

DRAFT REPORT ON

**SITE ASSESSMENT
LOT 172, PARK RIDGE ESTATE
WHITFIELD, QUEENSLAND**

DRAFT
Submitted to:

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May, 2001

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1.0 INTRODUCTION

Golder Associates has carried out a site assessment of Lot 172 at Park Ridge Estate, Whitfield (refer attached Site Plan). The aims of the assessment were to provide geotechnical comments relating to proposed residential development at the site. This report presents the results of the assessment.

2.0 ENGINEERING COMMENTS

Inspections during construction of the subdivision indicate that foundation conditions would consist of either natural low to medium plasticity clayey soils and/or weathered rock, and/or controlled fill comprising these materials. Previous experience at Park Ridge indicates that the founding materials have a low potential for shrink/swell movement. For the purposes of AS2870-1996 "Residential Slabs and Footings - Construction", it is likely that the relatively level or benched building areas would be classified as Class S, providing the proposed buildings are set back at least 3 m from the toe and crest of batters. This would need to be confirmed by a project specific geotechnical investigation for the proposed development. If development including swimming pools is proposed within 3 m of the crest or toe of the batters and/or on sloping areas of the site, plans of the proposed development should be reviewed by Golder Associates. Proposed changes to drainage on the site should be taken into consideration by the civil/structural engineer and provided for in the design.

The stability of slopes and batters at the site was assessed by Golder Associates at the time of subdivision earthworks. The batters are considered to be stable, however, it should be noted that as with all hillslope development in the Cairns area some localised failures such as slumping of soils and small rock falls could occur. The long term stability of the slopes and batters will be highly dependent on the provision of adequate site drainage and the maintenance of vegetation following residential development.

Where filling has been placed on the site the areas of filling and the results of field density testing are shown on the attached Site Plan. For the purposes of AS2870-1996 "Residential Slabs and Footings - Construction" the fill can be considered to be "controlled fill" and the performance of the fill can be considered as such that its site classification would be similar to that of natural soil of the same site classification.

If further filling is required prior to residential construction earthworks should involve stripping of soil containing significant amounts of organic materials. The exposed surface should be compacted with a heavy vibrating roller to reveal soft or loose materials. These materials should be removed and replaced with controlled fill. If additional filling is required to raise the level of the building area then only controlled fill similar to the existing fill/natural soils should be used. Fill should be placed in uniform layers not exceeding 200 mm loose thickness and be compacted to a density ratio of at least 95% using Standard Compaction. Earthworks should be carried out under the supervision of a suitably qualified person and compaction checked by field density testing. It should be noted that the natural soils and

filled soils at this site are prone to surface softening during wet periods. Site preparation and earthworks for residential development should not be carried out during or immediately following extended wet periods.

Appendix B of AS2870-1996 "Residential Slabs and Footings – Construction" provides advice on normal foundation maintenance requirements to ensure the adequate performance of houses which have been designed and constructed in accordance with accepted practice. Attention is drawn to this advice.

3.0 IMPORTANT INFORMATION

Your attention is drawn to the document - "Important Information About Your Geotechnical Engineering Report", attached at the rear of this report. This document has been prepared by the ASFE (*Professional Firms Practising in the Geosciences*), of which Golder Associates is a member. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be, and to present you with recommendations on how to minimise the risks associated with the groundworks for this project. The document is not intended to reduce the level of responsibility accepted by Golder Associates, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.

We would be pleased to answer any questions about this important information.

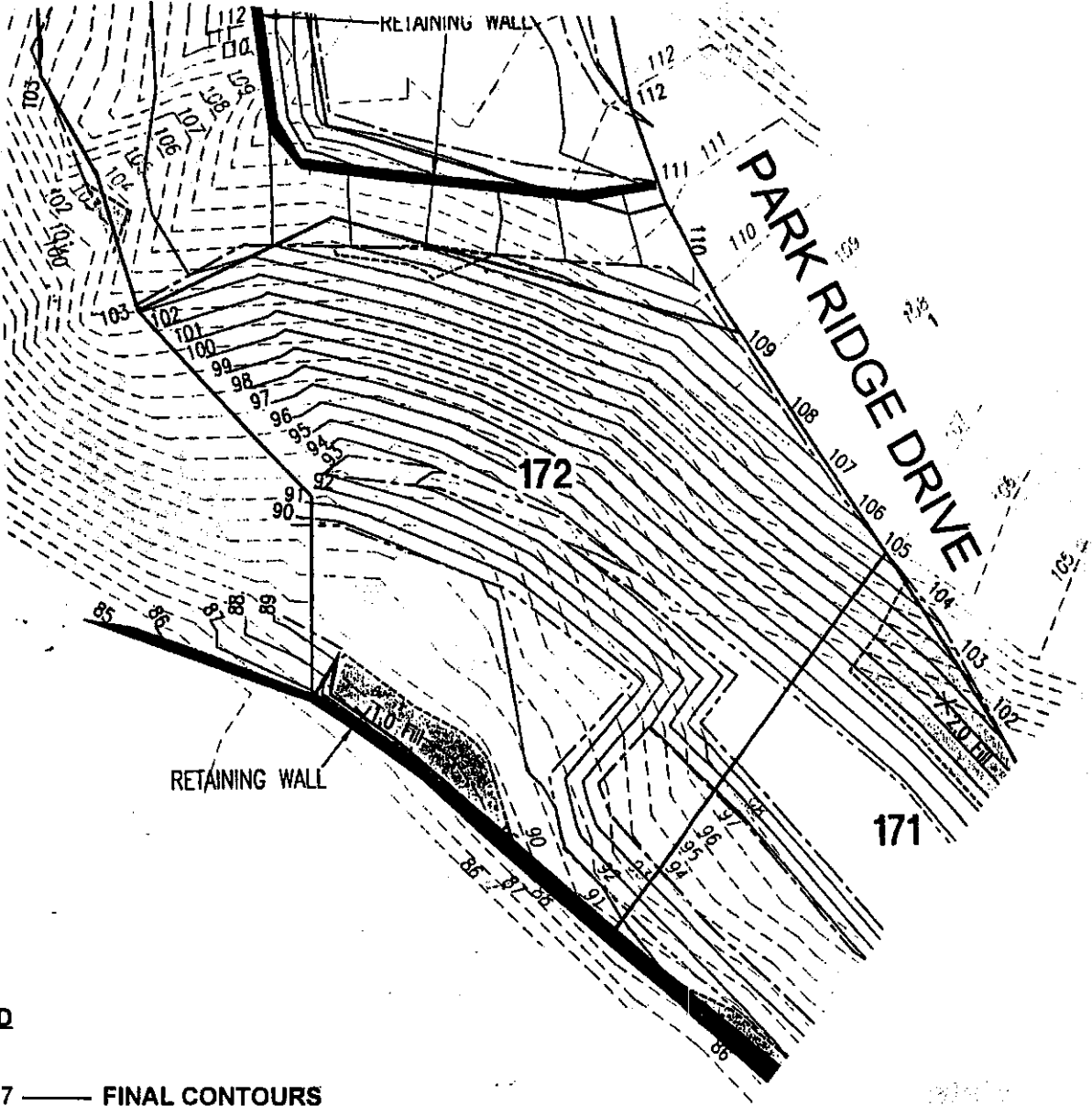
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GOLDER ASSOCIATES PTY LTD

Malcolm Cook
North Queensland Manager

Attachment: Figure 1, Site Plan

DCM/MSK/km
\\SERVER\IS-DRIVE\Data\95670211\Stg4C\70211r172.doc



LEGEND

- 57 —— FINAL CONTOURS
- 99 --- ORIGINAL CONTOURS
- FILLED AREAS

NOTE: REPRODUCED FROM C & B DRAWING NO. 5026-286



| | | | | |
|--|----------------------------|------------------|--|-----------------------|
| | CLIENT Woodmont Pty Ltd | | PROJECT Site Assessment – Lot 172 Park Ridge Estate | |
| | DRAWN DCM | DATE 19-03-01 | TITLE SITE PLAN | |
| | CHECKED <i>Jan</i> | DATE 29.5.01 | | |
| | SCALE 1:500 | A4 | PROJECT No 95670211 | FIGURE No 1 |

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Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfil the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. *No one except you* should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you* – should apply the report for any purpose or project except the one originally contemplated.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include : the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, *do not rely on a geotechnical engineering report* that was :

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical change that can erode the reliability of an existing geotechnical engineering report include those that affect :

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *Geotechnical Engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by : the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions *only* at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgement to render an *opinion* about subsurface conditions throughout the site. Actual subsurface conditions may differ – sometimes significantly – from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgement and opinion. Geotechnical engineers can finalise their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for*

the report's recommendations if that engineer does not perform construction observation.

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognise that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study. Only then might you be in a position to*

give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognise that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce such risks, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labelled "limitations", many of these provisions indicate where geotechnical engineers responsibilities begin and end, to help others recognise their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Rely on Your Geotechnical Engineer for Additional Assistance

Membership in ASFE exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE member geotechnical engineer for more information.



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