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Project 214064.00
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PF:GRB

Attention: Michael Catal

Email: michaelcatal@gmail.com

Desktop Acid Sulfate Soils Assessment
Proposed Development
245 Great Western Highway, South Wentworthville

Douglas Partners Pty Ltd (DP) has been commissioned to provide an opinion on the presence of acid sulfate soils within the site of a proposed development at 245 Great Western Highway, South Wentworthville (the site). It is understood from the plans, supplied by the client, that the proposed development is to include the construction of a five-storey motel with two basement parking levels.

A statement of environmental effect regarding acid sulfate soils is required as part of Cumberland Council's preliminary development consent conditions.

The NSW Acid Sulfate Soils Manual 1998 published by the Acid Sulfate Soils Management Advisory Committee (ASSMAC) indicates that ASS (and Potential Acid Sulfate Soils – PASS) normally occur in alluvial or estuarine soils below RL 5 m AHD although occasionally are encountered up to RL 12 m AHD.

DP provides the following comments with respect to the potential for ASS on-site:

- Review of published mapping indicates that the site is in an area of no known occurrence. The closest mapped area of ASS is located around the Parramatta River, approximately 1.5 km north-east of the site (refer Figure 1).
- Reference to the Penrith 1:100 000 Geology Sheet indicates that indicates that the site is underlain by Bringelly Shale (refer Figure 2). Bringelly Shale typically weathers to form a medium to high plasticity clay (known as a residual clay).
- Inspection of the M4 batter slope, immediately to the south of the site (available on Google Streetview), indicates that Bringelly Shale is present at the base of the batter and residual clay soils are present in the upper portions of the batter. This is consistent with DP's experience in the local area.
- The site is located at an elevation of approximately RL 39 m to 44 m relative to Australian Height Datum.

Considering the ASS mapping, the geology of the site (residual soils and shale bedrock) and the elevation of the site soils (well above RL 12 m AHD) it is considered unlikely that ASS or PASS will be

present on-site. The site soils do not meet any of the criteria outlined by ASSMAC to be considered ASS or PASS.

Based on the findings of this preliminary assessment, DP are of the opinion acid sulfate soils are not expected to be present beneath the site. Testing for the presence of Acid Sulfate Soils or an Acid Sulfate Soils Management Plan are not considered to be required for the site.

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

Yours faithfully
Douglas Partners Pty Ltd

Petrina Fielding
Geotechnical Engineer

Reviewed by

Tim Wright
Principal

Attachments: About this Report
Figures 1 and 2

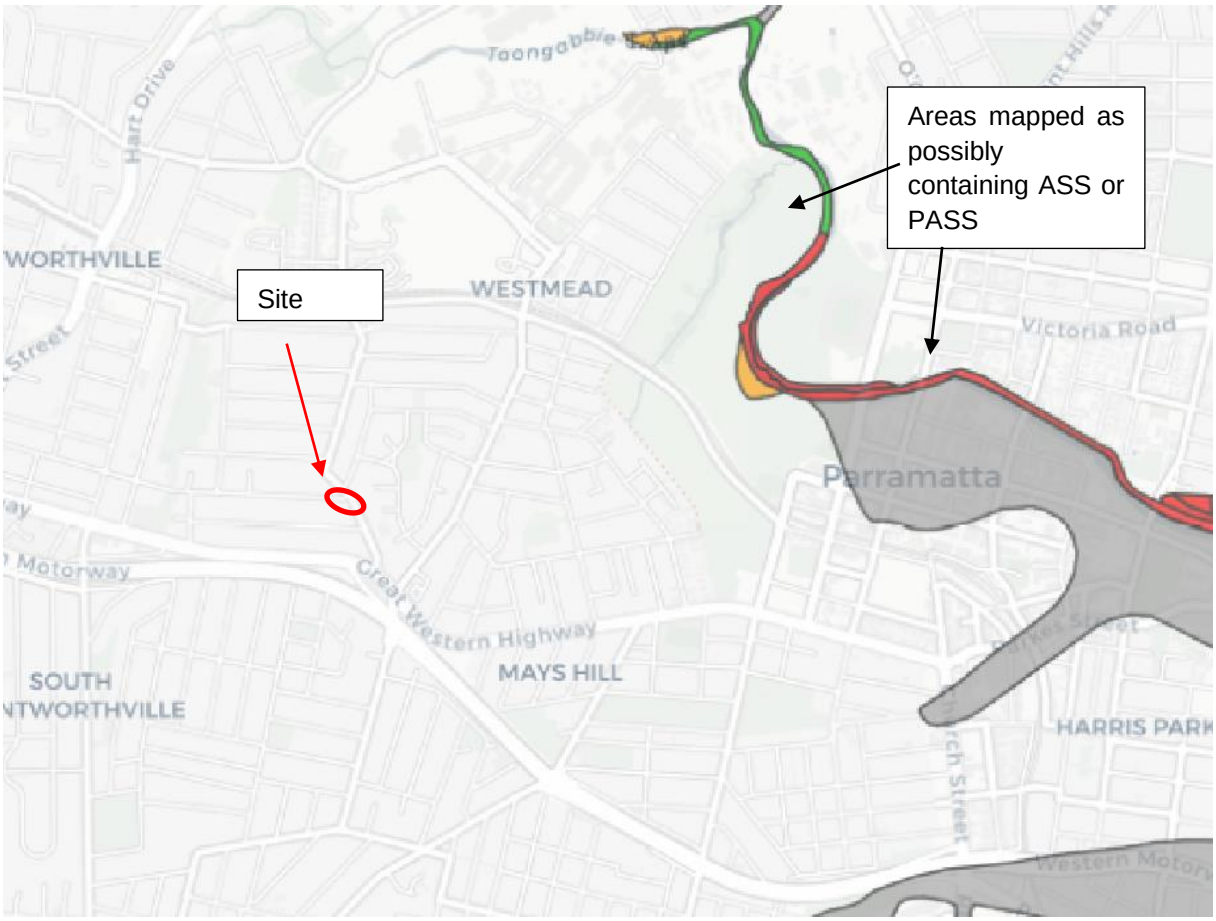

Figure 1: Excerpt of ASS Mapping

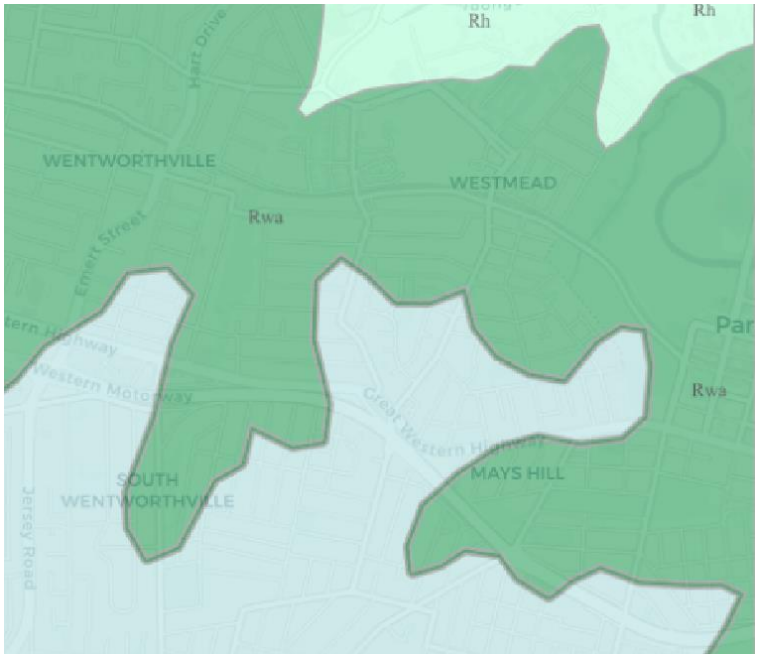

Figure 2: Excerpt of Penrith 1:100 000 Geological Series Sheet

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.