

STAGE 1 PRELIMINARY UXO RISK ASSESSMENT

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Client: JNP Group Consulting Engineers Limited

Project: The Bungalow Site, New Years Green Lane, Harefield

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INTRODUCTION

The Stage 1 Preliminary Risk Assessment is an initial screening assessment designed to highlight any sources of unexploded ordnance (UXO) with the potential to contaminate a given site.

The aim of the Stage 1 assessment is to identify or discount the need for further detailed research - a Stage 2 Detailed UXO Risk Assessment.

This desktop assessment has been researched and written by a dedicated Researcher / Risk Assessor and produced in accordance with the CIRIA C681 Guidelines: 'Unexploded Ordnance, a Guide for the Construction Industry' (published in 2009).

In preparation for this assessment, original wartime records, historic OS mapping and the *Brimstone UXO Sources Database* have been reviewed. The latter incorporates multiple datasets plotting the positions of a variety of domestic military sites and confirmed historic German bombing targets.

The Stage 1 Preliminary Risk Assessment considers the following:

1. The Proposed Works
2. Enemy Action During WWI and WWII
3. British / Allied Military Activity
4. Historic Site Occupancy
5. Risk Mitigating Factors

THE SITE

The Site (approximately centred on the National Grid Ref: TQ 06232 88173) is situated in Harefield, within the London Borough of Hillingdon, approximately 2km north-east of Denham railway station.

The Site largely comprises undeveloped, open ground, with three structures situated in the north and centre, and mature vegetation in the south and centre.

The Site is bound to the north, east and west by further undeveloped, open ground, and to the south by Newyears Green Lane.



THE PROPOSED WORKS

SI works will comprise five window sample boreholes to 5m bgl, as well as shallow hand pits to 0.5m bgl.

Development works comprise the clearance of existing structures in the north and centre, and the construction of new structures across the Site, as well as associated accessways.

ENEMY ACTION DURING WWI AND WWII

Potential Source of UXO	Significant?	Details
WWI German Bombing	✗	No air raids affected Harefield during WWI.

WWII German Bombing	British District Bombing Density Statistics	The Site was situated within the WWII-era Urban District of Uxbridge, which sustained 20.7 bombs / 1,000 acres, a low-to-moderate bombing density.
	Evidence of Bomb Strikes / Damage	<p>London bomb census mapping records two parachute mines within an approximate 500m radius of the Site, the closest striking approximately 10m north-west of the Site. However, no bomb strikes are recorded on Site. Since parachute mines were dropped in pairs at the same time, these mines likely originated from the same aircraft during a single air raid.</p> <p>Due to the Site's undeveloped wartime composition, Middlesex County Council (MCC) war damage mapping does not record any damage on Site. No damage is recorded to structures in the vicinity.</p> <p>Post-WWII aerial photography does not reveal any immediately obvious evidence of damage, such as cratering or roof repairs, to the undeveloped ground on Site or to structures in the vicinity; however, it should be noted that aerial photography for the Site is low resolution at this stage, and high-resolution photography would need to be obtained to enable an accurate analysis of the Site.</p>
	Local Bombing Decoy Sites	None situated within a significant distance of the Site. The closest was located approximately 10.5km south-east.
	Local German Bombing Targets	<p>Luftwaffe target photography identifies a barrage balloon site, approximately 2.6km south-east of the Site, as a primary target.</p> <p>The Site was also situated approximately 3km south-east of RAF Denham, which may have been identified as a target of opportunity.</p>

WWII German Cross Channel Artillery Shelling

✗

n/a

BRITISH / ALLIED MILITARY ACTIVITY

Potential Source of UXO	Significant?	Details
WWII Home Guard (HG) Activity	✗/✓	Soldiers of the 13 th Middlesex (Ruislip) and 14 th Middlesex (Uxbridge) HG Battalions may have been active locally during WWII. The possibility that the Site was accessed by armed HG troops on patrol cannot be discounted at this stage due to its undeveloped nature.
Site Requisitioned for Wartime Military Use	✗/✓	No such evidence found at this stage. The possibility that the Site was requisitioned for temporary wartime use cannot be ruled out entirely (e.g., tented military camp, LAA gun battery, searchlight battery, RAF balloon site).

Existing or Historic Army or RAF Training Area / Weapons Range	x	n/a
Existing or Historic Military Bases and Other Installations	x	n/a
Existing or Historic Munitions or Explosives Factories	x	An in-house geodata set records an RAF fuel storage site approximately 885m south of the Site.
Existing or Historic Military Defensive Fortifications	x	n/a
WWII Light and / or Heavy Anti-Aircraft (LAA and HAA) Fire	x/✓	Approximately 14 permanent HAA batteries were active within range of the Site during WWII. LAA guns may have defended vulnerable points within the wider area also. Luftwaffe activity in the wider region was relatively frequent. It is possible that an unexploded AA shell struck the Site and penetrated to a shallow depth.
Pipe-Mined Locations and Beach Minefields	x	n/a
UXO Finds	x	n/a

SITE HISTORY

What was the Site occupancy historically, especially during WWI and WWII?	During WWII, the Site comprised an area of undeveloped ground on an area of sand pits. It was bound to the north and west by further areas of the sand pits, to the east by undeveloped, open ground, and to the south by Newyears Green Lane.
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RISK MITIGATING FACTORS

Post-Conflict Ground Works	<p>Post-conflict ground works comprise the likely infill of the sand pits, as well as the construction of the three existing structures and laying of associated hardstanding; this is known to have occurred by 1999.</p> <p>General maintenance of the open ground, as well as the laying of hardstanding, is anticipated to have disturbed WWII-era soil to very shallow (<1m bgl) depths in varied levels across the Site. The construction of the three structures is anticipated to have disturbed WWII-era soil to shallow (1-2m bgl) depths in their footprints. It is possible that WWII-era soil to deep (>2m bgl) depths was disturbed if any additional excavation of the sand pits occurred post-WWII.</p>
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Likelihood of UXO Remaining

The risk associated with (any) very shallow buried UXO will have been partially mitigated across the Site. The risk associated with (any) shallow buried UXO will have been partially mitigated in the footprint of the post-conflict structures. The risk associated with (any) deep buried UXO may have been partially mitigated; however, it should be noted that UXO may be found at deeper depths than is typical, due to the anticipated infill of the sand pits and potential excavation of the Site. If this were to be the case, there would be considered to be no risk of encountering UXO within fill added to the Site post-WWII.

CONCLUSIONS

German UXO:

- The Site was situated within the WWII-era Urban District of Uxbridge, which sustained 20.7 bombs / 1,000 acres, a low-to-moderate bombing density. Luftwaffe target photography identifies a barrage balloon site, approximately 2.6km south-east of the Site, as a primary target in the area.
- Two parachute mines are recorded within an approximate 500m radius of the Site. The closest is recorded approximately 10m north-west of the Site, in an area of the sand pits. However, no bomb strikes are recorded on Site.
- Post-WWII aerial photography does not reveal any immediately obvious evidence of bomb damage, such as cratering, on Site or in the immediate surrounds.
- Due to the Site's undeveloped composition, situated in an area of sand pits, it is possible that any evidence of a UXB strike could have occurred unobserved and been obscured, and therefore went unreported. While access to the Site is anticipated to have been somewhat frequent, being accessed by employees; this may have added a degree of monitor over the Site.
- In conclusion, while no bomb strikes are recorded on Site, the closest incident was plotted approximately 10m north-west. Due to enemy action recorded in the immediate vicinity, as well as wartime conditions potentially unconducive to the detection of UXO, planned works on Site may be exposed to a UXB encounter and further research is deemed necessary.

British / Allied UXO:

- No evidence of significant military activity on Site has been found and none is likely to have occurred.
- Approximately 14 HAA batteries were active within range of the Site. It is possible that an unexploded British AA shell may have struck the Site and penetrated to a shallow depth.

RECOMMENDATIONS

SI Works

A **Stage 2 Detailed Risk Assessment** is recommended in order to further assess the risk to proposed works. In lieu of a Detailed UXO Assessment, Brimstone recommends on-Site support for any planned ground works.

Development Works