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Project 86973.04
27 January 2023
R.005.Rev0
DIH:ds

Attention: Priya Mekala

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Geotechnical and Contamination Advice
Proposed Ancillary Works - Designated Development
Narrabeen North Public School, Namona Street, Narrabeen

Douglas Partners Pty Ltd (DP) understands that as part of the proposed school upgrade works at Narrabeen North Public School (NNPS), a portion of the works will be undertaken under a designated development (DD). DP has been advised that these DD works comprise:

- Removal of eight trees;
- New accessible pedestrian pathways;
- New substation on Namona Street frontage along with associated conduit connections;
- New fire hydrant booster and associated conduit connections; and
- New hard and soft landscaping including planting of 12 new trees.

DP has previously undertaken geotechnical and contamination investigations at NNPS, initially in 2020 as part of broader investigations for the Narrabeen Education Precinct (NEP) to inform the master plan, and more recently in 2022 to support the proposed upgrade works for the NEP which incorporates both NNPS and the Narrabeen Sports High School (NSHS). A remediation action plan has also been developed for the NNPS along with an acid sulfate soil management plan for the NEP. DP's geotechnical and contamination reports undertaken for the site are:

Geotechnical

- DP, '*Report on Geotechnical Investigation, Narrabeen Education Precinct, Namona Street, North Narrabeen'*, dated March 2020, DP reference: 86973.00.R.002.Rev0 (DP, 2020a); and
- DP, *'Report on Geotechnical Investigation, Proposed School Upgrade, Narrabeen Education Precinct, Namona Street, Narrabeen'*, dated September 2022, DP reference: 86973.05.R.001.Rev1.

Contamination

- DP, *'Report on Preliminary Site (Contamination) Investigation with Limited Sampling, Narrabeen Education Precinct, Namona Street, North Narrabeen'*, dated April 2020, DP reference: 86973.01.R.001.Rev0;
- DP, *'Report on Detailed Site Investigation (Contamination), School Upgrades – Proposed Works Narrabeen Education Precinct, Namona Street, Narrabeen'*, dated August 2022, DP reference: 86973.04.R.002.Rev0;
- DP, *'Remediation Action Plan, Proposed Upgrade of Narrabeen North Public School, Narrabeen Education Precinct, Namona Street, Narrabeen'*, dated August 2022, DP reference: 86973.04.R.003.Rev0; and
- DP, *'Acid Sulfate Soil Management Plan, Proposed School Upgrades, Narrabeen Education Precinct, Namona Street, Narrabeen'*, dated August 2022, DP reference: 86973.04.R.004.Rev0

Previous investigations have included a combination of sampling and testing to assess soil properties and contaminant concentrations in soil and groundwater. ASS sampling and analysis was also conducted on the NNPS. The geotechnical investigations also considered salinity properties of site soils. Results of these are presented in the attached reports.

The information from previous investigations along with the recommendations and procedures outlined in the relevant aforementioned reports for works at NNPS should also be applied to the DD works. Hence this information is considered to address the Planning Secretary's Environmental Assessment Requirements (ref: SEAR 1718 dated 9 September 2022) associated with geotechnical and contamination issues. It is also noted that the recommendations and procedures are considered by DP to not significantly impact the Coastal Wetland Zone that is mapped to be present in the southern section of NNPS.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

p.p.
David Holden
Environmental Scientist

David Smith
Senior Geotechnical Engineer

Reviewed by

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Nizam Ahamed
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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.