

**Phase 1 Land Contamination  
Risk Assessment**

for

**Proposed Demolition of Barn &  
Outbuilding and Erection of 1 No.  
Dwelling & Associated Car  
Parking and Retention of  
Countryside to Domestic Garden**

on land at

**The Barn, No.9 The Green,  
Croft, Blaby,  
Leicester LE9 3EQ**

**Date: January 2022**

Status:

Final Report

Reference:

1609D P1 Elliot - Croft

Date:

07/01/2022

## EXECUTIVE SUMMARY

The site is currently occupied by a dwelling, parking and turning areas and access routes, a redundant barn with lean-to sheds and garden areas located in the east and southern extents of site.

Site sampling of current and proposed soft-landscaping areas located adjacent to potentially contaminative features has identified no contamination. As such, it is the opinion of Castledine & Co that the site represents a **LOW** risk in respect to soil contamination and a **LOW to MODERATE** level of risk with respect to ground gasses.

**It is recommended that remediation by way of installation of ground gas protection measures (in-line with section 11.0) is planned and carried out as part of the site development.**

**It is also recommended a Watching Brief (inline with Appendix I) be applied during the site and groundworks.**

**This report should be submitted to your Local Planning Authority for agreement to allow the Phase 3 Remediation Strategy and Verification Plan to be written.**

A watching brief (as outlined in Appendix I) should be had during the course of demolition, site clearance and construction works for any obvious contamination (e.g. oil spillage in ground, buried waste, possible asbestos containing material) development should stop and Castledine & Co should be contacted to determine if further assessment or changes to the remediation scheme are required.

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## **1.0 QUALITY ASSURANCE**

Castledine & Co. confirm that all reasonable efforts have been made to ensure that the information outlined within this report is accurate.

Castledine & Co. would further confirm that due care, attention and technical skill were used in the creation of this report.

For and on behalf of Castledine & Co.

Kevin Castledine

(Proprietor)

## **2.0 LIMITATIONS**

The conclusions and recommendations made in this report are limited to those based on the findings of the investigation. Where comments are made based on information obtained from third parties, Castledine & Co. assumes that all third-party information is true and correct. No independent action has been undertaken to validate the findings of third parties. The assessments and interpretation have been made in line with legislation and guidelines in force at the time of writing, representing best practice at the time.

This survey has not included asbestos within existing structures or any elements unconnected with potential ground contamination at the site.

There may be other conditions prevailing at the site which have not been disclosed by this investigation and which have not been taken into account by this report. Responsibility cannot be accepted for conditions not revealed by the investigation.

### 3.0 INTRODUCTION

Castledine & Co. have been appointed by Mr. S. Elliot to undertake a Phase 1 Desk study on land at The Barn, No.9, The Green, Croft, Leicestershire LE9 3EQ.

### 4.0 SCOPE

Castledine & Co. have prepared this report for the sole use and reliance of Mr. S. Elliot and his appointees for the purpose of ensuring compliance with:

- Paragraph(s) 174, 179, 183 & 184 of the National Planning Policy Framework 2021
- part C1 of the building regulations
- Support of Planning Application No.19/0439/FUL

This report may not be used or relied upon by any unauthorised third party, or for any other proposed use than that specified above, without the explicit written agreement of Castledine & Co.

The report consists of a preliminary risk assessment in accordance with BS10175:2011+A2:2017, CLR11 “Model Procedures for the Management of Land Contamination” and LCRM “Land Contamination Risk Management”.

The objectives of the report are:-

- To assess historical activities at the site with respect to their potential impact on the site environment.
- To characterise the environmental setting of the site, identify migration pathways and vulnerable receptors for contamination originating at the site, focusing on potential soil and groundwater liabilities.
- To assess historical and current surrounding land use in relation to known or potential off site contamination issues that may impact on the subject site and
- To develop a preliminary conceptual site model (CSM).

## 5.0 SITE DESCRIPTION

The site is located in Croft, Leicestershire at National Grid Reference: 451374,295986 and is approximately 0.17ha in area.

The site is irregularly shaped and is generally orientated north west to south east. The site is directly bounded by field to the south and south east, The Green to the north west and neighbouring dwellings and gardens to the north and north east. The main pit of Croft Quarry is located approximately 126m north west of site and the main industrial area of the quarry is located approximately 32m east of site.

The site interior comprises the site access track, a dwelling, a parking and turning area, a redundant barn structure and garden areas. The site access leads south east off The Green, was seen to be gravelled and leads to a parking area and to the south east of site. The dwelling is located in the north west of site and is terraced with housing extending northwards from here. The dwelling was seen to be constructed of brick and stone with tiled roofing and two-storey in height. The barn structure is located in the central area of site, with a gravelled parking/turning area located between the dwelling and barn. A row of redundant lean-to structures are arrayed along the northern boundary, immediately north of the parking area. They were seen to be constructed of timber and corrugated metal with timber and debris contained within (likely arising from the damage to the barn). The barn was noted to be in a poor and dangerous state of repair and as such, access was not possible. The barn was noted to be constructed of red-brick, concrete and brick flooring with timber structures and blue-tiled roofing. There were 2 No. large wooden barn doors noted on the western face of the building. The interior was occupied by timber, brick and tiled debris from damage to the barn. The site access track then leads past the southern face of the barn to the rear garden area to the east of the barns. This area was noted to be in use for the storage of materials such as stone, brick and timber along with garden furniture. The remaining area of this garden area was noted to be occupied by lawn, garden furniture and a small fish pond. The remaining area on site is a second garden / allotment area located in the southern extent of



site, to the south of the access track. This area was noted to be largely concreted with areas of paving stone and planting beds along with a shed and a small, well-maintained chicken coop.

Topographically, the site is level with the land located to the south at a slightly lower height with a flood-barrier bund separating this area and the site itself. No significant sources of contamination were noted on the site walkover.

Photos of the site are present in Appendix D

## 6.0 REGULATORY AUTHORITY AND OTHER ENVIRONMENTAL DATA

An environmental search listing historical and environmental factors likely to affect the property has been reviewed.

The most pertinent information is summarised in the following sections.

A copy is presented in Appendix A

Additional geological and hydrological data was obtained from the British Geological Survey.

## 6.1 HYDROLOGICAL

### 6.1.1 AQUIFER

#### 6.1.1.1 SUPERFICIAL GEOLOGY

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	13	N	Secondary (Undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and nonaquifer in different locations due to the variable characteristics of the rock type

ID	Distance (m)	Direction	Designation	Description
3	151	SW	Secondary (Undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and nonaquifer in different locations due to the variable characteristics of the rock type

#### 6.1.1.2 BEDROCK GEOLOGY

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers

#### 6.1.2 ABSTRACTIONS AND PRIVATE WATER SUPPLIES

The Groundsure report records an historical surface water abstraction licence located 247m east of site. The licence related to process waters at Croft Quarry via the River Soar and was in effect from 14/04/1966 and revoked on 07/03/2006. No further abstraction licences including surface, groundwater or potable abstractions are located within 250m of site.

#### 6.1.3 SOURCE PROTECTION ZONE

The site is not located in a source protection zone (SPZ).

#### 6.1.4 GROUNDWATER VULNERABILITY AND SOIL LEACHING POTENTIAL

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one-kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

ID	Location	Summary	Soil / Surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: <300mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: - Aquifer type: - Thickness: >10m Patchiness value: <90% Recharge potential: High	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
3	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: <90% Recharge potential: High	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures
A	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: <40% Dilution value: <300mm/year	Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
4	12m N	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: <90% Recharge potential: High	Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures

### 6.1.5 POTENTIAL SURFACE WATER

The Groundsure report records the River Soar located at surface level 111m south west, 193m and 200m east and 206m west of site.

### **6.1.6 DISCHARGE CONSENTS**

The Groundsure report records 8 No. licenced discharge consents held within 250m of site. Of these, 3 No. are located 135m south east of site and relate to sewage storm overflows on behalf of the water company and discharging into the River Soar, with only a single permit being active and recorded as effective from 08/08/2018. A fourth permit which is historical is located 138m south east of site and this relates to sewage storm overflows, discharging into the River Soar and effective from 18/05/2016 and revoked on 03/07/2020. A further 4 No. records are located 196m east at Croft Quarry and relate to trade discharges – mineral workings discharges into the river soar, with only 1 No. permit recorded as effective from 06/01/2001.

No further licenced discharge consents are held within 250m of site.

### **6.2 PERMITTED PROCESSES**

The Groundsure report records 6 No. Part B Permits located within 250m of site. Of these, 3 No. are current and all located 190m north east at Croft Quarries and relate to use of bulk cement (2 No. records) and roadstone coating processes. The remaining historical permits are located 190m north east (2 No.) and 236m north east of site and relate to the same processes.

No further permitted processes are located within 250m of site.

### **6.3 POLLUTION INCIDENTS**

The Groundsure report records 4 No. pollution incidents located within 250m of site. Of these, 2 No. are located 104m south west of site with both dated 29/03/2003 and relating to unidentified oils and fuels with a Category 3 (minor) impact to water quality and no impact of land or air quality. The remaining 2 No. records are located 140m south east of site with both dated 05/04/2002 and relating to crude sewage with a Category 3 (minor) impact to water quality and no impact to land or air quality.

No further pollution incidents are located within 250m of site.

**6.4 RADIOACTIVE SUBSTANCES REGISTRATIONS**

None recorded within 250m of site.

**6.5 WASTE****6.5.1 LICENSED WASTE MANAGEMENT FACILITIES (LOCATIONS)**

The Groundsure report records a licenced waste site located 196m north east of site. The site is described as a 'physical treatment facility' associated with the local aggregate industries with the site in effect from 28/04/2017. .

**6.5.2 LANDFILL SITES**

The Groundsure report records an historical landfill located 226m north east of site and named Croft Landfill. The site dealt with industrial and household wastes and was first recorded on 31/12/1937 and last recorded on 30/04/1989. The Groundsure also records historical landfill records located 308m and 343m north east and 320m and 356m north of site, identified from mapping dated circa.1961.

**6.6 HAZARDOUS SUBSTANCES**

None recorded within 250m of site.

**6.7 ECOLOGICAL RECEPTORS**

The Groundsure report records the site as being within the River Soar surface waters nitrate vulnerable zone (NVZ). The Groundsure report also records Sites of Special Scientific Interest (SSSI) located 86m north west, 206m and 680m north west of site and named Croft and Huncote Quarry, Croft Pasture and Croft Hill, respectively.

No further sensitive land usages are recorded within 1000m of site.

**6.8 SOILS AND GEOLOGY**

"Contains British Geological Survey materials © NERC 2022" obtained from <http://www.bgs.ac.uk/data/mapViewers/home.html> under the [Open Government Licence](#)

### **6.8.1 SUPERFICIAL DEPOSITS**

The Groundsure report records superficial geological deposits of River terrace Deposits located on site and 171m south of site, comprising sands and gravels. Records of Alluvium comprising clays, silts, sands and gravels are located 14m south and Glacial Till, comprising poorly sorted sandy, silty clays, sands, gravels and boulders located 26m north west of site.

### **6.8.2 SUPERFICIAL DEPOSITS PERMEABILITY**

The Groundsure report records the site as being within an area where the maximum permeability of superficial deposits is recorded as 'very high' and the minimum permeability as 'high', facilitated by intragranular flow mechanisms. A 'high' to 'very low' permeability is recorded 8m north east and also facilitated by intragranular flow mechanisms.

This is a qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

### **6.8.3 BEDROCK**

The Groundsure report records bedrock geology of the Edwalton Member on site, comprising mudstone. The Groundsure report also records the South Leicestershire Diorite Complex located 57m west of site and comprising diorite. Diorite is an igneous rock composed mostly of silicate minerals.

### **6.8.4 BEDROCK PERMEABILITY**

The Groundsure report records the site as being within an area where the maximum permeability of bedrock geology is recorded as 'low' and the minimum permeability as 'low' and facilitated by fracture flow mechanisms.

This is a qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

**6.8.5 ARTIFICIAL GROUND**

The Groundsure report records artificial deposits described as made ground 'undivided located 17m north east and 144m south east of site. The Groundsure report also records made ground 'voids' located 101m north west of site and 213m south west of site.

**6.8.6 ARTIFICIAL GROUND PERMEABILITY**

The Groundsure report records an area of artificial deposits located 11m north east of site as an area where the maximum permeability of artificial deposits is recorded as 'very high and the minimum permeability as 'low' and facilitated by mixed flow mechanisms.

**6.8.7 NATURAL HAZARDS**

The Groundsure report records a negligible risk from ground dissolution of soluble rocks; a very low risk from collapsible deposits and landslides; a low risk from shrink-swell clays and running sands; and a moderate risk from compressible deposits.

**6.8.8 BGS ESTIMATED BACKGROUND SOIL CHEMISTRY**

The Groundsure report records BGS background soil chemistry for the site. This is estimated values providing the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km<sup>2</sup>. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km<sup>2</sup>; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

The Groundsure report records arsenic, lead/bioaccessible lead, cadmium, chromium and nickel at background concentrations of 15mg/kg, 100mg/kg/60mg/kg, 1.8mg/kg, 40-60mg/kg and 15-30mg/kg, respectively.

Assuming a worst case GAC (generic acceptance threshold) of 1% SOM (soil organic matter), none of the recordings are above the generic acceptance thresholds of 37mg/kg, 200mg/kg (both lead and bioaccessible lead), 11mg/kg, 910mg/kg and 180mg/kg, respectively.

### 6.8.9 COAL MINING

The site is not located in a coal mining reporting area.

### 6.8.10 SURFACE MINING

ID	Distance [m]	Direction	Land Usage	Year of Mapping
1	0	On Site	Granite, brick and concrete works	1904
B	79	N	Granite, brick and concrete works	1938
B	79	N	Granite, brick and concrete works	1914
C	88	NW	Unspecified quarry	1967
C	88	NW	Granite quarry	1973
2	92	NE	Pond	1904
D	99	NE	Unspecified quarry	1886
C	102	NW	Granite quarry	1992
C	107	NW	Granite quarry	1981
C	108	NW	Granite quarry	1950
C	118	NW	Unspecified quarry	1938
C	118	NW	Granite quarry	1938
C	118	NW	Granite quarry	1914
3	132	NE	Granite, brick and concrete works	1950
E	147	NW	Unspecified pit	1904
E	156	NW	Unspecified quarry	1904
5	210	S	Unspecified pit	1886
D	213	N	Cuttings	1886
D	218	N	Cuttings	1904
C	229	N	Granite quarry	1904
6	241	NW	Refuse heap	1973



**6.8.11 RADON**

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level. No radon protective measures are necessary as described in publication BR211:2015 by the Building Research Establishment.

**6.9 AERIAL PHOTOGRAPHY**

Aerial photography shows the following

**6.9.1 BING**

The site is shown as occupied by the access track, turning area, barn structure and gardened areas as seen on the walkover. The barn appears to be intact at this time.

**6.9.2 GOOGLE MAPS**

The site is shown as occupied by the access track, turning area, barn structure and gardened areas as seen on the walkover. The barn appears to be intact at this time.

**6.9.3 GOOGLE EARTH**

11 No. images are held in the historic imagery dataset, as follows:

Date	Description
December 1999	The site is shown as occupied by the dwelling, gravelled access track and parking area, barn, lean-to sheds and rear (eastern) and southern gardened areas. The barn appears to be intact at this time. Croft quarry pit is located north of site and the industrial area associated with the quarry to the east of site.
December 2000	No major or discernible change on site.
July 2006	A shed structure has now been erected in the southern gardened area. The eastern extent of site appears heavily vegetated and overgrown.
September 2008	No major or discernible change on site.
December 2010	No major or discernible change on site.

Date	Description
September 2011	The eastern extent of site has been cleared of heavy vegetation and the beginnings of the garden seen in the present-day are under development. The southern garden area has also been tidied at this time and resembles the present-day.
April 2015	The eastern and southern garden areas have now been completed with lawned areas and the fish pond seen today. Croft Quarry pit to the north has been deepened and industrial activity continues to the east of site in the quarry yard area.
April 2016	No major or discernible change on site.
April 2018	No major or discernible change on site.
April 2020	No major or discernible change on site.
June 2021	The barn structure is now shown as heavily damaged as seen in the present-day.

#### 6.9.4 ENVIRONMENTAL SEARCH

Date	Description
04/10/1999	The site is shown as occupied by the dwelling, access, turning area and barn. The eastern extent of site is vegetated and overgrown at this time and the garden area in the south of site has yet to be developed.
20/09/2008	The garden area in the south of site now partially resembles the present-day with erection of a shed and clearing of the area.
18/07/2013	No major or discernible change on site.
13/08/2017	The eastern garden area of site has now been developed and appears as seen in the present-day.
16/04/2020	No major or discernible change on site.

#### 6.10 GOOGLE STREET VIEW

Google Street View imagery is unavailable for the site due to its located at the end of a private access track.

## 6.11 HISTORIC MAPPING

The following historic maps have been reviewed as part of this assessment. Castledine and Co. do not hold a license for the reproduction and/or distribution of this data.

Map	Onsite	Offsite
OS County Series: 1886, 1:10,560	The site is shown as occupied by a dwelling and a barn structure in the same orientation and layout as the present-day structures. Structures are located in the southern extent of site in the present-day garden area.	The surrounding areas are predominantly agricultural field. Notable features include a quarry located approx.250m north of site with a tramway to the east of site connecting the quarry to a railway line located approx.178m south of site. The area of the west and north west of site is occupied by residential dwellings forming the village of Croft.
OS County Series: 1887-1888, 1:2,500	No discernible change on site.	Higher resolution mapping now shows a tramway and multiple conveyors and sidings associated with the quarry located approx.150m east and north east of site and extending to 250m east of site. A smithy is located approx.150m north and kilns are located approx.210m north east of site. A second, smaller quarry is located approx.250m south west of site, adjacent to a sheep wash area.
OS County Series: 1903, 1:2,500	No discernible change on site.	A granite, brick and concrete works has now extended to within 10m north east of site with large scale sheds located approx.100m north east and extending south east to 250m south east of site. A new works (concrete) is located approx. The small quarry to the south west of site is no longer marked on mapping. Another small quarry is located approx.200m north west of site. Croft Quarry to the north has been enlarged.

Map	Onsite	Offsite
OS County Series: 1904, 1:10,560	No discernible change on site.	Covered reservoirs are now marked approx.480m north west of site, beyond croft quarry.
OS County Series: 1938, 1:2,500 & 1:10,560	No discernible change on site.	The structure located immediately south of site is now marked as a club and a cricket ground is located south of this. Railway sidings associated with the quarry are now located approx..60m east of site. Croft Quarry to the north of site is now located approx.100m north west of site. There has been further extension of the quarry workings to the north east of site and east.
Provisional: 1950, 1:10,560	No discernible change on site.	The main pit of croft quarry to the north of site is now roughly the same size at that seen in the present-day. The small quarry located north of site has been incorporated into the larger quarry.
National Grid: 1963, 1:2,500	No discernible change on site.	A refuse tip is now marked approx.241m north east of site beyond the industrial area associated with the quarry.
Provisional: 1967, 1:10,560	No discernible change on site.	The sidings located 60m east of site has been removed and replaced with a travelling crane. The large quarry sheds east beyond this are now marked as works. The works to the south west of site have been removed. The refuse tip on the opposite side of the industrial works has been extended.
National Grid: 1971, 1:2,500	No discernible change on site.	A turning area is now located south east of site with this area connected to site via the access route which travels through site. An engineering works is located approx.250m south of site beyond the railway at this time.
National Grid: 1973, 1:10,000	No discernible change on site.	Surrounding areas see little site relevant change.

Map	Onsite	Offsite
National Grid: 1980-1981, 1:10,000	No discernible change on site.	The refuse tip to the east of site is no longer marked on mapping.
National Grid: 1992, 1:10,000	No discernible change on site.	The clubhouse immediately south of site has been removed.
National Grid: 1994, 1:2,500	No discernible change on site.	A number of tanks are marked approx.200m and 270m north east of site. An area approx.250m south and south east of site beyond the railway line is now occupied by multiple works and warehouses.
National Grid: 2001, 1:10,000	Mapping is of poor detail: there appears no discernible change on site.	Mapping is of poor detail: there appears no site relevant change to surrounding areas.
National Grid: 2003, 1:1,250	Mapping is of poor detail: there appears no discernible change on site.	The area to the east of site has had the travelling crane removed or is not marked and this area is likely now as seen today, occupied by storage of aggregate.
National Grid: 2010, 1:10,000	Mapping is of poor detail: there appears no discernible change on site.	Mapping is of poor detail: there appears no site relevant change to surrounding areas.
National Grid: 2021, 1:10,000	Mapping is of poor detail: there appears no discernible change on site.	Mapping is of poor detail: there appears no site relevant change to surrounding areas.

## 6.12 CURRENT LAND USE DATA

ID	Distance [m]	Direction	Company	Activity	Category
1	148	E	Works	Unspecified works or factories	Industrial features
2	190	SW	Electricity substation	Electrical features	Infrastructure and facilities
c	191	NE	Tank	Tanks (generic)	Industrial features
4	245	SE	Works	Unspecified works or factories	Industrial features

## 6.13 PETROL AND FUEL SITES

None recorded within 250m of site.

**6.14 HISTORICAL PETROL AND FUEL SITE DATABASE**

None recorded within 250m of site.

**6.15 POTENTIAL CONTAMINATIVE LAND USES IDENTIFIED ON MAPPING**

ID	Distance [m]	Direction	Use	Date
1	0	On site	Granite, brick and concrete works	1904
A	16	NE	Unspecified works	1967-1979
2	63	E	Railway sidings	1950
3	70	NE	Unspecified works	1981-1992
B	79	N	Granite, brick and concrete works	1914-1938
C	82	N	Unspecified commercial / industrial	1904
D	88	NW	Unspecified quarry	1967
D	88	NW	Granite quarry	1973
C	99	NE	Unspecified quarry	1886
D	102	NW	Granite quarry	1981-1992
D	108	NW	Granite quarry	1950
4	117	S	Unspecified works	1904
B	118	NE	Railway sidings	1914-1938
D	118	NW	Granite quarry	1914-1938
D	118	NW	Unspecified quarry	1938
E	119	NE	Railway sidings	1904
E	120	NE	Tramway sidings	1886
C	124	NE	Railway sidings	1886
C	125	NE	Railway sidings	1904
A	127	NE	Railway building	1886
5	132	NE	Granite, brick and concrete works	1950
E	143	NE	Railway sidings	1967
E	143	NE	Railway sidings	1973
F	147	NW	Unspecified pit	1910
F	156	NW	Unspecified quarry	19044
6	169	S	Railway sidings	1981-1992
H	188	S	Railway sidings	1904-1950
B	189	NE	Unspecified tank	1981-1992
B	194	NE	Unspecified tank	1886
7	210	S	Unspecified pit	1886
C	213	N	Cuttings	1886
E	213	NE	Railway sidings	1981-1992
C	218	NN	Cuttings	1904

ID	Distance [m]	Direction	Use	Date
8	219	SE	Unspecified works	1992
H	227	SW	Railway station	1967
D	229	N	Granite quarry	1904
H	230	SW	Railway station	1886
H	230	SW	Railway sidings	1886
H	232	SW	Railway station	1904
H	233	SW	Railway station	1950
C	237	N	Cuttings	1914
9	241	NE	Refuse heap	1973

#### 6.16 HISTORICAL TANK DATABASE

ID	Distance(m)	Direction	Use	Date
B	180	NE	Unspecified tank	1916
B	190	NE	Unspecified tank	1996
B	190	NE	Unspecified tank	1989
B	194	NE	Unspecified tank	1888
B	205	NE	Tanks	1989-1996

#### 6.17 HISTORICAL ENERGY FACILITIES

ID	Distance(m)	Direction	Use	Date
G	154	SW	Electricity substation	1995
G	189	SW	Electricity substation	1971-1996

### 7.0 SMALL-SCALE SAMPLING OF PRESENT SOFT-LANDSCAPING AREAS

Due to the identified potentially contaminative sources identified nearby to site (and referenced below), it was considered prudent to undertake small-scale sampling of the area of soft-landscaping presently on site, as this area is to remain garden. As such, a total of 2 No. hand-excavated pits were formed on site, to facilitate the assessment of the ground conditions and the taking of environmental sample for laboratory analysis.

#### 7.1 GROUND CONDITIONS

The ground conditions encountered comprised a dark brown to light brown slightly clayey, slightly gravelly Topsoil with a light brown sand lens from surface level to 0.40m depth at HP01; with a brown, very sandy, slightly gravelly Clay encountered beneath this to a confirmed depth of 0.55m. The

gravels were noted to be fine to medium (to coarse in the Clay), subrounded to rounded sandstones and quartzites. At HP02, a similar topsoil was encountered, which was logged as Made Ground Topsoil due to additional ceramic, brick and wood fragments noted at this location. Samples were taken from each topsoil and the underlying clay.

Logs and photographs of the hand pits can be found in Appendices E & F, respectively.

## 7.2 LABORATORY RESULTS

Sample results have been compared with generic screening criteria (GAC). Sample results are attached as Appendix E.

### Metals and Semi Metals - Residential with Plant Uptake (1% SOM):

Determinant	Units	Accreditation	S4UL	Highest Value	Location of Highest value	Exceedance? Y/N
Arsenic	(mg/kg)	MCERTS	37	16	HP02	N
Cadmium	(mg/kg)	MCERTS	11	1.7	HP03	N
Chromium (total)	(mg/kg)	UKAS	910	135	HP02	N
Copper	(mg/kg)	MCERTS	2400	71	HP03	N
Lead	(mg/kg)	MCERTS	200	146	HP03	N
Mercury	(mg/kg)	UKAS	1.2	<0.5	All	N
Nickel	(mg/kg)	MCERTS	180	20	HP03	N
Zinc	(mg/kg)	MCERTS	3700	862	HP03	N
Total Phenols	(mg/kg)	MCERTS	280	<0.5	All	N
Chromium (Hexavalent)	(mg/kg)	U	6	<1	All	N
pH	pH units	MCERTS	-	7.7 – 8.6	HP02 to HP01	N
Asbestos	-	-	-	None Detected	All Tested	N



**Non-Metals - Residential with Plant Uptake (1% SOM):**

Determinant	Units	Accreditation	S4UL	Highest Value	Location of Highest value	Exceedance? Y/N
Acenaphthene	(mg/kg)	UKAS	210	0.03	HP03	N
Acenaphthylene	(mg/kg)	UKAS	170	0.03	HP03	N
Anthracene	(mg/kg)	MCERTS	2400	0.09	HP03	N
Benzo(a)anthracene	(mg/kg)	MCERTS	7.2	0.44	HP03	N
Benzo(a)pyrene	(mg/kg)	MCERTS	2.2	0.60	HP03	N
Benzo(b)fluoranthene	(mg/kg)	MCERTS	2.6	0.85	HP03	N
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	320	0.44	HP03	N
Benzo (k) fluoranthene	(mg/kg)	MCERTS	77	0.36	HP03	N
Chrysene	(mg/kg)	MCERTS	15	0.90	HP03	N
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	0.24	0.09	HP03	N
Fluoranthene	(mg/kg)	MCERTS	280	1.56	HP03	N
Fluorene	(mg/kg)	MCERTS	170	0.03	HP03	N
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	27	0.48	HP03	N
Naphthalene	(mg/kg)	MCERTS	2.3	0.11	HP03	N
Phenanthrene	(mg/kg)	MCERTS	95	1.26	HP03	N
Pyrene	(mg/kg)	MCERTS	620	1.55	HP03	N
<b>Total PAH (Sum of USEPA 16)</b>	(mg/kg)	UKAS	NC	8.81	HP03	-

**7.3 ANALYSIS OF RESULTS**

Laboratory analysis has identified no exceedances of metals, metalloids, PAH's nor has asbestos or phenol contamination been detected.

**8.0 REVISED POLLUTANT LINKAGE ASSESSMENT**

The risk posed by any contaminants in soil or groundwater will depend on the nature of the hazard, the probability of exposure, the pathway by which exposure occurs, and the likely effects on the receptors. A contaminant is defined as a substance that has the potential to cause harm, while a risk is considered to exist if such a substance is present in sufficient concentration to cause harm and a pathway exists for a receptor to be exposed to the substance.

The following sections discuss all the identified potential on and off-site sources, pathways and receptors in the context of the proposed development and plausible pollutant linkages which may represent a risk to identified receptors from the data gained from the desk study. At this stage the

assessment is qualitative and aimed to determine all pollutant linkages, irrespective of significance or allowing for uncertainty.

Three impact potentials exist for any given site, these are:

- The site impacting upon itself;
- The site impacting on its surroundings; and
- The surroundings impacting on the site.

All three impacts need to be considered in a risk assessment.

## **8.1 SOURCES**

The following potential sources of contamination have been identified.

### **8.1.1 ONSITE**

No significant sources of onsite contamination have been identified.

### **8.1.2 OFFSITE**

- Industrial area with sidings immediately east of site
- Demolition of buildings in and adj. to southern extent of site
- Unspecified works (approx.70m north east)

## **8.2 PATHWAYS**

A pathway is defined as a mechanism or route by which a contaminant comes into contact with, or otherwise affects a receptor. Pathways by which the identified receptors may be impacted upon in the context of the proposed development are identified as follows:

- Ingestion;
- Skin contact;
- Inhalation;
- Plant uptake,
- Direct contact by buried structures;
- Leaching of soluble contamination into groundwater

### 8.3 RECEPTORS

Receptors are defined as people, living organisms, ecological systems, controlled waters, atmosphere, structures and utilities that could be adversely affected by contaminant(s).

- Human Health
  - Current users of the site;
  - Future users of the site;
  - Users of neighbouring sites;
  - Construction workers; and
  - Services personnel working in trenches.
  - Construction Materials
- Buried concrete, which may be affected by high concentrations of sulphate and/or low pH, in the soils and groundwater underlying the site; and
- Buried water pipes.
- Controlled Waters
- Ecological Receptors
- Flora and fauna using the proposed development

### 9.0 CONCEPTUAL SITE MODEL

The Conceptual Site Model (CSM) is a hypothesis of the nature and sources of contamination, potential receptors that may be the recipient of contamination arising from those sources and any pathways that may exist. It creates a plausible source-pathway-receptor pollutant linkage (hazard), set within the context of the ground and proposed end use of the site.

#### 9.1 PRELIMINARY CONCEPTUAL SITE MODEL

##### 9.1.1 SOIL CONTAMINATION

The site is currently occupied by a dwelling, parking and turning areas and access routes, a redundant barn with lean-to sheds and garden areas located in the east and southern extents of site.

It is not considered likely that the site has been significantly contaminated; however, industrial areas with railway sidings, materials storage and a works have been identified immediately east of site and demolished buildings on and immediately south of site (adjacent to areas of proposed soft-landscaping). As such, small-scale sampling was carried out in this area, with no contamination identified. The risks from soil contamination are considered **LOW**.

#### **9.1.2 HAZARDOUS GROUND GAS AND VAPOURS**

No significant sources of hazardous ground vapours have been identified. The site is located in close proximity to an area of alluvial deposits, located in an area known to flood along with a more distant refuse heap (approx.250m north east of site). The area between the refuse heap and site is occupied by a large-scale industrial area which is likely to be founded or possess significant made ground deposits. As such, this may present a preferential pathway to site and has the capacity to be producing low levels of gas itself. As such, the risks from ground gasses are considered **LOW to MODERATE** and it is recommended that ground gas protection measures are installed in the development.

TABLE 1. SUMMARY OF SIGNIFICANT POLLUTION LINKAGES

Contaminant	Pathway	Receptor	Probability of Pollutant Linkage	Consequence	Risk	Possible Mitigation
Contaminated Soils	Direct Ingestion & Direct Contact	Site Workers	UI	Md	L	Site workers to wear appropriate PPE for health and safety reasons
Contaminated Soils	Inhalation of Dust	Site Workers	UI	Md	L	
Contaminated Soils	Direct Ingestion & Direct Contact	End Users	UI	Md	L	Sampling of areas of current and proposed soft-landscaping has shown no exceedances nor presence of contaminants. Nearby industrial usages can be negated as risks. Recommend application of a Watching Brief (inline with Appendix I).
Contaminated Soils	Inhalation of Dust	End Users	UI	Md	L	
Contaminated Soils	Direct Ingestion	Flora and Fauna	UI	Md	L	
Contaminated Soils	Vertical and lateral migration	Controlled Waters	UI	Md	L	
Contaminated Soils	Direct contact	Services	UI	Md	L	
Ground Gases (Methane and CO <sub>2</sub> )	Vertical and lateral migration	End Users & Building Envelope	UI	Sv	M/L	
Volatile and Semi-volatile Organic Compounds	Vertical and lateral migration	End Users & Building Envelope	UI	Md	L	No significant sources of ground vapours identified.
Radon	Vertical and lateral migration	End Users & Building Envelope	UI	Md	L	Site is not located in a Radon Affected area.

KEY: Probability of pollutant linkage Hi = Highly likely, Li = Likely, Lw = Low Likelihood, UI = Unlikely  
 Consequence Sv = Severe, Md = Medium, Mi = Mild, Mr = Minor,  
 Overall Risk VH = Very High, H = High, M = Moderate, M/L = Moderate/Low, L = Low, VL = Very Low

Based on the preliminary CSM for the site, an environmental risk assessment has been undertaken. A simple matrix can provide a consistent basis for decision making. It should be used with caution, recognising the over-simplification that it will normally represent. The probability and consequences are defined according to parameters relevant to the situation; the boundaries of risk acceptability (and tolerability, where relevant) indicated on the matrix provided in Table 2, can be tailored to the factors influencing the significance of the risk. Individual situations are mapped onto the matrix to provide a ready and consistent indication of their acceptability or tolerability.

TABLE 2. RISK CLASSIFICATION MATRIX

		Consequence			
		Severe (Sv)	Medium (Md)	Mild (Mi)	Minor (Mr)
Probability	High (Hi)	Very high risk	High risk	Moderate Risk	Moderate/Low Risk
	Likely (Li)	High risk	Moderate Risk	Moderate/Low Risk	Low Risk
	Low Likelihood (Lw)	Moderate Risk	Moderate/Low Risk	Low Risk	Very Low Risk
	Unlikely (UI)	Moderate/Low Risk	Low Risk	Very Low Risk	Very Low Risk

Source: CIRIA Report C552, Contaminated Land Risk Assessment. A Guide to Good Practice, 2001

These attributes are evaluated qualitatively against individual hazard assessments to determine the likelihood of a given hazard occurring. The risk evaluations for each plausible pollutant linkage are given in the last three columns of Table 1.

TABLE 3. CLASSIFICATION OF RISK

<b>Very high risk (Vh)</b>	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
<b>High risk (Hi)</b>	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short-term and are likely over the longer term.
<b>Moderate risk (Md)</b>	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer-term.
<b>Low risk (Lw)</b>	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
<b>Very low risk (Vl)</b>	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

Source: CIRIA Report C552, Contaminated Land Risk Assessment. A Guide to Good Practice, 2001

## 10.0 PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT

Based on the information contained in this report, it is the opinion of Castledine & Co that the site represents a **LOW** risk in respect to soil contamination and a **LOW to MODERATE** level of risk with respect to ground gasses.

**It is recommended that remediation by way of installation of ground gas protection measures (in-line with section 11.0) is planned and carried out as part of the site development. It is also recommended a Watching Brief (inline with Appendix I) be applied during the site and groundworks.**

**This report should be submitted to your Local Planning Authority for agreement to allow the Phase 3 Remediation Strategy and Verification Plan to be written.**

## **11.0 SUMMARY OF RISKS**

### **11.1.1 SOIL CONTAMINATION**

Historically, the site has been occupied by the dwelling and barn structure as seen today since at least circa.1886. The structures on site at this time match the layout and orientation as those in the present-day. The site then changes relatively little on historical mapping until the present-day and No significant sources of onsite contamination have been identified. The surrounding areas, however, see great change over time. Croft Quarry to the north and its associated industrial areas to the north east and east of site have seen extensive enlargement and development over time. Initially, the quarry was relatively small and the industrial areas, tramways and sidings located north east and east of site were larger than the quarry. Over time both the quarry and the associated industrial areas saw great extension, with railway sidings, storage areas, works and a travelling crane extending to within close proximity of the eastern extent of site by circa.1903 through to 1967, when the sidings were removed and replaced with the crane. From circa.1967 to the present-day, the area was used for storage and industrial processes before being used for storage in the present-day (multiple heaps and vehicle movements). Furthermore, the area immediately south of site has been identified as occupied by unspecified structures, followed by a clubhouse and cricket club building and an access track. These features were then demolished. The industrial area immediately east of site and the demolished structures south of site, which are both located adjacent to proposed areas of soft-landscaping, were considered potentially contaminated sources. Sampling of this area of soft-landscaping was carried out, with laboratory analysis identifying no exceedances or significant contamination. As such, the risks from soil contamination on site are considered low. The remaining garden area, noted in the southern extent of site, was noted to be largely concreted, paved or occupied by shed, coop or outbuilding. This area is to remain as such and the risks here are also considered low.



### **11.1.2 GROUND GASSES AND VAPOURS**

No significant sources of vapour generation identified. Potential sources of ground gas including proximate alluvial deposits, adjacent made ground deposits and a landfill record beyond made ground areas have been identified. Due to the nature of the geology in the area, the made ground located between site and the former refuse heap along with the made ground itself, the site is considered to be at a moderate risk from ground gas ingress. Furthermore, the site is known to be in an area where flooding occurs and as such, changes in the ground water regime and flooding regime mean that site conditions and the ground gas regime may change over time.

### **12.0 RECOMMENDATIONS**

It is recommended that ground gas protection measures are installed in the proposed development, to protect against any potential ingress from identified nearby features (made ground / alluvial deposits) and against any potential ground gas regime changes due to future flooding events or groundwater changes. In regard to site soils, sampling of areas of present and proposed soft-landscaping has shown no exceedances nor presence of any contaminants. As such, no remedial work is considered necessary to areas of proposed soft-landscaping; however, it is recommended that a Watching Brief (inline with Appendix I) is applied during the site works.

When this report has been agreed with your Local Planning Authority, a Phase 3 Remediation Strategy and Verification Plan would need to be produced.

### **13.0 FURTHER ENVIRONMENTAL INVESTIGATION**

It is not envisaged that further testing will be required.

**14.0 REFERENCES****14.1 LEGISLATION AND REGULATIONS****14.1.1 ACTS**

- [1] Environmental Protection Act 1990, Part IIA: inserted by Environment Act 1995, Section 57. See Environment Act 1995 for text of Part IIA.

**14.1.2 PLANNING REGULATIONS**

- [2] The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 SI1999/No.293
- [3] The Town and Country Planning (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2000 SI2000/No.2867

**14.1.3 CONTAMINATED LAND REGULATIONS**

- [4] The Contaminated Land (England) Regulations 2000. SI2000/No.227
- [5] The Contaminated Land (England) (Amendment) Regulations 2001 SI2001/No.663
- [6] The Contaminated Land (England) Regulations 2006 SI2006/No.1380

**14.2 STATUTORY GUIDANCE**

- [7] Department of Environment, Food and Rural Affairs. 2012. *Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance*. Department of Environment, Food and Rural Affairs
- [8] Communities and local Government, 2018: National Planning Policy Framework.

**14.3 BRITISH STANDARDS**

- [9] BS 5930:2015 Code of practice for site investigations
- [10] BS 10175:2011+A2:2017 Investigation of potentially contaminated sites - Code of practice
- [11] BS 8485:2015+A1:2019 BS 8485 - 2015 - Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings
- [12] BS 8576:2013 Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs)

**14.4 NON STATUTORY TECHNICAL GUIDANCE****14.4.1 ENVIRONMENT AGENCY**

- [13] Cassella Stranger, 2002. Model Procedures for the Management of Contaminated Land, Contaminated Land Report (CLR) 11, Department for Environment, Food, and Rural Affairs.

**14.4.2 CIRIA PUBLICATIONS**

- [14] Wilson, S., Oliver, S., Mallett, H., Hutchings, H., and Card, G.. 2007, *C 665 Assessing risks posed by hazardous ground gases to buildings* London: Construction Industry Research and Information Association
- [15] Mallett, H., Cox, L., Wilson, S. and ,Corban M... 2014, *C 735 Good practice on the testing and verification of protection systems for buildings against hazardous ground gases* London: Construction Industry Research and Information Association

**14.4.3 CL:AIRE**

- [16] Card G, Wilson S, Mortimer S. 2012. *A Pragmatic Approach to Ground Gas Risk Assessment. CL:AIRE Research Bulletin RB17.* CL:AIRE, London, UK. ISSN 2047- 6450 (Online)

**15.0 APPENDICES**

**APPENDIX A**

**ENVIRONMENTAL SEARCH**

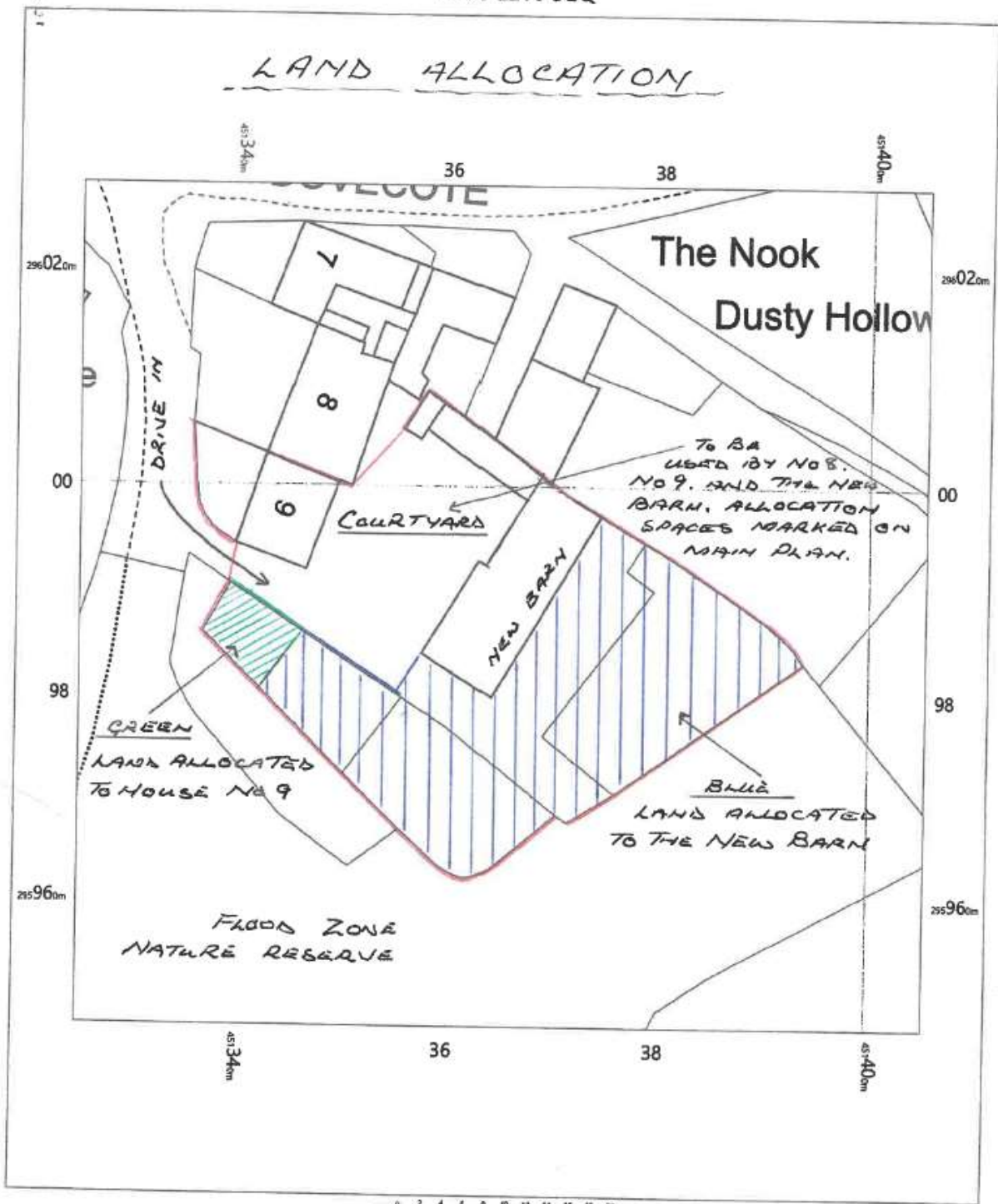
**APPENDIX B**

**HISTORICAL MAPS**

APPENDIX C

PROPOSED AND CURRENT SITE PLANS

1:500 LE10 3EQ



OS MasterMap 1250/2500/10000 scale  
 Thursday, October 3, 2019, ID: JEW-00831898  
 maps.johnwright.com  
 1:500 scale print at A4, Centre: 451365 E, 295988 N  
 ©Crown Copyright Ordnance Survey. Licence no. 100025568



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APPENDIX D

SITE PHOTOS AND LOCATIONS



Site Walkover Photos

**Photo No.1: Facing SE from the site access showing gravelled site access track**



**Address: The Barn, No.9 The Green, Croft**  
**Client: Mr. S. Elliot**

**Photo No.2: Facing east from site access track showing dilapidated barn and parking area**





**Castledine & Co**

Land Contamination Survey Specialist

**Site Walkover Photos**

**Photo No.3: Facing slightly NW from adjacent to the barn showing site access and dwelling**



**Address: The Barn, No.9 The Green, Croft**

**Client: Mr. S. Elliot**

**Photo No.4: Facing north showing the rear (eastern) face of the dilapidated barn**



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Land Contamination Survey Specialist

**Site Walkover Photos**

**Photo No.5: Facing SE showing garden area located in eastern extent of site**



**Address: The Barn, No.9 The Green, Croft**

**Client: Mr. S. Elliot**

**Photo No.6: Facing NW from the easternmost boundary on site and garden area showing barn**



**Castledine & Co**  
Land Contamination Survey Specialist

**Site Walkover Photos**

**Address: The Barn, No.9 The Green, Croft**

**Client: Mr. S. Elliot**

**Photo No.7: Facing SE in the southern gardened area to the southernmost corner of site**

**Photo No.8: Facing SE showing SE / S extent of site and chicken coop in well maintained garden**

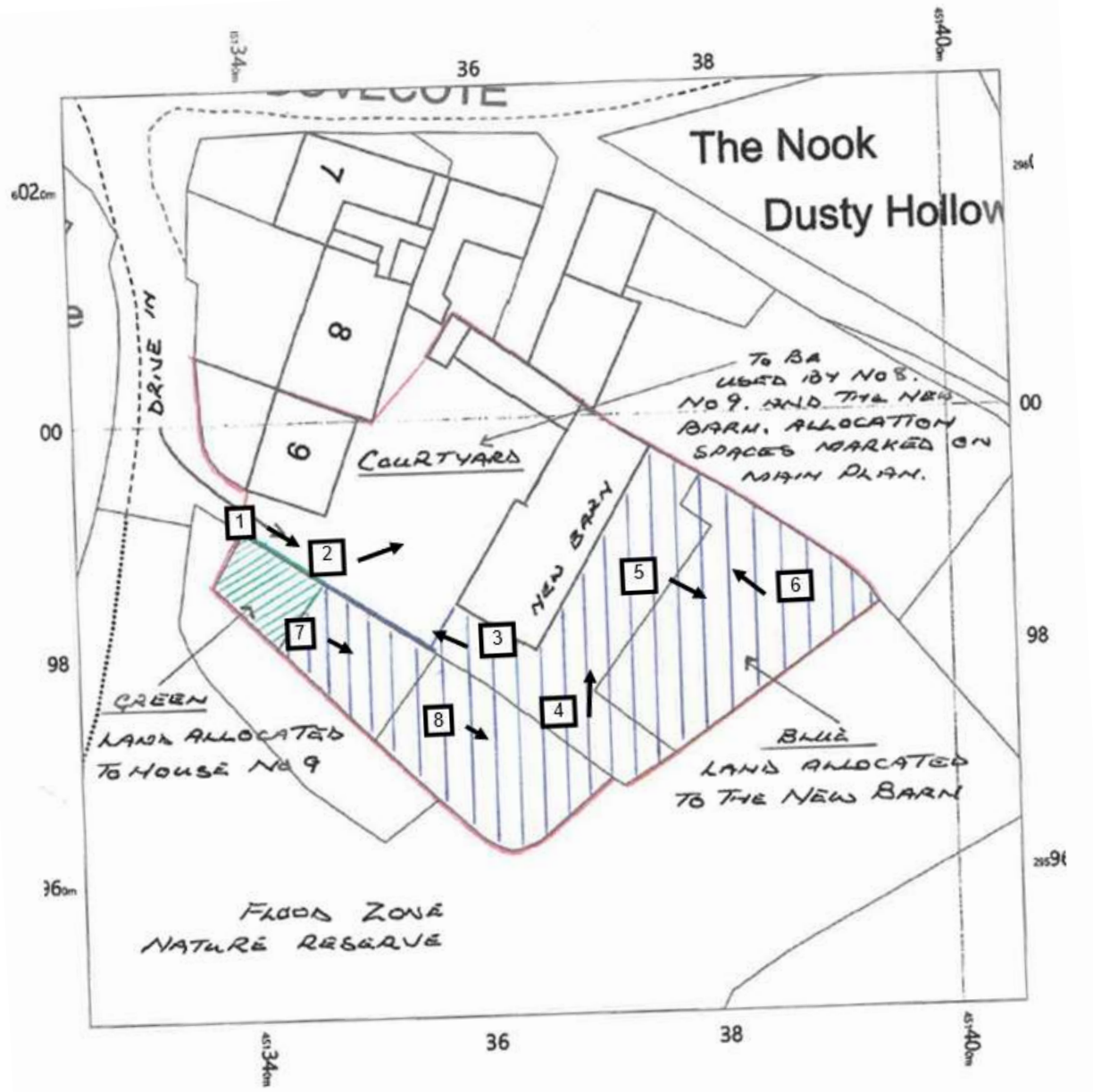


**Castledine & Co Environmental Consultants, 4 Wymeswold Road, Hoton, Loughborough, Leicestershire. LE12 5SN**

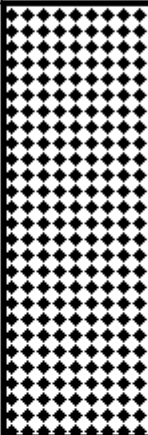
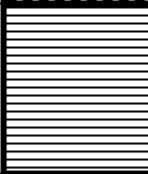
**Telephone: 01509 880399**

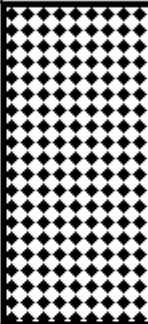
**Mobile: 07779 305682**

**[admin@castledine.co](mailto:admin@castledine.co)**



**APPENDIX E HAND PIT LOGS**

Project.	The Barn, No.9 The Green, Croft, Blaby		Hand Pit			
			HP01			
Client.	Mr. M. Elliot		Date			
			10/12/2021			
Method.			Project Reference.			
	Hand-excavated		1609D			
Groundwater	Depth (m)	Description of Strata	Legend	Samples		
				Type	Depth (m)	
					From	To
No groundwater encountered	0.40	Dark brown to light brown slightly clayey, slightly gravelly, very sandy TOPSOIL with a lens of brown, medium sand and gravel of rounded to subrounded, fine to medium, of quartzite and sandstone and rootlets.		ES	0.10	0.15
	0.55	Brown very sandy, slightly gravelly CLAY, gravel is medium to coarse, rounded of quartzite.		ES	0.50	0.55
		End of pit at 0.55m				
Remarks		Key			<b>Castledine &amp; Co</b>	
		Logged By	Scale	Sheet		
		DW	Not to Scale	1 of 1		

Project.	The Barn, No.9 The Green, Croft, Blaby			Hand Pit		
				HP02		
Client.	Mr. M. Elliot			Date		
				10/12/2021		
Method.				Project Reference.		
	Hand-excavated			1609D		
Groundwater	Depth (m)	Description of Strata	Legend	Samples		
				Type	Depth (m)	
					From	To
	0.30	Dark brown slightly clayey, slightly gravelly, very sandy MADE GROUND TOPSOIL with gravel sized fragments of angular, fine to medium brick, ceramic and wood and subrounded to rounded medium of sandstone and quartzite with rootlets.		ES	0.20	0.25
		End of pit at 0.30m				
Remarks		Key			<b>Castledine &amp; Co</b>	
		Logged By	Scale	Sheet		
		DW	Not to Scale	1 of 1		

**APPENDIX F**

**HAND PIT PHOTOGRAPHS**

**Castledine & Co**  
Land Contamination Survey Specialist

**Trial Pit Photographs**

**Photo No.1: HP01 located in area of present soft-landscaping in the eastern extent of site**



**Address: The Barn. No.9 The Green, Croft**  
**Client: Mr. S. Elliot**

**Photo No.2: HP01 pit spoil showing sandy clay, topsoil and rounded gravel inclusions**



**Castledine & Co**  
Land Contamination Survey Specialist

**Trial Pit Photographs**

**Address: The Barn. No.9 The Green, Croft**

**Client: Mr. S. Elliot**

**Photo No.3: HP02 located in the northern extent of the far eastern area of present soft-landscaping**

**Photo No.4: HP02 pit sides and base**

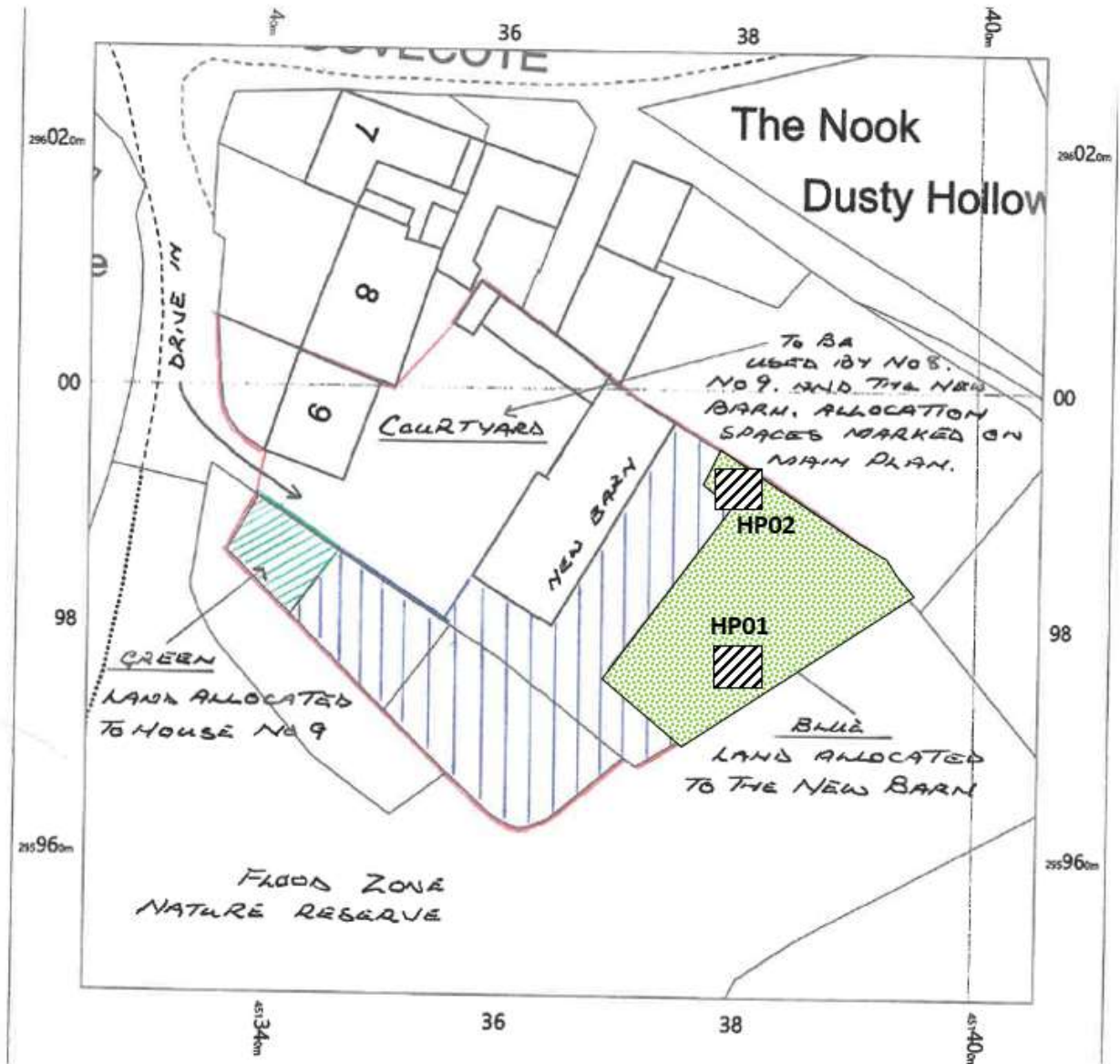


**Castledine & Co**, 4 Wymeswold Road, Hoton, Loughborough, Leicestershire. LE12 5SN  
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APPENDIX G

HAND PIT LOCATION PLAN



**APPENDIX H**

**LABORATORY RESULTS**

**APPENDIX I                      WATCHING BRIEF**

It remains possible that previously unexpected soil conditions may be encountered during the construction process. Examples may include oily pockets within the soil, potential for asbestos containing materials, black ash materials, soils exhibiting strong odours, brightly coloured materials, and former demolition materials.

Should previously undiscovered contamination be encountered during the demolition/construction of the new buildings the following course of action should be adhered to:

1. The ground workers should report any suspected contamination immediately to the Client's site supervisor. The supervisor should contact the Client or their appointed agent who will in turn contact Castledine & co to request an engineer to visit the site to assess the extent of the 'contamination'.
2. Castledine & co shall make records of their inspection, and pass details of these to the Local Authority.
3. Where the conditions revealed differ from those previously anticipated, the Castledine & co shall take samples as deemed appropriate to be dispatched for appropriate chemical testing.
4. Depending on the results of the testing either:
  - a. no further work will be required;
  - b. a further detailed risk assessment will be required; and/or
  - c. Localised specific remedial measures will be necessary.  
Appraisal criteria will vary depending on the nature of the assessment.
5. The results of any such testing will be sent to the Local Authority Pollution Control Section, Local Authority development control section, and the appointed building inspector. If remediation is required, the LA/Building inspector will be informed of the date and time of the proposed works.

6. Remediation will be undertaken in accordance with a method statement submitted for approval. The works shall be supervised where necessary by Castledine & co who shall provide a Verification Report for the Local Authorities.
7. A copy of the discovery strategy should be lodged on site and provisions made to ensure that all workers are made aware of their responsibility to observe, report and act on any potentially suspicious or contaminated materials they may encounter.

