Douglas PARTNERS | GROUNDED EXPERTISE

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Project 216255.00
15 November 2024
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MAB

Advice on Acid Sulfate Soils
The Gables New Primary School
Fontana Drive, Gables

1. Introduction

1.1 General

This letter has been prepared by Douglas Partners Pty Ltd (Douglas), on behalf of the NSW Department of Education (the Applicant), to assess the potential environmental impacts that could arise from the development of The Gables New Primary School, at Lot 301 DP 1287967 on Fontana Drive, Gables (the site).

This letter has been prepared to provide advice on the possible presence of Acid Sulfate Soils (ASS) on the site.

This report accompanies a Review of Environment Factors (REF) that seeks approval for the construction and operation of a new primary school at the site, which involves the following works:

- Construction of school buildings, including learning hubs, a school hall and an administration and library building;
- Construction and operation of a public preschool;
- Delivery of a sports court and fields;
- Construction of car parking, waste storage and loading area;
- Associated site landscaping and open space improvements; and
- Associated off-site infrastructure works to support the school, including (but not limited to) services, driveways and pedestrian crossings.

For a detailed project description, refer to the Review of Environmental Factors prepared by Ethos Urban.

1.2 Statement of Significance

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed development, it is determined that:

- The extent and nature of potential impacts from the proposed development are low, and will not have significant adverse effects on the locality, community and the environment in relation to Acid Sulfate Soils.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

1.3 REF Requirements

The REF requirement relevant to this report is summarised in Table 1.

Table 1: Summary of Relevant REF Requirements

Item	REF Requirement	Relevant Section of Report
32	Acid Sulfate Soils Management Plan, include if recommended.	Section 2

2. Background and Assessment

The Hills Local Environmental Plan 2019 has provisions for ASS (Part 7, Item 7.1: Acid sulfate soils), which includes an ASS map and a breakdown of site classes with different development consent controls, ranging from Class 1 (strict controls) to Class 5 (fewer controls). The site is not located within an area mapped as Class 1 to 5 and the nearest area with ASS Class mapping are areas surrounding O'Haras Creek, Kenthurst, approximately 4 km north of the site.

Mapping undertaken by NSW Department of Land and Water Conservation in 1997 (Wilberforce 1:25 000 Acid Sulfate Soil Risk Map) indicates that the site is within an area of "No Known Occurrence" of acid sulfate soil and is over 4 km from the closest area mapped as being potentially impacted.

Douglas undertook a geotechnical investigation at the site in 2022 (ref: Report on Geotechnical Investigation, 216255.00.R.002). The subsurface profile encountered during the investigation included typically clayey fill with gravel, sand, cobbles and boulders, overlying residual clay and Ashfield Shale or Hawkesbury Sandstone bedrock. Douglas was provided with earthworks testing documentation that shows the site was modified by bulk earthworks (filling) under Level 1 earthworks supervision between 2016 and 2020. Based on Douglas' testing, the fill material was inferred to be surplus cut material sourced from nearby earthworks operations as the material was consistent with placed excavated residual soil and shale/sandstone bedrock. For further information of subsurface conditions at the site, refer to Douglas' Report on Geotechnical Investigation.

Quaternary-aged alluvial or estuarine sediment has not been encountered on the site (imported as fill or naturally occurring), is not mapped as being located on the site and is not expected to be

encountered on the site based on the topography. As such, acid sulfate-affected alluvial or estuarine soils are not expected to be present on the development site.

On the basis of the information provided above, and assuming that any new fill imported as part of the proposed development does not contain ASS, Douglas confirms that an Acid Sulfate Soils Management Plan is not required for the project.

3. Risk Mitigation Measures

The risk mitigation measures for the REF requirement for the proposed development at the site relevant to ASS is summarised in Table 2.

Table 22: Summary of REF Risk Mitigation Measures

Project Stage Design (D) Construction (C) Operation (O)	Mitigation Measures	Relevant Section of Report
C	Any new fill material imported to site should not contain ASS, which should be confirmed by inspection and testing of imported material.	Section 2

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

Yours faithfully
Douglas Partners Pty Ltd

Matthew Bennett
Associate

Reviewed by

Luke James-Hall
Senior Associate

Attachments: About this Report

About this Report

November 2020

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.

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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.

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