

Lee 4 Pty Ltd
4/3 Sydney Avenue
Barton ACT 2600

Project 91303.00
1 June 2018
R.004.Rev0
SAM:jah

Attention: Chris Farrington

Email: chris@domagroup.com.au

Dear Chris Farrington

Mine Subsidence Submission
Huntington
35 Honeysuckle Drive, Newcastle

This report presents a summary of the outcomes of previous mine subsidence reports that were prepared for the above site, together with the mine subsidence design parameters that were recommended at the completion of the mine rectification measures.

Several investigations have been undertaken by Douglas Partners Pty Ltd (DP) and Coffey Geotechnics Pty Ltd (Coffey) at the site which confirm that workings in the Borehole Seam underly the site at a depth of about 70 m. The principal report regarding the mine subsidence is "Proposed Mine Subsidence Mitigation Plan – Honeysuckle – Coffey report, 20 December 2010" (Ref 1).

The Coffey (2010) report summarised the results of previous mine subsidence investigations completed at the site and presented the output of mine subsidence modelling undertaken by Ditton Geotechnical Services (DgS). The current project at 35 Honeysuckle Drive is located in an area described in the Coffey (2010) report as Lee 4 as indicated in Figure 1 below.

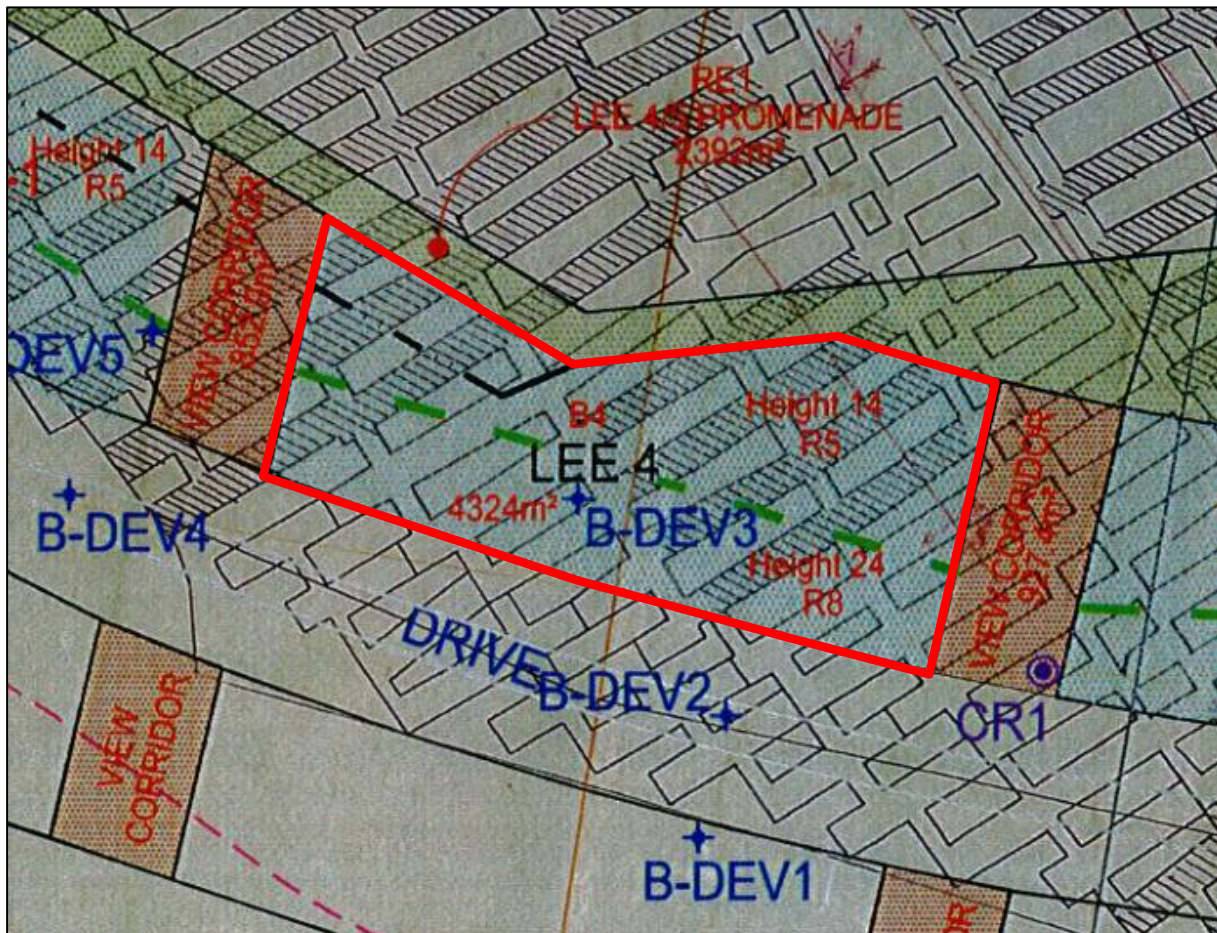


Figure 1: Extract from Coffey (2010) report showing the site boundaries (red) with respect to the underlying inferred Borehole Seam workings.

For buildings in the Lee 4 area, the Coffey (2010) report states that:

"This site has a somewhat simple risk mitigation plan as most of the workings under the site have already crushed to equilibrium with only minor residual subsidence to be conceivable"

The report presented recommendations that buildings should be designed to accommodate the following mine subsidence parameters:

- Maximum surface subsidence of 0.1 m;
- Maximum surface tensile strain of 1.0 mm / m;
- Maximum surface compressive strain of 1.45mm / m; and
- Maximum surface tilt of 2.7mm / m.

Discussions with the projects structural engineers (Northrop) have indicated that the structure could be designed to accommodate the above parameters.

Notwithstanding the above, a structural engineering assessment (Mine Impact Assessment) report is expected to be required by Subsidence Advisory NSW (formerly Mine Subsidence Board) for this development. In general, this report is required to detail how the structure can accommodate the above parameters, such that the structure will remain “safe serviceable and without damage due to mine subsidence”. Further correspondence from the Subsidence Advisory NSW will be required as part of the approval process.

Douglas Partners Pty Ltd (DP) has prepared this report for this project at 50 Honeysuckle Drive in accordance with DP’s proposal dated NCL180001 and email acceptance received from Chris Farrington of dated 4 April 2018. The work was carried out under DP’s Conditions of Engagement. In preparing this report DP has necessarily relied upon information provided by the client and their agents.

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

Yours faithfully

Douglas Partners Pty Ltd



Scott McFarlane

Principal

Reviewed by

Stephen Jones

Principal

Attachments: About this Report

References

1. Coffey Geotechnics Pty Ltd, “Proposed Mine Subsidence Mitigation Plan-Honeysuckle”, GEOTWARRA 20878AA-AN dated 20 December 2010.

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.

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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.