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Project 84577
30 October 2014
DW:mm

Attention: Mr Vince Pizzata

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Dear Sirs

Review of Preliminary Contamination Assessment Report
245 Marion Street, Leichhardt

1. Introduction

It is understood that a Planning Proposal has been lodged with Leichhardt Council to rezone the land at 245 Marion Street, Leichhardt (the site) from an industrial zone to a residential zone which would allow mixed use development comprising a residential flat building on top of a ground level neighbourhood shop, café, child care and community facility, all over the top of basement parking. It is further understood that Leichhardt Council have requested for existing information regarding contamination at the site for possible in principal-support and/or gateway determination for the Planning Proposal. This letter report provides a review of the information presented by Douglas Partners Pty Ltd (DP) in *Report on Preliminary Contamination Assessment, Proposed Development, 245 Marion Street, Leichhardt*, November 1999, (DP, 1999) in relation to the proposed rezoning.

2. Report Summary

DP (1999) was prepared for P & C Consulting Pty Ltd for a proposed commercial development. The assessment comprised a review of historical title deeds to determine possible previous land uses; a review of geological maps; a site inspection; the drilling of six test bores; and analysis of selected soil samples for heavy metals, polycyclic aromatic hydrocarbons (PAH), total recoverable hydrocarbons (TRH) and benzene, toluene, ethylbenzene and xylene (BTEX).

At the time of the investigation (October, 1999) the site comprised a single storey car repair workshop with associated offices. An above ground storage tank (AST) and grease trap were observed at the site.

Historical title deeds indicated that the south west corner of the site comprised reclaimed land and, thus it was considered probable that substantial filling was located at this part of the site. Railway

authorities were previous owners of the site, indicating that the site was probably used for industrial purposes prior to its use as a workshop.

The six test bores were drilled to depths ranging between 1.3 and 3.0 m. Filling material was encountered in all bores and comprised mostly sandy clays, crushed sandstone and gravelly silty sands. Ash was noted in the filling at one location and slag was noted in the filling at another location. Natural sandy clays and clayey sands were encountered in three test bores. Groundwater was encountered at depths of 2.4 m and 2.5 m in the two test bores where standpipes were installed.

Fourteen soil samples were selected for laboratory analysis. For site assessment purposes, results were compared to criteria for industrial and commercial sites sourced from NSW EPA *Contaminated Site: Guidelines for the NSW Site Auditor Scheme*, 1998, and criteria for TRH and BTEX sourced from NSW EPA, *Contaminated Sites: Guidelines for Assessing Service Station Sites*, 1994. For waste classification purposes, results were compared to threshold criteria provided in NSW EPA, *Environmental Guidelines: Assessment, Classification, and Management of Liquid and Non-Liquid Wastes*, 1999.

Concentrations of PAH were above the site assessment criteria in filling samples from three test bores. It was anticipated that the PAH contamination was limited to filling materials, in particular, the filling containing slag material. TRH contamination, at a concentration above the site assessment criteria, was also noted in the filling at one location. As a result of the identified TRH and PAH contamination, it was considered that the site required remediation to remove the unsuitable filling materials in order to make the site suitable for the proposed commercial development. The suggested remediation approach included excavation and appropriate off-site disposal (to licenced landfill) of the contaminated filling followed by validation of the remaining substrate.

3. Investigation Results and Current Guidelines

It is noted that the guidelines, provided or endorsed by NSW EPA, for the assessment of site contamination have changed since the time of the assessment. In particular, the National Environment Protection Council (NEPC) *National Environment Protection (Assessment of Site Contamination) Measure*, 1999 revised April 2013, (NEPM, 2013) is now the primary guideline used for assessing site contamination and is endorsed by NSW EPA.

As the Planning Proposal is for mixed use which may include child care, the results from DP (1999) were cross-checked with (Tier 1) health investigation levels (HILs) and health screening levels (HSLs) from NEPM (2013) for residential sites with garden/accessible soil including childcare centres, preschools and primary schools. It is noted that concentrations of arsenic, cadmium, chromium, copper, mercury, nickel and zinc are within the respective HILs, however, concentrations of lead exceed the HIL in several filling samples and one natural soil sample. The concentration of total PAH exceeded the HIL in one filling sample and concentrations of benzo(a)pyrene toxicity equivalent quotient (TEQ) are above the HIL in multiple samples. BTEX and TRH C₆-C₉ and TRH C₁₀-C₁₄ were not detected and, therefore concentrations are likely to be within the respective HSLs for BTEX and

TRH C₆-C₁₀ and TRH >C₁₀-C₁₆. It is noted that the elevated concentration of TRH C₁₅-C₄₀ (in sample B6/1.5) may be as a result of the PAH contamination rather than from petroleum hydrocarbons.

NEPM (2013) also provides (Tier 1) ecological investigation levels (EILs) and ecological screening levels (ESLs) for the assessment of site contamination from an ecological perspective. The EIL and ESL used for site assessment are determined from certain soil properties. Although soil properties (such as pH and cation exchange capacity) were not obtained by laboratory analysis, it is reasonably likely that some concentrations of copper and zinc are in excess of the EILs for residential sites (if soil properties were obtained to determine EILs). Concentrations of benzo(a)pyrene are above the ESL for residential sites in multiple samples. The concentration of TRH in sample B6/1.5 may also be in excess of the ESL if it were to be determined that the TRH contamination is from petroleum hydrocarbons.

NEPM (2013) also provides (Tier 1) management limits for petroleum hydrocarbons to address potential effects such as formation of light non-aqueous phase liquids, fire and explosive hazards and damage to buried infrastructure. The concentration of TRH in sample B6/1.5 may be in excess of the management limit for residential sites.

It is noted that the guidelines currently used for waste classification purposes are now the Department of Environment, Climate Change and Water (DECCW), *Waste Classification Guidelines*, revised December 2009 (DECCW, 2009).

4. Potential Remediation of Identified Contamination

The identified heavy metal, PAH and TRH soil contamination is likely to be as a result of impacts from the introduction of filling containing slag and ash to the site. From our experience, filling materials containing slag and ash are not uncommon in the Leichhardt area and also not uncommon in other, older suburbs in Sydney. In addition, this type of filling has been encountered (by DP) not only in industrial areas, but also in (older) existing residential areas of inner Sydney.

Typical remediation of ash and slag impacted soil includes the excavation and offsite disposal of contaminated soil to landfill followed by the validation of soils that are to remain at the site. This remediation approach is commonly used when site development will include a basement, where the excavation for the basement results in the removal of contaminated soil. It is therefore considered that the known soil contamination at the site can be remediated using standard technologies/practices to a standard suitable for a residential land use with garden/accessible soil including a childcare centre (and other land uses associated with a mixed use development).

5. NSW EPA Records Search

On 28 October 2014, a search of the record under s. 58 of the CLM Act (for sites that are regulated) and a search of the list of NSW contaminated sites notified to the EPA under s. 60 of the CLM Act

(reported to the EPA that may become regulated) did not reveal any listing of the site or neighbouring properties.

6. Conclusion and Requirement for Further Investigation

Based on the findings from DP (1999), it is considered that the identified contamination at the site should not prevent the site from being rezoned for residential purposes as standard technologies/practices are available to remediate the identified contamination. In addition, the search of the NSW EPA records did not reveal any known nearby contaminated sites which may impact the suitability of the future land use of the subject site.

In order to determine the extent of remediation required to render the site suitable for the proposed land use, a detailed site investigation (DSI) will need to be conducted to update the contamination status of the site. The DSI would include an update of site history information as well as an intrusive investigation of soil and groundwater with reference to guidelines current at the time of the DSI. Waste classification of soils designated for off-site disposal will need to be in accordance with DECCW (2009). Typically, a DSI is undertaken to support a Development Application submission once the proposed development is reasonably well defined.

7. Limitations

Douglas Partners (DP) has prepared this report for the proposed rezoning at 245 Marion Street, Leichhardt, in accordance with DP's email issued on 24 October 2014 and acceptance received from Vince Pizzata of P & C Consulting Pty Ltd on 27 October 2014. This report is provided for the exclusive use of P & C Consulting Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results discussed in the report are indicative of the sub-surface conditions at the site at the time of the investigation and then only to the depths investigated. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may have occurred after DP's field testing was completed.

DP's advice is based upon the conditions encountered during the DP (1999) investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The investigation may have been limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the discussions section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Please contact either of the undersigned for clarification of the above as necessary.

Yours faithfully

Douglas Partners Pty Ltd



David Walker
Environmental Engineer

Reviewed by



Tim Wright
Senior Associate