severe	Unlikely	Low
	Migration in to properties	Residents	Severe	Unlikely	Low
Petroleum hydrocarbon compounds and associated organic and volatile organic compounds within shallow soil	Inhalation of vapour	Site workers / residents	Severe	Low	Mod / Low
	Ingestion and absorption		Severe	Low	Mod / Low
	Migration by liquid flow	Surface water	Minor	Unlikely	Negligible
		Groundwater	Mild	Low	Low
	Plant uptake	Ecosystems	Minor	Unlikely	Negligible
Solvents and degreasing agents associated with vehicle/aircraft maintenance	Migration in to excavations	Site workers	Severe	Unlikely	Low
	Migration in to properties	Residents	Severe	Unlikely	Low
	Migration by flow	Surface water	Minor	Unlikely	Negligible
	Migration by flow	Ground water	Minor	Unlikely	Negligible

6 CONCLUSION

6.1.1 There is little site investigation evidence of contamination on the Site of the proposed hotel development. Only four trial pits were dug in the area and two boreholes (one of which is lost). This low coverage may have been indicative of the view that this area was not the location of potentially high risk activities. There is no known anecdotal evidence from the trial pitting (for archaeological purposes) that any visual or olfactory evidence was apparent for contamination on this area. There was no apparent evidence indicative of contamination detected during the Site Walkover Survey, e.g. ground discolouration or plant die back.

6.1.2 In terms of petroleum hydrocarbons potentially migrating through the ground and affecting the Site, there is record of a spillage some 220m to the south of the Site at Building 113. Hydrogeological assessment would indicate that if there had indeed been any spillage it is likely that with time drainage of contaminants would be into groundwater which in turn would be likely to then discharge into surface watercourses. There is no reported

evidence of this happening and in any case is unlikely to have impact at the hotel location. Consequently this consideration is rated as low risk.

- 6.1.3 Potentially aggressive substances such as solvents and degreasing agents associated with vehicle and aircraft maintenance works do not appear to have been present in this area. It is in any case unlikely that even if present on the broader airfield site that these substances would migrate to the proposed hotel site.
- 6.1.4 It should be noted that even if there is mobility of contaminants most of the areas of the former operational RAF Bicester and airfield that would be identified as being of high risk of contamination i.e. the ordnance storage area, ESA, rifle range, fuel spill etc would need a pathway to move to the Site. This would be likely to be the upper minor aquifer (the Cornbrash). Movement of groundwater is likely to be to the southeast, i.e. away from the Site.
- 6.1.5 The assessment undertaken is a preliminary Phase 1 study which is intended to give an indication of conditions within the Site. On this basis, the risk of the proposed development being adversely affected by the condition of the land has been considered qualitatively based upon Site Walkover Survey and desk study. It is considered unlikely that ground conditions or potential pollutant sources identified would have any significant impact on the condition of the land or the receptors identified, including people.

7 SUMMARY

- 7.1.1 A review of the Site setting and available information has been undertaken in relation to the proposed development of a Hotel. The review has been further developed into an assessment of a source-pathway-receptor model.
- 7.1.2 The main sources of pollutants identified as having the potential to impact receptors at the Site were determined as the existing ground materials including residual substances such as degreasing agents from aircraft maintenance and the ordnance storage area (circa 900m east south east of the Site), the rifle range, ESA, and the former reported fuel spillage on the airfield circa 220m to the south.
- 7.1.3 Review of historical maps indicates no evidence of other sources of contamination/pollution or any source material likely to cause significant risk to people or the environment. Similarly, there is no indication of intensive farming practice affecting the Site which might otherwise affect the ground condition present.
- 7.1.4 Operational activities at the airfield ceased in 1994. The latest intrusive results of site investigation are over ten years ago. Given the main pathway for mobilisation of any contaminants is likely to be in the minor aquifer conclusions have necessarily been based on longstanding data. It is however the case that many contaminants likely to be present in the source areas referred to in paragraph 7.1.2 e.g. metals, PAHs are not likely to be mobile in groundwater, and groundwater movement is to the south east.
- 7.1.5 Environment Agency flood risk maps indicate that the Site is within an area designated as low risk of surface water flooding.

- 7.1.6 Overall, it is concluded to be unlikely that ground conditions or potential pollutant sources identified would have any significant impact on the condition of the land or the receptors identified, including people, pursuant to the development of the Hotel.