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Mr Adam Thomas  
Johnstaff Projects (NSW) Pty Ltd  
by email

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## **INTERIM ADVICE 01: REVIEW OF DETAILED SITE INVESTIGATION AND 'FRAMEWORK' REMEDIATION ACTION PLAN FOR 28-32 BOURKE ROAD, ALEXANDRIA, NSW**

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Dear Adam,

### **1. INTRODUCTION**

#### **1.1. Background**

Johnstaff Projects (NSW) Pty Ltd engaged Rod Harwood, a NSW EPA accredited Contaminated Land Auditor (accreditation no. 03-04) who is employed by Harwood Environmental Consultants (HEC), to conduct a Site Audit resulting in a Site Audit Statement (SAS) and Site Audit Report (SAR) for the Site located at 28-32 Bourke Road, Alexandria, NSW.

It is understood the existing site contains a single level warehouse, which is [proposed to be demolished for the redevelopment of an approx. 11,305m<sup>2</sup> mixed use development. The development will also include a 1m excavation to form part of a basement.

The Secretary's Environmental Assessment Requirements (SEARs) have been received, and the requirement relating to contamination issues for the Stage 1 State Significant Development Application (SSDA) are as follows:

<b>SEAR</b>	<b>Deliverable</b>
<b>15. Contamination and Remediation</b> <ul style="list-style-type: none"><li><i>In accordance with SEPP 55, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the concept development.</i></li><li><i>Identify whether the development disturbs, exposes or drains acid sulfate soils that may result in environmental damage, including providing an Acid Sulfate Soils Management Plan, where there may be any harm to the environment from the development.</i></li></ul>	<b>Preliminary Site Investigations</b> <b>If required:</b> <b>Detailed Site Investigations</b> <b>Remedial Action Plan (RAP), including interim audit advice from an EPA accredited site auditor certifying the RAP is appropriate</b> <b>Preliminary Long-term Environmental management Plan</b> <b>Acid Sulfate Soils Management Plan</b>

The Audit is therefore considered to be statutory.

The Site Audit Statement will be issued to the client, and the NSW EPA simultaneously.

This *Interim Audit Advice* is provided to assist in the assessment and management of contamination issues at the site, the *Interim Audit Advice* should not be regarded as 'approval' of any proposed investigations or remedial activities, as any such approval is beyond the scope of an independent review.

## 1.2. Site Audit Process

EPA (2017) Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3<sup>rd</sup> Edition), describes the site assessment and Audit process:

The **'first tier' is the work of a contaminated site consultant**, generally engaged by the site owner or developer. The contaminated site consultant designs and conducts a site assessment and any necessary remediation and validation, documents the processes and information in reports.

The **'second tier' is the site audit**, which involves a site auditor independently and at arm's length reviewing, for one of the audit purposes stated in the CLM Act, the consultant's assessment, remediation, validation and management plans or reports. The material outcomes of a site audit are a site audit report and a site audit statement.

It is important to note that with respect to waste management on contaminated sites, the EPA Contaminated Land Management: Guidelines for the NSW Site Auditor Scheme (3<sup>rd</sup> Edition) state:

- *'When reviewing information relating to the management of waste, site auditors must have regard to the provisions of the NSW Government's framework for managing wastes. In New South Wales, it is an offence to transport waste to a place that cannot lawfully receive it or use a site to receive waste that cannot lawfully be used as a waste facility. To ensure that waste generators (or their representatives) do not trigger such offences:*
  - *in relation to disposal, they must ensure their waste is carefully classified in accordance with the Waste Classification Guidelines – Part 1: Classifying Waste (EPA 2014) as in force from time to time (the 'Waste Guidelines', available from Waste classification guidelines: [www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines](http://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines)), and the waste is taken to a facility that is lawfully able to receive that waste; and*
  - *in relation to re-use for land application purposes, they must ensure their waste meets the requirements of the resource recovery order and resource recovery exemption framework.*

*For consultants who have been engaged to classify waste, or to assist their client in complying with the order and exemption framework, they must ensure their work complies with all of the requirements of the Waste Guidelines, and the relevant order and exemption. It is an offence to supply information about waste that is false or misleading.'*

Part 4 Section 53B of the CLM Act describes that Site Audits conducted by EPA Accredited Site Auditors must take the following matters into account:

- the provisions of the CLM Act and the CLM Regulations;
- the provisions of any environmental planning instruments applying to the site; and
- the guidelines made or approved by the EPA.

Therefore, the contaminated land consultant and other relevant parties should be satisfied that the work to be conducted conforms to all appropriate regulations, standards and guidelines and is suitable based on the site history and the proposed land use.

At the completion of the Site Audit process, the Site Auditor must complete a Site Audit Statement (form provided by EPA which only accredited site Auditors may sign under the Contaminated Land Management Act 1997) supported by a Site Audit Report (comprehensive critical review of all contamination assessment and remediation conducted at the site). However, the Auditor may provide written interim advice on the work plans or reports in the lead-up to issuing the final Site Audit Statement at the end of the entire Audit.

When this Interim Advice is provided, the Site Auditor must:

- specify that the Interim Advice does not constitute a Site Audit Report or Statement;

- ensure the Interim Advice is consistent with NSW EPA guidelines and policy;
- not pre-empt the conclusion to be drawn at the end of the Site Audit process;
- clarify that a Site Audit Statement will be issued at the end of the Audit process; and
- document in the Site Audit Report all Interim Advice that was given.

Section 3.1 of the Auditor Guidelines states that the site auditor must meet the following particular requirements regardless of whether the audit is statutory or non-statutory:

- a. comply with applicable provisions of the CLM Act, regulations, environmental planning instruments, and any guidelines made or approved by the EPA under the CLM Act.
- b. not have a conflict of interest in relation to the audit as defined by the CLM Act.
- c. where these guidelines allow an auditor to adopt or endorse an approach that differs from policies made or approved by the EPA, exercise independent professional judgement in doing so and provide in the site audit report adequate and explicit justification for taking this course.
- d. finalise the site audit report before signing the site audit statement.
- e. provide in the site audit report a clear, logical discussion of issues covered in the site audit and clearly substantiate the rationale for the auditor's conclusions. Therefore, the contaminated land consultant and other relevant parties should be satisfied that the work to be conducted conforms to all appropriate regulations, standards and guidelines and is suitable based on the site history and the proposed land use.
- f. discuss in the site audit report all issues pertinent to the actual or potential contamination of the site and all issues required by these guidelines to be raised during a site audit.
- g. state clearly why any human health and environmental issues that would normally be of concern are not of concern in the case of this audit.
- h. make every reasonable effort to identify and review all relevant data, reports and other information held by the person who commissioned the site audit, or which is readily available from other sources, that provides evidence about conditions at the site which is relevant to the audit
- i. obtain advice from the appropriate expert support team members on issues that are outside the auditor's professional education, training or experience, and document in the site audit report where and from whom advice has been obtained.
- j. exercise independent and professional judgement in deciding whether or not they have sufficient information to make a decision about the suitability of a site or a plan or to draw any other conclusion in relation to actual or potential contamination of a site in the course of a site audit, with justification for conclusions to be given in the site audit report.
- k. make reasonable endeavours to find out whether any other audits have been commissioned in relation to the site and, if so, whether any of them were prematurely ceased and why
- l. state in the audit report the scope and findings of any previous audits.
- m. in cases where the audit involves a review of site assessment, remediation or management work, visit the site to observe and verify, as far as is practicable, the completion of this work.

## 2. INTERIM ADVICE

HEC were provided with the following previous investigations to review for Interim Advice 01:

- **Detailed Site Investigation**, 28-32 Bourke Road, Alexandria, NSW, 2015 (ref: EP2515.001). EP Risk (10 March 2022).

- **Framework Remediation Action Plan**, 28-32 Bourke Road, Alexandria, NSW, 2015 (ref: EP2515.002). EP Risk (27 May 2022).

A summary of the key points from the reports is provided below:

A brief summary of the key points from the documents provided and Auditor comments is detailed in the following table.

Document	Summary of key Points
<p><b>Detailed Site Investigation</b></p> <p>EP Risk (March 2022)</p>	<ul style="list-style-type: none"> <li>• The scope of work included: <ul style="list-style-type: none"> <li>– Review of a previous investigation completed at the site (referred to as EP Risk, Soil Contamination Assessment, 23 December 2021).</li> <li>– Drilling of 12 soil borings to a depth of 2m below ground level to delineate hotspots (identified in EP Risk, December 2021) and for waste classification.</li> <li>– Drilling of three soil borings to a depth of 10m below ground level.</li> <li>– Drilling of two soil borings to a depth of 20m below ground level.</li> <li>– Conversion of four of the deep borings into groundwater monitoring wells.</li> <li>– Collection of 35 soil samples, with laboratory analysis for TRH, BTEX, PAH, OC/OPP, PCB, metals, PFAS, VOC/SVOC, and asbestos.</li> <li>– Collection of four groundwater samples, with laboratory analysis for TRH, BTEX, PAH, OC/OPP, PCB, metals, PFAS, and VOC/SVOC.</li> <li>– Acid sulfate soil (ASS) field screening in four boreholes, with samples collected every half metre to a depth of 3m below ground. Laboratory analysis of five soil samples for the chromium reducible sulfur and the SPOCAS suite was also completed.</li> </ul> </li> <li>• The site history was described by EP Risk as follows: <ul style="list-style-type: none"> <li>– Historical land use has included chemical manufacturers, metal manufacturers, zinc and lead merchants, adhesives manufacturers, spray painters, and plastic manufacturers.</li> <li>– Between 1935 – 1938, Lot 1 was leased to James Hardie Trading Company Limited. James Hardie Trading Company Limited was Australia’s largest manufacturer of asbestos cement products.</li> </ul> </li> <li>• The site setting was described by EP Risk as follows: <ul style="list-style-type: none"> <li>– The site was not listed on the NSW EPA Record for Contaminated Site notified to the NSW EPA in accordance with the CLM Act. Within the 1 km boundary lies two (2) sites where contamination has been deemed as significant to warrant regulation under the CLM Act. Furthermore, nine (9) records of licensed activities under the POEO Act 1997 were identified within 1 km of the site. Due to the separation distance all sites and activities considered unlikely to have impacted the Site.</li> <li>– There is one (1) record of PFAS Investigation &amp; Management Programs listed within 1km of the site: Alexandria Fire and Rescue NSW located 77 m northeast of the site.</li> </ul> </li> <li>• The EP Risk (2021) investigation identified lead, heptachlor and benzo(a)pyrene at concentrations exceeding human health assessment criteria in shallow soil samples (0.1m below ground). The vertical and horizontal extent of impact was not delineated in the 2021 investigation.</li> <li>• A site investigation completed by EP Risk in December 2021 identified the following areas of concern: <ul style="list-style-type: none"> <li>– <i>Building structures on the site were observed to contain suspected bonded (non-friable) asbestos containing material. A HAZMAT inspection undertaken concurrently with the SCA (EP Risk 2021) also identified lead based paint on-site.</i></li> </ul> </li> </ul>

Document	Summary of key Points
	<ul style="list-style-type: none"> <li>– <i>Based on discussions with on-site personnel and the site inspection, there was no anecdotal or visual evidence of underground fuel storage infrastructure observed on accessible portions of the Site.</i></li> <li>– <i>A proportional TIT was identified in the south-western portion of the Site. No further information was provided at the time of the inspection.</i></li> <li>– <i>A drain or potentially another TIT with hoses directing waste into it, was observed in the middle of the site in Lot 2, adjacent to stored chemicals.</i></li> <li>– <i>Chemicals such as all-purpose thinner and grease remover were observed on-site in un-bunded chemical storage. No chemical leaks were observed.</i></li> <li>– <i>A vehicle spray booth was in the south-east corner of the site.</i></li> <li>– <i>Visible black surface staining was observed throughout the site from the workshop, there was also evidence of disturbance in the concrete flooring. Chemicals were observed to be stored and used onsite.</i></li> <li>– <i>A sewer/stormwater drain ran underground Lot 2, approximately 0.3 mBGL, potentially the length of the site.</i></li> </ul> <ul style="list-style-type: none"> <li>• The Geology at the site is described as Quaternary medium to fine-grained marine sand with podosols. The site is located on a Class 3 ASS risk area. The stratigraphy observed by EP Risk (2022) during drilling was described as           <ul style="list-style-type: none"> <li>– <i>The entirety of the Site was covered in cement, which upon commencement of drilling works was observed to be between 0.1 – 0.2m thick. In many places the cement was observed to be underlain by a second slab of cement.</i></li> <li>– <i>Below the cement slabs, the Site was observed to be underlain by FILL material, generally sand or silty sand, to depths ranging from 0.6 to 1.9 mBGL. Anthropogenic material was observed throughout the FILL, including brick, cement and gravel. Metal shavings were observed within the FILL material during the SCA investigation (EP Risk 2021a).</i></li> <li>– <i>Natural soils were observed to consist mostly of SAND, silty SAND, or gravelly silty SAND, and was generally very moist with a medium grain size.</i></li> <li>– <i>Anthropogenic material was observed throughout the FILL material, which included cement, brick and gravels.</i></li> </ul> </li> <li>• Soil analytical data was summarised as follows:           <ul style="list-style-type: none"> <li>– TRH F3 exceeded the ecological criterion at two locations in shallow fill.</li> <li>– Lead exceeded the human health criterion for a commercial/industrial land use in nine samples from 5 borings. Vertical delineation was achieved in four of the five borings.</li> <li>– BaP exceeded the ecological investigation criterion in 10 locations.</li> <li>– The concentrations of all other analytes, including asbestos, were below the site criteria or below the laboratory limit of detection.</li> </ul> </li> <li>• Groundwater analytical data was summarised as follows:           <ul style="list-style-type: none"> <li>– Nickel and zinc were detected in all samples at concentrations exceeding the ecological criteria.</li> <li>– The concentrations of all other analytes were below the site criteria or below the laboratory limit of detection.</li> </ul> </li> <li>• EP Risk concluded the following:           <ul style="list-style-type: none"> <li>– <i>On-site soil contaminant concentrations are a significant health risk to Site personnel during planned remediation and construction works, in particular the works involving the excavation of soil in areas containing significantly high concentrations of Lead.</i></li> </ul> </li> </ul>

Document	Summary of key Points
	<ul style="list-style-type: none"> <li>- <i>The contaminants are likely to be able to move off-site through leaching into groundwater. Though the concentrations of Lead in groundwater are relatively low, there exists a data gap in the south-eastern section of the Site where the high lead concentrations were detected, and no groundwater data has been obtained.</i></li> <li>- <i>There exists the possibility of the presence of actual or potential acid sulfate soils within the Site, however no ASS was detected within the results of the DSI.</i></li> <li>- <i>Based on our current understanding of the contamination issues of the Site, the site is not suitable for ongoing commercial/industrial landuse due to the significant Lead contamination.</i></li> <li>• Preliminary waste classification indicated some areas of the site contain hazardous waste due to the presence of high lead concentrations. Other part of the site contain restricted solid waste, although EP Risk recommended further analysis to confirm this.</li> <li>• EP Risk recommended the following:             <ul style="list-style-type: none"> <li>- further groundwater and soil investigation be completed, including further ASS analysis.</li> <li>- due to high lead concentrations, trial of immobilisation of lead.</li> <li>- Preparation of a remediation action plan.</li> <li>- Consideration of notification of the site under Section 60 of the CLM Act.</li> </ul> </li> </ul>
<p><b>Auditor Comments on DSI</b></p>	<p>The EP Risk (December 2021) report should be provided to the Auditor for review.</p> <hr/> <p>The figures should identify the areas of concern listed in the report (e.g., triple interceptor, spray booth, chemical store, sewer/stormwater)</p> <hr/> <p>The sampling plan (Section 5.9) should include a discussion of the rationale for the sampling locations – it is stated in the scope that the shallow bores were designed to delineate the hotspots from the 2021 investigation. If this is the case, then the hotspots and delineation borings should be presented in a table or discussion. Similarly, the sampling locations that target areas of concern should be identified.</p> <hr/> <p>Groundwater flow direction is not provided on the figures – the wells should be surveyed to the top of casing and groundwater flow direction contoured and discussed in the report.</p> <hr/> <p>Depth to groundwater is not discussed in the report, the bore logs indicate the presence of water at depths between 1.7m and 3.4m below ground. It is noted that some logs that extend to 6m did not record the presence of water.</p> <hr/> <p>The bore log for BH05/MW03 describes a “fuel odour” at the surface. This be more specific – i.e., hydrocarbon, diesel etc.</p> <hr/> <p>BH12 extended to 1.5m through concrete and was terminated in concrete – it is assumed that further vertical drilling could not be achieved.</p> <hr/> <p>BH13 was drilled to 2.0m below ground, however the observations state “water at 3.0mbgl” – it is assumed this is a typo? Similarly, the soil description at 0.8m is described as “Silty clayey SAND, low plasticity, medium grained, black to brown, very moist, very soft clay”. It is unclear if the profile is clay or sand dominant at this location.</p> <hr/> <p>The well construction logs indicate that there the wells have open casing underneath the screened section – is this the case or were the bores backfilled to the base of the screened interval?</p>
<p><b>Remediation Action Plan,</b> EP Risk (May 2022)</p>	<p>The RAP is referred to by EP Risk as a “framework” RAP. This term is not consistent with the requirements of SEPP55 (now referred to as the Risks and Hazards SEPP), however it is understood that due to limited access a number of data gaps exist in the characterisation of the site. Information provided to the Auditor from the client indicates that a RAP but be reviewed by an EPA accredited Auditor to allow Stage 1 for the Sate Significant Development Application to proceed. As such the ‘framework RAP’ which</p>

## Document

## Summary of key Points

includes an indicative remedial strategy as well as the required works to be completed to close out the data gaps is seen as a satisfactory measure to meet the SSD requirements to allow Stage 1 to proceed.

The data gaps are described by EP Risk as follows:

- Soil:
  - Insufficient lead in soil data in the eastern section of the site in natural material.
  - Insufficient lead leachability data for the areas of high lead concentration.
  - Immobilisation data required for the potential immobilisation of lead
  - Sections of site soil not sampled and analysed for a broad suite of contaminants do to being previously inaccessible.
  - Asbestos containing material may be observed within soil material during future Site investigation works.
  - The DSI showed no exceedance of the ASS guidelines that would indicate the presence ASS, however the data was sufficiently close to the guidance values that it was decided that more data is required.
- Groundwater:
  - Groundwater monitoring wells have not been installed in sections of the site where high lead concentrations have been observed in soil.
  - Depth to groundwater and hydraulic conductivity was no obtained during previous investigation works.

EP Risk state the following regarding the remedial extent: *“The excavation of the planned basement is understood to extend to 1.0 mBGL. As such, the remediation works will only extend to this depth, except where further excavation for footings or removal of unacceptable contamination is required (i.e. leachable lead to be removed if full where practicable)”*.

The preferred remedial strategies are described by EP Risk as follows:

- Area 1 (hazardous waste): *On-site treatment followed by off-site disposal is the preferred remediation option for the FILL material in Area 1. In its present state, off-site disposal may be prohibitively expensive due to its classification as Hazardous Waste, however, remediation measures to prevent the possibility of leaching may immobilise the lead within the soil, thereby reducing this classification. This would result in a decrease in the cost of off-site disposal. Soil treatment trials should be undertaken to determine the best method of immobilisation and the method that most effectively reduces the leachability of the lead should be enacted.*
- Area 2 (hazardous and restricted solid waste area – TP01, TP04 and TP07): *No action needs to be taken for the soil in the areas classified as General Solid Waste, however it is required as part of the planned development that up to 1m of soil be removed from the entire Site, and therefore the removal of this soil under the waste classification guidelines is the most practical option.*
- ASBINS area (asbestos area): *the most favourable remedial strategy for the ASBINS is source removal as Special Waste (Asbestos). This must be undertaken for all soil within the delineated ASBINS area, which extends to the closest borehole in which asbestos was not observed or additional validation samples. The FILL material within this area must be classified as Special Waste (Asbestos) in addition to Hazardous Waste due to the high lead concentration.*

To confirm the extent of remediation required, EP Risk propose the following data gap investigation as part of the RAP:

- Drilling of 20 soil borings in Area 1, with soil samples analysed for lead, TCLP lead and ASLP lead.

Document	Summary of key Points
	<ul style="list-style-type: none"> <li>• Sampling of areas in previously inaccessible locations.</li> <li>• Delineation of areas where CoPC concentrations exceeded the criteria by over 250%.</li> <li>• Installation of three groundwater monitoring wells.</li> <li>• Ongoing groundwater monitoring and hydraulic conductivity testing.</li> <li>• Soil treatment trials for lead immobilisation.</li> </ul> <p>The validation plan for the site includes:</p> <ul style="list-style-type: none"> <li>• Collection of 42 excavation surface validation samples on an 8.5m grid.</li> <li>• Validation samples to be analysed for metals, TRH, BTEX, PAH, OC/OPP, PCB and asbestos (NEPM suite).</li> <li>• Waste classification</li> <li>• Management of ASS in accordance with a pending ASS Management Plan.</li> <li>• Imported material to be sampled at a rate of 3 samples per 250m<sup>3</sup>, with samples analysed for metals, TRH, BTEX, PAH, OC/OPP. PCB and asbestos (NEPM suite). Imported material is also to be accompanied by a VENM/ENM report.</li> </ul>
<p><b>Auditor Comments on RAP</b></p>	<p>The remedial strategy for Area 1 refers to isolation of the natural soil. It is not clear what the term “isolation” means.</p> <hr/> <p>Area 2 is described as restricted and solid waste, however the remedial strategy only talks of general solid waste.</p> <hr/> <p>A potential groundwater remedial strategy is described as monitored natural attenuation. However, MNA is generally a remedial strategy for hydrocarbon impact. This has not been identified at the site. Given the main CoPC at the site is lead in soil, remedial strategies for metal impacted groundwater would be more useful.</p> <hr/> <p>Area 1, Area 2 and ASBINS should be marked on the figures.</p> <hr/> <p>There are two Figure 2s</p> <hr/> <p>The Proposed Sample Locations figure would benefit from including the previous sampling locations as well as the location of exceedances to criteria.</p> <hr/> <p>The remedial extent only refers to the vertical extent. The design drawings indicate the basement excavation does not take up all of the site area.</p> <hr/> <p>The data gap investigation is limited in detail. Further information around the number and depth of borings in previously inaccessible areas and where CoPC concentrations exceeded the criteria by over 250% should be provided.</p> <hr/> <p>The locations of the additional three wells should be shown on figure 3. All wells should be surveyed after installation. It would be worth surveying the existing wells prior to installation of the new wells so that the groundwater flow direction can be estimated to ensure the new wells are located in the right spots.</p> <hr/> <p>There are no details provided on the lead immobilisation – further discussion around what strategies are likely to be employed to immobilise the lead will be required. The NSW EPA will need to approve the immobilisation strategy prior to the material being disposed off-site.</p>



### 3. CONCLUSIONS

The Auditor agrees with the proposed remedial strategy provided in the Framework RAP based on the existing data set. Although it is noted that the remedial strategy may change based on the findings of the data gap investigations.

An SAQP should be prepared for the data gap investigation and provided to the Auditor for review prior to works commencing.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'R Harwood', is enclosed in a thin black rectangular border.

**Rod Harwood**

*NSW EPA Accredited Contaminated Sites Auditor (Accreditation No. 03-04.)*

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