



MEMO

TO	Rob Hares	FROM	Chris Summers
DATE	02 February 2024	CONFIDENTIALITY	Confidential
SUBJECT	JHP SITE, TIPNER – Contamination and UXO		

Introduction

The JHP Site has a mixed military and industrial history which has left a potential legacy of ground contamination across the proposed development area. The site has been subject to a large number of land contamination assessments by various parties during the period of 1994 to 2021. Whilst most of these assessments have been made available to WSP UK Ltd, additional site investigations are required to address data gaps in support of progressing the Site through the planning process.

Historical Reports

The Site has been the subject of a number of desk studies, ground investigations and summary reports, some of which have been provided by the Client for review. A summary report provided by Lake Environmental (LE) in 2013 and, upon further review from WSP, is considered to provide a sufficiently in-depth review of the available information to 2013.

The LE report references four sources of desk study information:

- Tipner/Stamshaw area desk study – Parkman Environment, 1994;
- Tipner redevelopment area, Portsmouth desk study report – C L Associates, 1996;
- Tipner West, Portsmouth contaminated land desk study – Gifford, 2001; and,
- Tipner site desk study report – IKM, 2005.

All information pertaining to intrusive ground investigations were sourced by LE from the following two reports:

- Tipner, Portsmouth factual and interpretative report – IKM, 2006; and,
- Tipner, Portsmouth geo-environmental interpretative report – IKM, 2009-2010.

WSP Report

The most recent intrusive investigation works were undertaken in February 2021 by WSP and reported in the following document:

- JHP Site, Tipner, Generic Quantitative Risk Assessment – WSP, Ref 70064592-R00, April 2021

The investigation was restricted as there were areas across the Site, where investigation works could not take place owing to site operational activities.

The GQRA confirmed the following findings for human health, groundwater and ground gas risk assessments.

HUMAN HEALTH RISK ASSESSMENT

Asbestos containing materials were identified in 12 Made Ground samples at nine locations on the Site, one of which recorded the presence of a piece of asbestos cement sheet. Given the heterogeneous nature of the

Made Ground deposits and the former land uses identified at the Site, the presence of asbestos within Made Ground in other areas of the Site cannot be discounted and there is considered to be a **Moderate** risk to construction workers during the works. Future site users and potentially third-party neighbours are considered not to be at risk as the Site is to be hard surfaced or beneath the footprints of commercial building footprints. If soft landscaping is recommended that a chemically validated capping layer and geotextile membrane is utilised within the area of soft landscaping to mitigate the risks. Following mitigation, the risk in unsealed areas is considered to be **Low**.

GROUNDWATER RISK ASSESSEMNT

Based on the assessment of the soil leachate and groundwater results, the overall risk to groundwater underlying the Site is considered to be **Low to Moderate**. Risk to the adjacent Portsmouth Harbour Waters from groundwater within the Made Ground, Tidal Flat Deposits and Lewes Nodular Chalk, Seaford Chalk and Portsdown Chalk Formation underlying the Site is considered to be **Low to Moderate**.

This assessment is based upon the following:

- The leachate exceedances represent a risk from contaminants within Made Ground leaching down to the groundwater within the Made Ground, Tidal Flat Deposits and Lewes Nodular Chalk, Seaford Chalk and Portsdown Chalk Formation and migrating laterally towards the tidal waters of Portsmouth Harbour. The whole of the proposed development includes hardstanding or building cover providing betterment, by restricting rainfall infiltration to the subsurface and therefore restricting the leaching of contaminants from shallow soils into the underlying groundwater.
- Although contaminant impact has been observed within groundwater within the Made Ground and tidal flat deposits this is generally not reflected within the Lewes Nodular Chalk, Seaford Chalk and Portsdown Chalk Formation apart from concentrations of Zinc recorded above the EQS from the recent monitoring investigation works.
- The heavy metal groundwater concentrations recorded from the recent investigation are within two magnitudes of the EQS protective of coastal waters.
- Groundwater level monitoring indicates that it is tidally-influenced beneath the site.

GROUND GAS RISK ASSESSMENT

Based on the monitoring data, a maximum GSV of 0.0001 l/hr was calculated for methane, and a maximum GSV of 0.0025 l/hr was calculated for carbon dioxide. These maximum calculated values are indicative of Characteristic Situation 1.

Based on the nature of the organic tidal flat deposits encountered towards the north east of the site further monitoring wells should target these deposits underlying the Site as these deposits are likely to have deep foundation placed through them.

RADIOLOGICAL CONTAMINATION

In 2017 Matom was commissioned by WSP to undertake a desk based assessment of the potential for radiological contamination within the Horsea Island and Tipner West Redevelopment Zones (Ref: 03/146/03.02r1). From this assessment several areas were identified as having an elevated potential for radiological contamination based on previous land use and included the JHP Site.

Subsequent assurance monitoring was undertaken during the 2021 ground investigation at each exploratory hole location for the protection of the personnel onsite from risk of radiological contamination hazards being present in quantities that pose a risk to personnel working onsite or materials.

The results of the radiological surveys confirmed none of the exploratory holes had levels of radiation above measured background levels.

UNEXPLODED ORDNANCE (UXO)

During the 2006 IKM investigation Planit EOD, (explosive ordnance survey and removal contractor), was instructed to carry out a survey as a result of an explosive ordnance threat assessment undertaken by Bactec International Ltd (October 2005), which highlighted six areas of potential unexploded ordnance (UXO) contamination on the larger development site. It has been considered that there is a high risk of encountering UXO based on its military history and would have been likely a main strategic target for bombing by the Luftwaffe. Desk studies revealed a total of 6 No WWII bomb strikes in the vicinity of the Site.

During the 2021 investigation a spent 6lb British bomb was encountered on the foreshore and dealt with appropriately by the EOD Engineer providing mitigation cover for the ground investigation.

Potential Contamination – Listed Buildings

From the investigations undertaken across the Site, there appears to have been no intrusive ground investigations undertaken in the three listed buildings.

Further Investigation Works

Based on the findings of the GQRA report, the following further investigations were recommended:

- Further site investigation will be required in areas where commercial activities were taking place on Site in the following areas:
 - Outside and inside the building occupied by T J Waste;
 - Demolition of boats and barges;
 - Tipner point where a spud leg barge was being loaded /unloaded during this investigation;
 - Where obstructions limited the investigation works being undertaken; and,
 - Storage of equipment/plant oils and workshop area in the magazine buildings.
- Further desk-based investigation of the history of the three remaining former military buildings on Site is undertaken to establish if they are likely to be contaminated with explosive residues. This is likely to require sampling of the building fabric to see if it has been impacted by explosive residues along with the surface soils adjacent to these and other former MOD buildings across the site.
- A preliminary potable water pipe assessment indicated that barrier pipes may be required at the Site, however, further testing and assessment should be undertaken in consultation with utility providers;
- The concrete classification in regard to aggressive soil conditions is to be established in the future geotechnical site investigation across the Site.

- The Site has been initially characterised as Characteristic Situation 1 with respect to ground gases. However, further investigation, of areas of the Site where investigation could not take place owing to Site operational activities and establish monitoring wells into the organic natural subsoils are required from a human health perspective. The ground gas and vapour risk should be re-assessed during these works.
- A radiological monitoring program will be required to protect all Site and laboratory personnel involved with the further investigations above.
- Further radiological assessments should be considered to assess the risk to future site users and construction workers redeveloping the Site.