ORACLE
Environmental Experts

REMEDIAL WORKS METHOD STATEMENT

BLAKE HOUSE

BLAKE END

RAYNE

BRAINTREE

CM77 6RA

PREPARED FOR BRAINTREE DISTRICT COUNCIL

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DOCUMENT CONTROL RECORD

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Prepared For:	Braintree District Council
Client Reference:	21/01659/LBC
Project Name:	W H & J Harvey Partnership, Braintree
Project Reference:	P211093
Site Address:	Blake House, Blake House, Rayne, Braintree, CM77 6RA
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Reviewed and Approved By:	Dr Diane Green BSc (Hons) MSc PhD FGS Director [redacted]
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APPENDICES

1.0 PROJECT/SITE DETAILS

1.1 Site Description

The property is a 2 storey detached Grade II Listed building with separate brick built garage outbuilding to store items and vehicles. The property is set within a farm comprising of a corn barn in a courtyard of restored 18th and 19th century listed buildings including stables and cattle sheds. The units to the south of Blake House are currently occupied as the 'Blake House Craft Centre' which houses local businesses and a tea room. Blake House itself dates to the 17th Century and is of timber frame construction with suspended timber floors and a pebble dash render finish to the external walls.

The property is serviced by mains electric and telecoms which enter the property overhead. The property is also serviced by mains water and sewage discharges to a septic tank. There is a pond located to the north west of the garage outbuilding.

The property is served by a plastic oil storage tank (OST) with an approximate capacity of 2,500 litres located adjacent to the garage outbuilding. The OST is of unknown age as was there when the insured first moved into the property. The fuel transfer line (FTL) runs from the OST below ground beneath the garage outbuilding and emerges in the boiler room in the garage where it feeds the boiler.

1.2 Incident Summary

During the first national lockdown last year a number of tenants of the units to the south of Blake House were alerted to a contaminated water supply. The tenants subsequently contacted Anglian Water to investigate the issue. Dark oily water was identified by the insured within a water main inspection chamber located in the rear garden of Blake House. The remedial works commenced on 6 April 2021 which included the installation of a temporary oil storage tank (OST) at the property so that the current OST could be disconnected and inspected by an OFTEC registered engineer. Despite the apparently poor condition of the OST there were no splits or cracks identified to suggest that the OST has leaked. The boiler was therefore inspected after the OST had been ruled out as the cause of the leak. The boiler was opened to allow the parts inside to be inspected which revealed the pump to be dripping with oil. The boiler tray was also noted to be full of kerosene. The boiler itself is very old and is understood not have been serviced many times in the past as repairs would normally be made by the insured's late husband. The insured contacted an OFTEC registered engineer to fix the boiler who has since been to the property and repaired the boiler. It has been recommended to the insured that the boiler and OST are replaced.

An intrusive investigation was undertaken by Oracle Environmental Experts (OEE) on 11 and 12 August 2021 within the garage to delineate the extent of contamination below the floor slab. The results of the investigation concluded that further remedial works were required at the property, including the excavation of kerosene contaminated soils below the garage building as detailed in the scope of works below.

1.3 Scope

Preliminary Works

- Due to the age of the building and the requirement to undertake internal excavations a refurbishment / demolition asbestos survey will be undertaken to assess for the presence of ACM in the rooms requiring remediation.
- All items within all rooms of the garage will be temporarily moved and placed into storage for the duration of the works. A shipping container will be placed on the lawn to the south of the driveway or elsewhere on the site in agreement with the insured.
- The boiler within the boiler room is to be temporarily relocated by an OFTEC registered engineer to allow access to the contaminated soils below the spill origin. The temporary OST will also require relocating by an OFTEC registered engineer to allow the concrete and soils to be removed from below its current location.
- The generator within the boiler room is to be removed and placed into temporary storage for the duration of the works by a suitably trained electrician.

Remedial Works

Boiler Room

- The concrete floor of the boiler room will be broken out over the entire footprint of the boiler room measuring approximately 10 square metres (m^2). The kerosene contaminated soils below will be excavated to the depth of the footings at 0.9 m below floor level (bfl) at the dividing wall between the boiler room and the office.
- The footings of the north western wall are much shallower at 0.4 m bfl and will be excavated to this depth against this wall and stepped out at a 45° to maintain stability of the wall. The contaminated arisings will be transferred to the skip for appropriate disposal.

Office

- The carpet and underlay in the office will be lifted and removed from site for appropriate disposal.
- It is anticipated that power cables are passing below the office floor therefore great care will be taken when breaking out the concrete and excavating below. The floor should be scanned using a CAT and Genny by an appropriately trained person.
- The concrete floor slab will be broken out over the entire footprint of the room measuring approximately 13 m^2. The kerosene contaminated soil below will be excavated to a provisional depth of the footings known to be approximately 0.9 m bfl on the dividing wall with the boiler room. The sides of the excavation with the external walls will be excavated to the depth of the footings thought to be 0.4 m bfl or unless deeper footings are encountered.

Room 1

- The concrete floor slab will be broken out over the entire footprint of the room measuring approximately 18 m^2. The soils below will be excavated to the depth of the footings and stepped out at a 45° slope if found to be shallower than 1.0 m bfl.
- Care will be taken when excavating in the vicinity of the brick archway as the below ground construction / foundation is not known.

Room 2

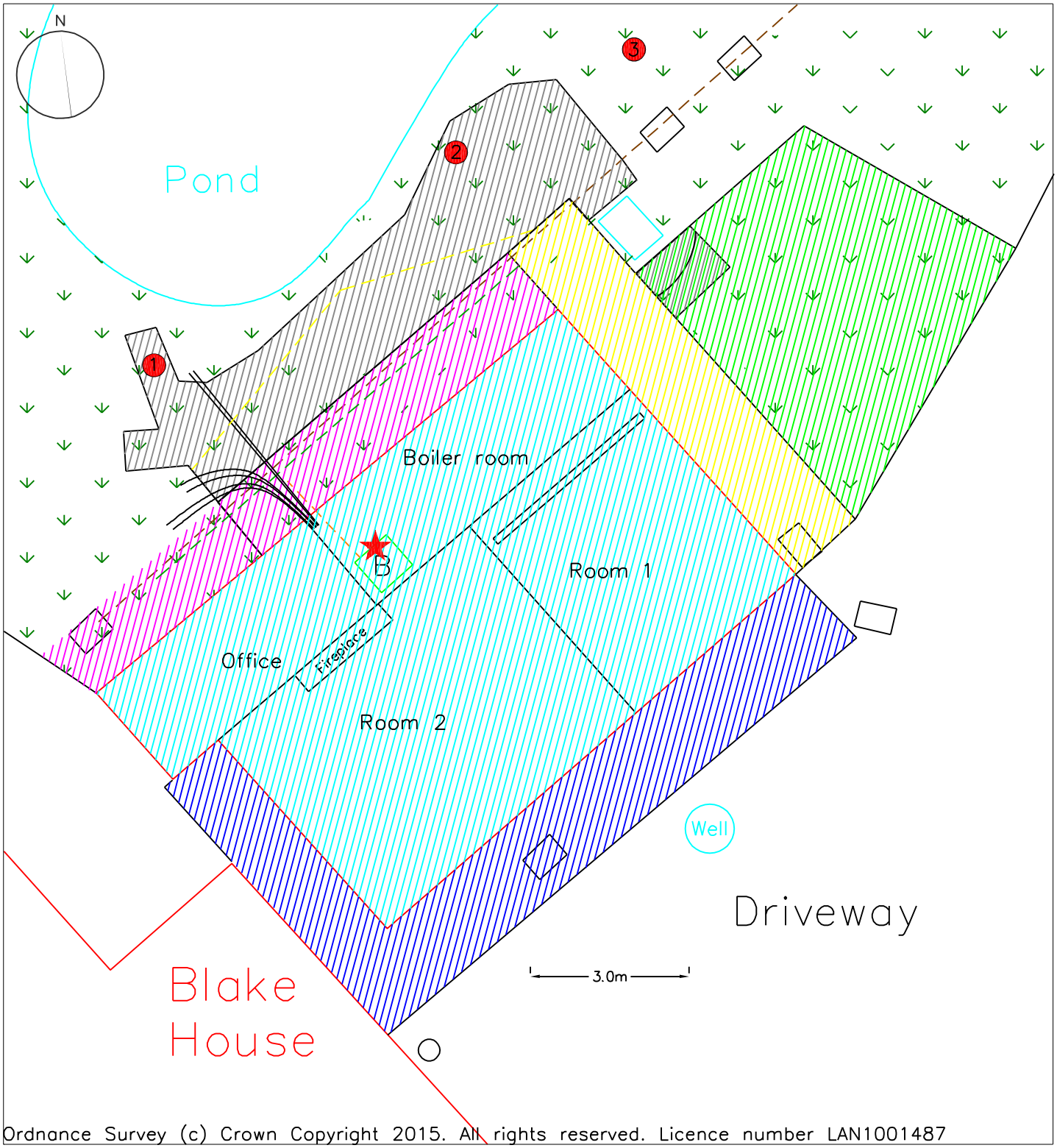
- The concrete floor slab will be broken out over the entire footprint of the room measuring approximately 30 m^2. The soils below will be excavated to the depth of the footings and stepped out at a 45° slope if found to be shallower than 1.0 m bfl.
- It is at this point that OEE will attend site and undertake a detailed probehole survey of all exposed below ground structures. It is anticipated that sub floor structures may require replacement or in situ treatment and therefore a structural engineer will be appointed at this stage to comment on the safe procedure for removal of the contaminated structures.

External Soils

- The excavation will extend out from the boiler room to encompass the concrete hardstanding parallel with the north eastern wall of the building (where the temporary OST is currently located). Kerosene contaminated soils will be excavated over a further 12 m^2 area external to the building to a depth of 1.2 m below ground level (bgl) (Figure 2, yellow hatch).
- The soils external to the north western wall of the garage will be excavated to a depth of 1.0 m bgl following the advice of a structural engineer. The old clay pipe that feeds the septic tank will require replacement as it will likely break once disturbed.
- The excavation will also extend out from the office and room 2 toward Blake House covering an approximate 8 m^2 area to a depth of 1.0 m bgl. The soils will be excavated toward the below ground structures of the house. The side of the excavation with the main dwelling will then be assessed via laterally progressed soil bores to establish if kerosene has migrated below Blake House itself.
- An approximate 16 m^2 area of the driveway will be broken out between the opening of rooms 1 & 2 and the well to a depth of 1.0 m bgl. This will link up with the excavation against Blake House in a 'L' shape.

1.4 Timescales	
Start Date	TBC
Duration	5 weeks
1.5 Supervision	
OEE Supervisor	Becky Wadley

2.0 GROUNDWATER TREATMENT	
Installation Date	7 April 2021
Recommendations	It is recommended that the groundwater treatment system remains in operation to treat the contaminated water and to prevent oily water recharging into the excavations. It is apparent that kerosene impact is likely to be present a depths over 1.2 m bgl having been mobilised by fluctuating perched and/or groundwater. It is recommended that an investigation of the vertical extent of sub surface kerosene impact in conjunction with an investigation to determine the lateral extent of groundwater contamination is undertaken using window sampling techniques. A further update will be issued detailing the scope for a groundwater investigation separately to this method statement once remedial works commence.



LEGEND

- Spill origin
- B Boiler
- 1 Sump
- Foul water drain
- Land drain
- Metal pipe
- Electric cables
- Lawn
- Current excavation
- Proposed excavation inside the garage
- Deepen excavation to 1.0 mbgl
- Proposed driveway excavation
- Proposed external excavation in lawn
- Proposed excavation of concrete and soils

PROJECT	PROJECT REF.
W H & J Harvey Partnership, Braintree	P211093

TITLE

Figure 1: Remedial Plan

CLIENT	CLIENT REF.	SCALE	DATE
Braintree District Council	21/01659/LBC	10x10 m Grid	13/08/2021

BW	DG	0
Drawn by	Checked by	Rev

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Photo 1: Front elevation to the property.

Photo 2: Rear elevation to the property.

Photo 3: Temporary OST installed to maintain a supply of fuel to the boiler. Boiler located through garage door on the right.

Photo 4: Extent of current remedial excavation to the north of the garage.

Photo 5: View of the garage door openings to room 1 (right) and room 2 (left).

Photo 6: View inside of room 1 and view of brick archway towards the back. The roof beyond is that of the boiler room.

Photo 7: View inside room 2. A fireplace is located behind the wooden bookshelf at the back.

Photo 8: View inside of the office.

Photo 9: View inside the boiler room which houses the boiler (far left back corner).

Photo 10: View of the boiler and location of the spill origin.

Photo 11: View of generator which will require removal to allow access to the soils below.

Photo 12: Brick structure within the boiler room.

Photo 13: View of soil arisings hand dug from trial pit TP-3.

Photo 14: View of below ground brickwork exposed within TP-3.

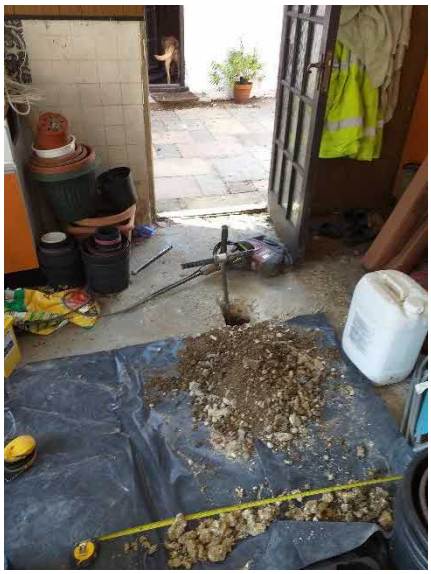

Photo 15: View of location of TP-5. Note doorway leads out to paved area and door to main dwelling observed left of plant pot.