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Project 81251.10
23 December 2019
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MPG

Attention: Numa Miller

Email: numa.miller@lendlease.com

Dear Numa Miller

Waste Classification Assessment Procedure
Proposed Aged Care Facility
Morpeth Road, Morpeth

1. Introduction

This letter provides further comments in relation to the waste classification assessment procedure outlined by Douglas Partners Pty Ltd (DP) for materials to be excavated and removed from site as part of the proposed Aged Care Facility development at Morpeth Road, Morpeth.

The site is located within Closebourne Estate at Morpeth, which is situated along Morpeth Road approximately 500 m west of Tank Street, Morpeth. The proposed aged care will be located to the east of the existing Closebourne House (refer Figure 1).

DP has undertaken a previous investigation at the site (DP, 2016) which included a preliminary waste classification assessment. This letter should be read in conjunction with DP (2016).

Figure 1: Aerial image of site with approximate aged care footprint (sourced from Google Earth)

2. Background

The previous assessment (DP, 2016) included review of previous investigations undertaken by DP at the site together with subsurface investigation within the proposed footprint of the aged care facility and chemical testing for potential contaminants.

The investigation generally did not identify visible or olfactory signs of contamination in the fill materials that overlie the natural soil, although it was noted that a number of bores encountered fill which included glass, bottles, bricks, slag or coal fragments. The results of chemical testing undertaken on selected samples from these bores and pits indicated contaminant concentrations were within the General Solid Waste criteria (without leachability testing – CT1) as outlined in NSW EPA (2014a).

The results of chemical testing were also compared against the Excavated Natural Material Order 2014 (NSW EPA, 2014b) and were all below the maximum and average permissible concentrations in the ENM order with the exception of one sample of filling which returned a total recoverable

hydrocarbon (TRH) concentration of 894 mg/kg which is above the maximum permissible value of 500 mg/kg in the ENM order.

The natural soils tested were below the adopted background values (ENM maximum average guideline values) for heavy metals and less than the laboratory detection limit for other contaminants tested (i.e. TRH, BTEX, PAH, OCP, OPP, PCB), with the exception of trace concentrations of PAHs in Bore 208 / 1.0-1.1 m which was samples beneath a fill layer containing PAHs.

In summary, based on the site historical information, site investigations and laboratory results, the following preliminary waste classifications are provided:

- Existing Filling — General Solid Waste (non-putrescible)
- Natural Soils and Bedrock — Virgin Excavated Natural Material OR ENM where natural soils contain trace PAHs from overlying filling.

3. Recommended Waste Classification Assessment Procedure

During the previous preliminary waste classification assessment, it was noted that a number of areas of the fill contained potential contaminants, such as bricks and ash. This may be indicative of material which has been sourced from off-site locations which presents a risk of introduction of contaminants to the site owing to poor segregation practices and unknown activities on the source site. In additional fill materials containing building wastes such as bricks, glass and concrete are indicators of the potential presence of hazardous building materials (HBM) including asbestos, which were not analysed for as part of the preliminary assessment (DP, 2016).

It was therefore recommended that during construction an inspection regime be implemented to identify any areas of fill which may warrant further assessment and to confirm the suitability of the preliminary waste classification. The inspection regime should include the following:

Existing Fill

- Inception meeting between LL, DP and civil contractor to outline the inspection and testing regime for the civil works;
- Inspection of each identified area of excavation by DP personnel prior to commencement of stripping to identify areas of the site which may warrant additional chemical testing and/or segregation for further assessment;
- Stripping of the overlying fill over the excavation area;
- Inspection of the exposed soils by a geo-environmental engineer to assess for the presence of material which may affect the waste classification;
- Supplementary laboratory testing of soil in the event that:
  - Differing conditions to that outlined in DP (2016) are encountered; and
  - Where building materials are encountered (potential for HBM including asbestos).

- Regular inspections and testing during construction to ensure that the excavated materials are appropriately handled and that material different to those encountered during the investigation or that contain building materials (potential source of HBM) are assessed, if encountered. It is noted that there are several old buildings which appear to have been demolished within areas of the site and building materials including bricks and glass have been identified within fill material. In the event that poor demolition building practices have occurred there is a risk of asbestos within the surficial soils which would alter the waste classification.

Natural Soils and Bedrock

- Stripping of the overlying fill over the excavation area and assessment as outlined above;
- Inspection of the exposed soils or bedrock by a geo-environmental engineer to assess for the presence of material which may affect the VENM classification;
- Supplementary laboratory testing of soil:
  - In the event that differing conditions to that outlined in DP (2016) are encountered; and
  - At the stripped natural surface where elevated TRH or PAHs have been identified in overlying fill materials or within natural soils (Bore 208 / 1.0-1.1m) to validate natural soils to enable VENM or ENM classification prior to off-site re-use / disposal.
- Regular inspections and testing during construction to ensure that the excavated materials are appropriately handled and that material different to those encountered during the previous investigation (DP, 2016) are assessed, if encountered.

Potential Archaeological Artefacts

Given the age of the site, it is possible that archaeological artefacts may be present within the existing fill on site. During excavation should any signs of archaeological artefacts be observed, work should cease and the project archaeologist should be contacted to provide advice on appropriate assessment and handling.

4. References

DP, 2016, *Report on Geotechnical and Waste Classification Investigation, Proposed Aged Care Facility, Morpeth Road, Morpeth*, Douglas Partners Pty Ltd, Project 81251.10, dated April 2016

NSW EPA (2014a), *Waste Classification Guidelines – Part 1: Classifying Waste*, November 2014.

NSW EPA (2014b), *Resource Recovery Order under Part 9, Clause 93 of the Protection of the Environment Operations (Waste) Regulation 2014 The excavated natural material order 2014*, NSW Environmental Protection Authority

5. Limitations

Douglas Partners (DP) has prepared this report for this project at Morpeth Road, Morpeth at the request of Mr Numa Miller of Lend Lease (Retirement Living). The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Lend Lease (Retirement Living) 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 provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the previous investigation work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this 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 advice may also be 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.

Asbestos has not been detected by observation either on the surface of the site, or in fill materials at the test locations sampled. Building demolition materials, such as glass and brick fragments, were, however, located in previous below-ground fill, and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

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 Comments 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 the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

Reviewed by

Michael Gawn
Principal

Matthew Blackert
Senior Associate

Attachments: About this Report

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.