D M LAWRANCE SOIL TESTING PTY LTD EST. 1997 | GEOTECHNICAL AND FOUNDATION CONSULTANTS

GEOTECHNICAL ASSESSMENT AND LANDSLIDE RISK ASSESSMENT REPORT

Our Ref 20250524

Date 27 March 2026

Your Ref

CLIENT Grollo Group
344 Mansfield Street
THORNBURY 3071

SITE: CABIN 1A WHITEHORSE VILLAGE ROAD, MOUNT BULLER.

Subject Site

 ABN 28 076 987 632
PO Box 6085, Croydon North VIC 3136 | info@dmlsoiltesting.com.au | www.dmlsoiltesting.com.au | P 03 9722 2611

1.0 INTRODUCTION

(a) COMMISSION

This company has been engaged by the above-mentioned client to undertake the following work.

Carry out a site-specific Geotechnical Assessment investigation and report at the above-mentioned site. This investigation and report have been commissioned in accordance with the requirements of the Alpine Resorts Planning Scheme, Schedule 1 to Clause 44.01 Erosion Management Overlay – Amendment C31alpr.

Given that there are no exceptional circumstances this case, sub-Clause 4.0 the Alpine Resorts Planning Scheme to requires a Landslide Risk Assessment in addition to the Geotechnical Assessment.

To the best of the author's knowledge, this investigation and report has been undertaken in accordance with the Australian Geomechanics Society Guidelines titled "Practice Note Guidelines for Landslide Risk Management" which have been published in the Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007 (referred to below as the AGS Guidelines 2007 (c))

To the best of the author's knowledge this investigation and report are based on site specific field investigations undertaken not more than twelve months prior to the application for a planning permit.

(b) SCOPE

This report is a geotechnical report and is provided to help facilitate the planning, design and construction of residential building works. It does not in any way constitute an engineering design, nor is it intended to be used as a detailed schedule of works. Due to the number of possible unforeseeable factors that can influence slope instability, the findings and recommendations contained in this report are intended to provide advice that should go some way to help reduce the likelihood of slope instability that may occur because of the proposed development at this site. This is not intended to be an exhaustive investigation and report. It is also stressed that this report must not be interpreted to infer that there is no risk of land slide on this site or on adjoining properties or areas.

This report must be read in conjunction with the following:

- The Practice Note Guidelines for Landslide Risk Management 2007, Journal of Australian Geomechanics Society, Vol 42 No 7 March 2007.
- Commentary on Practice Note Guidelines for Landslide Risk Management 2007, Journal of Australian Geomechanics Society, Vol 42; No 7, March 2007.
- Good Hill Side Construction Practice, Australian Geoguide LR8, Journal of Australian Geomechanics Society, Vol 42; No 1, March 2007.
- The attached Landslide Risk Assessment Report.
- All of the development plans and documentations including as itemised in the Geotechnical Declaration below.

The findings and recommendations in this report are based on the data gathered and interpreted during our investigation, on previous experience in this area, on information and documentation supplied by the client and on a review of the readily available published information. This report assumes that the information supplied to us is correct, relevant and complete. If this information is incorrect or incomplete in any way or if significant alterations are made to the project and/or site after our investigation then the findings and recommendations contained in this report will need to be reviewed and if appropriate amended.

It must be understood that the geotechnical assessment of slope instability is a staged process and that this current investigation and report may identify risks that require more extensive and detailed investigation. It is possible that the level of land slide risk on some sites may not be able to be mitigated sufficiently to achieve a tolerable risk as defined in AGS Guidelines 2007 (c).

(c) INVESTIGATIVE METHODS

As much as possible this site investigation was undertaken in accordance with the current requirements for Geotechnical Assessments of slope instability as outlined in the AGS Guidelines 2007 (c). This investigation was undertaken in accordance with the procedures presented during the Australian Geomechanics Society Short Course "Field Techniques for Landslide Assessment, Melbourne 14th -16th November 2014".

A review was undertaken of the readily available relevant published information relating to slope instability in this area.

The documents reviewed in the preparation of this report include the following:

- The published reports and documents itemised in the following references section 6 (a).

- The development plans and documentations as itemised in the Geotechnical Declaration below.

Established data with regard to the behaviour and performance of slopes in this area was also considered.

The subsurface conditions at this site were assessed from geotechnical investigations undertaken using hand equipment. Geotechnical information from exposed cut batters in the general area and observations of the local landform was also considered.

Disturbed samples were collected and examined by the visual tactile method. The appropriate geological maps were also considered.

2.0 FINDINGS

(a) PROPOSED DEVELOPMENT

Based on the information supplied to us by the client and from the documentation made available we understand that the proposed development on this site will consist of a three level, clad frame cabin/unit that will largely be used for holiday accommodation during the snow season. The proposed building will consist of long-span pole frame construction supported on isolated pad/pier footings.

The design life for these building works is considered to be 50 years as per AS 2870 2011.

This report is provided on the basis that the entire building and site works including all earth leveling works, retaining structures and site drainage will be undertaken in strict accordance with the following documentation which has been reviewed and considered in the preparation of this report. It is stressed again that this report must be read in conjunction with this documentation.

- The development plans and documentations as itemised in the Geotechnical Declaration below.

- The proposed building works will be located within the building area as shown on the relevant site plan.

The proposed development must also comply with the Geotechnical Constraints on Development as listed in section 4.0 below.

(b) SITE DESCRIPTION

This site is located in an established snow resort at the above-mentioned address. The site is situated on the south-west side of the street.

Slope

During our recent site investigation, it was noted that a large proportion of the site that fronts the low side of the road, has been filled. This filling appears to be associated with the lower fill embankment to facilitate the construction of Whitehorse Village Road. As can be seen from the photographs below, the depth of filling across the front of this site is likely to be in the order of 4.0 to 5.0 m deep.

Notwithstanding the large fill embankment associated with the road across the front of this site, the general original ground surface in this area slopes towards the south-west at a general slope of 11° - 17º or 20 to 30%. The degree of slope was measured onsite with a hand-held inclinometer.

The natural slope and landform on and immediately adjacent to the subject site are planar and appear to be relatively unaltered from the original natural state. The landform across the building area and most of the subject site appears to be derived from long term insitu geological weathering.

Vegetation

Vegetation across the site consists of relatively dense ground covers consisting of alpine grasses and low shrubs. There is one stand of immature snow gums on the site.

Property Size

The subject property is in the order of 200 to 240 m^2 s in area which is typical for holiday units in this area.

Access

Access to the front of the site (high) is good and is afforded along an existing formed paved road. Access to the rear of the site is fair and is afforded via a formed gravel track. Access within the site is very poor as most of the site is positioned on a very steep fill embankment associated with the low side of Whitehorse Village Road (refer to the following photographs).

Drainage

Site drainage in and around the building area is generally fair. It is evident that runoff from the paved Whitehorse Village Road that extends across the front of the site is being directed into legal point of discharge. It is critical to the slope stability of the subject site that the surface and sub-surface drainage associated with Whitehorse Village Road and all underground pipe work remains is good working order at all times.

No soaks, springs or locally wet areas were observed in or around the subject site during our recent site investigation.

Current Use

The existing site is currently vacant.

Existing Site Leveling Works

At present, most of the front of the site is located within a large, steep fill embankment. This fill embankment appears to be associated with the construction of Whitehorse Village Road. As can be seen from the photographs below, the depth of filling across the front of this site appears to be in the order of 4.0 to 5.0 m deep and is currently resting at an approximate angle of 1 : 1.5, or 66% (33°).

This road embankment appears to be largely stable at present, however as part of the proposed works will encroach into the area of this embankment it is critical that the presence of this embankment is considered in the planning, design and construction of the proposed works.

(c) SUB SURFACE CONDITIONS

In order to prepare this report it was considered necessary to investigate the sub surface conditions at this by undertaking site specific sub surface investigations. These investigations included logging of the nearby cut faces around the subject site.

The details of the soil/rock profile are shown on the following borelogs. It is stressed that the soil conditions encountered at the test locations may not be representative of conditions over the rest of the site. If this is found to be the case then this report will need to be reviewed and if appropriate amended.

(d) SITE GEOLOGY

Based on the natural soil profile encountered at this site, from previous experience and after considering the appropriate geological map it is evident that this site is located in an area of Devonian Granodiorites.

(e) GEOTECHNICAL / GEOLOGICAL MODEL FOR THE SUBJECT SITE

Based on our investigations and after considering the geomorphology of this site and the surrounding areas it is evident that the landform and therefore the soil profile in this area is derived from insitu weathering of the underlying bedrock known as *"Mount Stirling Granodiorite Unassigned" - Dmg 184.* The underlying granodiorite bedrock was formed as a result of extensive large scale volcanic activity over 300 million years ago.

In general, the soil profile consists of a natural clayey sand (topsoil layer) which extends to depths of less than 1.0 m below the current ground surface. The lower sequence of this layer contains numerous rock pieces and floaters. The topsoil layer is directly underlain by a minor, discontinuous layer of natural sandy clay which also contains numerous rock pieces and floaters. When present, this sandy clay grades transitionally into the underlying distinctly to moderately weathered granodiorite. Previous experience with this profile indicates that the distinctly to moderately weathered granodiorite grades relatively quickly into fresh – competent granodiorite with increasing depth.

During our recent site investigation, two separate facture planes were observed within the granodiorite bedrock. The primary fracture plane (S_0) dips at 65° towards 040° (approx) and the secondary fracture plane (S_1) dips at 70° towards 310°(approx). Refer to the photographs below.

(f) NATURAL SLOPES AND EVIDENCE OF PAST LANDSLIDES

Based on our recent geotechnical investigation and from previous experience in this area it is evident that that the natural at rest slope around the subject site is in the order of 11° - 17º or 20 to 30% towards the south-west.

Based on our recent geotechnical investigation there do not appear to be any natural slopes on or immediately adjacent to the building area that exhibit evidence of possible or past, significant land sliding.

From a review of the readily available published information, it is evident that there have been no significant slope instability events documented on or around this site.

During our recent site investigation, no evidence was observed to suggest that significant slope instability has been occurring in or around the subject site in the past.

During our recent site investigation, no evidence was observed to suggest that significant slope instability may occur in or around the subject site in the foreseeable future, provided the recommendations in this report are followed.

3.0 CONCLUSIONS

(a) The findings in this report are based the data obtained and provided. It is assumed in this report that the soil profile encountered at the locations tested is reasonably representative of the general soil conditions across the rest of the site. If this is not found to be the case this report will need to be review and if necessary amended.

Based on the findings of this investigation and report, from the documentation provided and considering the current published requirements of the Alpine Resorts Planning Scheme, Schedule 1 to Clause 44.01 Erosion Management Overlay – Amendment C31alpr, it is considered that a Land Slide Risk Assessment is required at this site (refer below).

From a review of the current planning and development documentation made available to us, it is considered that the information in these documents that relates to slope instability generally complies with the requirements of this report, and particularly the following Geotechnical Constraints on Development.

Provided all of the requirements listed below under the heading of Geotechnical Constraints on Development are strictly adhered to over the life of the development, it is considered that the proposed development as detailed in the documents provided to us can be carried out with out adversely increasing the landslide risk in and around the building area.

The above conclusion is based on the following:

(a) there are no readily foreseeable factors that could reasonably be predicted to result in degrees of risk, that fall outside of the "tolerable" degree of risk as defined in the AGS Guidelines 2007 (c),

(b) there are no obvious signs of significant slope instability in or around the building area,

(c) the proposed works as outlined in the documentation provided, comply with the conditions of this report.

The proposed development at this site should only be approved subject to the conditions outlined below under the heading of Geotechnical Constraints on Development.

4.0 GEOTECHNICAL CONSTRAINTS ON DEVELOPMENT

(a) The client's and any future owners' or occupiers' attention is drawn to the following:

Firstly, it should be noted that due to the vast number of factors that affect the long-term performance of slopes, many of which are unforeseeable it is not possible to provide advice that will mitigate the risk of slope instability entirely. Sites with any reasonable degree of slope on or around them can be susceptible to slope instability. The purpose of this report is to provide advice that will help to reduce these risks to a tolerable level as defined in the AGS Guidelines 2007 (c).

When undertaking the proposed development at this site it is essential that the following recommendations are adopted:

Site Specific Requirements

The impact of the proposed works on the large road embankment across the front of the subject site must be considered in the planning, design and construction of the works. It is essential that the proposed works do not compromise the short or long-term amenity, stability and safety to the road embankment. As the roadway is public right of way, the proposed works must not affect the trafficability of the roadway at any time. Any retaining walls required for the proposed works in the area of the road embankment will need to be designed for additional surcharge loads associated with the roadway above.

To help reduce the impact of the proposed works on the large road embankment across the front of the subject site it is recommended that the proposed works be sited further down the embankment which will reduce the height of the site required to facilitate the proposed works. Strong consideration should also be given to raising the proposed finished levels of works which will also reduce the depth the site cut. Ideally, the site cut should be kept as close as practical to a maximum overall height of 1.0 m.

All proposed footings must be designed by a suitably qualified and experienced engineer with specific design experience in landslide risk. The proposed works should be supported on isolated pad or pier footings founded entirely on the natural, slightly weathered granodiorite bedrock (SW) (refer to photographs below). Due to the extreme hardness of the bedrock, achieving any meaningful socketing depth into the rock to address lateral downslope footing movement is unlikely to be viable. As an alternative, starter bars (ground anchors) drilled and grouted well into the natural slightly weathered granodiorite bedrock should be used to anchor the pads or piers in place. This anchoring system must be designed by a suitably qualified and experienced engineer with specific design experience in landslide risk to address lateral shearing associated with the down slope movement of soil/rock.

Due to the fact that slightly weathered bedrock exists close to the surface significant to extreme difficulty can be expected when undertaking excavations at this site. It should also be noted that it is possible that rock breaking equipment and/or blasting may be required if significant excavations into the bedrock are proposed at this site.

Building Design and Footing Requirements

Use building designs that minimise the amount of cutting and filling (ie split level and raised decks). Designs that require large level areas should be avoided. Footings should be founded on natural competent rock. It is stressed that the footings must also be founded in accordance with the requirements of the geotechnical report and engineers footing design. Ideally pad footings or rows of piers should be orientated up and down the slope. After footing installation all footing excavations should be backfilled with well compacted non granular filling.

Site Leveling Works

It is advisable to retain the natural landform and vegetation wherever possible. Site cutting and filling should be kept to a minimum. Where cut and or filling works exist or are proposed, the cut and/or fill depths should not exceed 1000 mm. When filling a site the vegetation and topsoil should be removed and the fill should be keyed into the slope. The fill should consist of clean clayey soil or rock with little or no organics. The fill should be placed in layers up to 200 mm thick with each layer being well compacted at the appropriate moisture content.

All batters must either be retained by engineer designed retaining walls or battered back to an angle of not more than 2 horizontal to1 vertical . The retaining walls, their footing systems and the associated drainage works must be designed by a suitably qualified and experienced engineer. All batter faces should be protected as soon after construction as possible by mulching and revegetating with fast growing deep rooted plants.

It is important to ensure that all site leveling works including cuts, fills, retaining walls, site drainage works and stockpiling of soil are fully completed and made stable as soon as is practically possible after these works are commenced. It is advisable to ensure that these works are completed within weeks rather than months.

Loose rock pieces or floaters should be removed from steep batter faces or stabilized and retained in place permanently. Verified competent bedrock should be left undisturbed as much as possible.

Site Drainage

It is critical that good site drainage is installed and maintained at all times across the high side of the entire works area. This drainage should include installing a combination of cutoff drains and high volume spoon drains across the high side of the area, these drains should intercept both surface and sub surface water. The cut off drain should be founded at least 100 mm into the natural clay. These drains should outlet via a silt pit to a legal point of discharge. All subsurface drains should be installed with adequate filtering and consideration should be given to allow access for future maintenance of the drainage systems. Spoon drains will also require regular maintenance. It is very important that the site drainage systems in and around the building works are maintained in good working order over the life of the building works.

The top and bottom of all cut and fill batters should also be positively drained.

With regard to effluent disposal it is strongly advisable to connect to a sewer main. Where this is not possible advice should be obtained from the local Council Health Surveyor. In any case, it is essential that any effluent is discharged well away from the building area preferably across the slope from the works area. Under no circumstances should effluent be discharged upslope from the works area. Where effluent is to be discharged down slope of the works area it should be discharged across the slope rather than directly down slope of the project area. A simple septic tank with dispersal lines is not recommended at this site.

Other than ensuring that all of the above constraints are applied and reasonably maintained over the life of the building it is considered that no particular maintenance measures or inspections (geotechnical or otherwise) are required for this project.

5.0 LIMITATIONS

(a) It is stressed again that it is not technically feasible to assess the slope stability of a particular site in absolute terms. However it is possible, based on site specific investigation including, the recognition of surface features, investigation of the sub surface conditions, consideration of the geology and from previous experience in similar environments to provide an assessment of the slope instability in general terms.

As stated above due to the number of possible unforeseeable factors that can influence slope instability, the findings and recommendations contained in this report are intended to provide advice that should go some way to help reduce the likelihood of slope instability as a result of the proposed development at this site. This is not intended to be an exhaustive investigation and report. It is also stressed that this report must not be interpreted to infer that there is no risk of land slide on this site or on adjoining properties or areas.

It must be understood that the geotechnical assessment of slope instability is a staged process and that this current investigation and report may identify risks that require more extensive and detailed investigation.

(b) The findings and recommendations in this report are based on the data gathered and interpreted during our investigation, on previous experience in this area, on information and documentation supplied by the client and on a review of the readily available published information. This report assumes that the information supplied to us is correct, relevant and complete. If this information is incorrect or incomplete in any way or if significant alterations are made to the project and/or site after our investigation then the findings and recommendations contained in this report will need to be reviewed and if appropriate amended.

(c) This company will not be responsible for any loss or damage that may occur as a result of a failure to comply completely with all of recommendations, requirements and constraints given in this report.

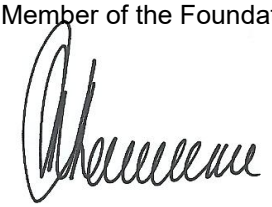
(d) Copyright of this report remains the property of D M Lawrance Soil Testing Pty Ltd at all times. Once full payment has been received, the above mentioned client will have a license to use this report for the specific circumstances for which this investigation and report were commissioned. Unless advance written agreement is provided by D M Lawrance Soil Testing Pty Ltd , this report is not be used for any other purpose, it must not be altered by any party other than this company and must only be reproduced in full.

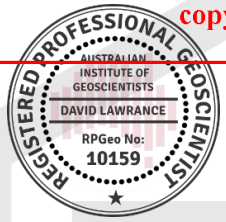
If the above mentioned client fails in their obligation to provide payment for this report, this company make revoke the client's license to use the report or any of the information contained in the report, for any purpose. In this case, the client shall return all copies of the report to this company. In the event of non-payment by the client, D M Lawrance Soil Testing Pty Ltd reserves the right to on sell the report to a third party.

(e) The soil profile exposed in the borehole undertaken at this site is assumed to be representative of the general conditions on site. If this is not the case then this report may need to be reviewed and if appropriate amended.

(f) If significant changes are made to this or neighbouring sites after our investigation, this report will need to be reviewed and if appropriate amended.

For and on behalf of
D M Lawrance Soil Testing Pty Ltd
Member of the Foundations and Footings Society (Vic)





David M Lawrance
Engineering Geologist B Sc (Hons) Maig RPGeo
Registered Professional Geoscientist 10159

6.0 REFERENCES

(a) The Practice Note Guidelines for Landslide Risk Management 2007, Journal of Australian Geomechanics Society, Vol 42 No 1 March 2007.

Commentary on Practice Note Guidelines for Landslide Risk Management 2007, Journal of Australian Geomechanics Society, Vol 42; No 1, March 2007.

Good Hill Side Construction Practice, Australian Geoguide LR8, Journal of Australian Geomechanics Society, Vol 42; No 1, March 2007.

Australian Standard AS 2870 2011, Standards Australia Limited.

Douglas, J.G & Ferguson, J A (1988) Geology of Victoria. Geological Society of Australia.

Geological Survey of Victoria, Warburton Geological Map 1 : 250 000.

Victorian Government website Land.vic.gov.au

Australian Geomechanics Society, short course, Field Techniques for Landslide Risk Assessment, Melbourne 14th -16th November 2014. Presented by Fred Baynes, Phil Flentje, Anthony Miner and Darren Paul.

Alpine Resorts Planning Scheme, Schedule 1 to Clause 44.01 Erosion Management Overlay – Amendment C31alpr.

7.0 APPENDIX

(a) THE AUTHOR

This investigation and report has been undertaken personally by the following:

Name David M Lawrance

Qualifications Engineering Geologist B Sc (Hons) from Monash University.
Registered Professional Geoscientist RPGeo 10159

Statement of Relevant Experience

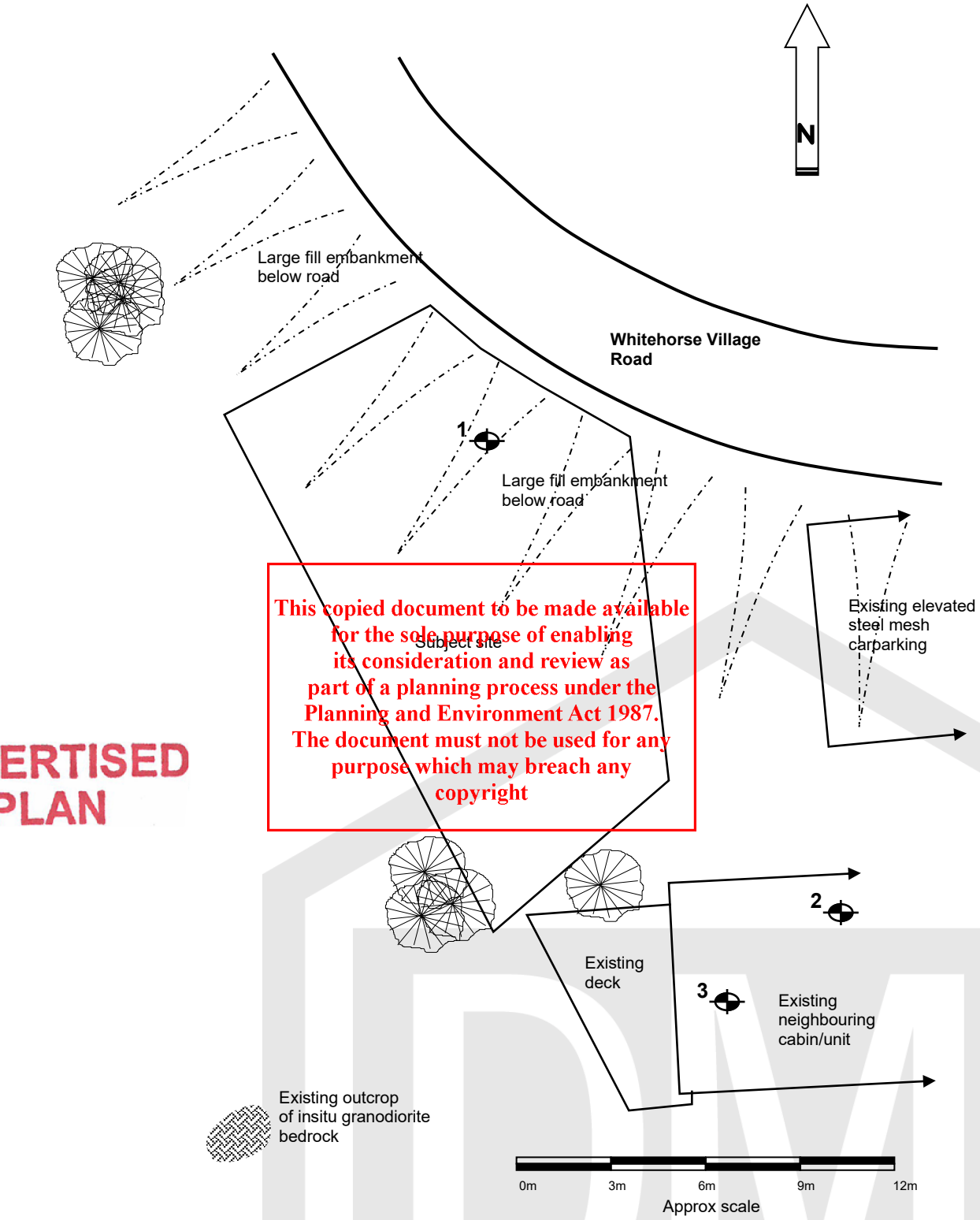
After graduating in 1984 I completed a contract for the then Department of Minerals and Energy. This contract was to carry out geological field mapping including an assessment of possible slope instability across part of the Latrobe Valley in Victoria in order to complete the Yinnar 1 : 50000 geological map sheet.

Since 1986 I have worked in the Geotechnical field mainly in Melbourne and the surrounding areas. This work mainly involves site investigation, footing recommendation and report preparation in accordance with AS 2870 1996 “Residential Slabs and Footings – Construction”. My work has predominantly involved visiting the actual building site to identify the site conditions that are likely to affect the performance of the proposed footing system. The investigations include drilling boreholes or excavating test pits in order to identify the soil profile to enable a site classification and footing recommendation to be determined. During these investigations assessments are also made with regard to slope stability issues.

Attended the recent Australian Geomechanics Society Short Course "Field Techniques for Landslide Assessment, Melbourne 14th -16th November 2014".

Current Member of ; the Australian Institute of Geoscientists, life member of the Foundation and Footings Society of Victoria and the Australian Geomechanics Society.

SITE FEATURES PLAN



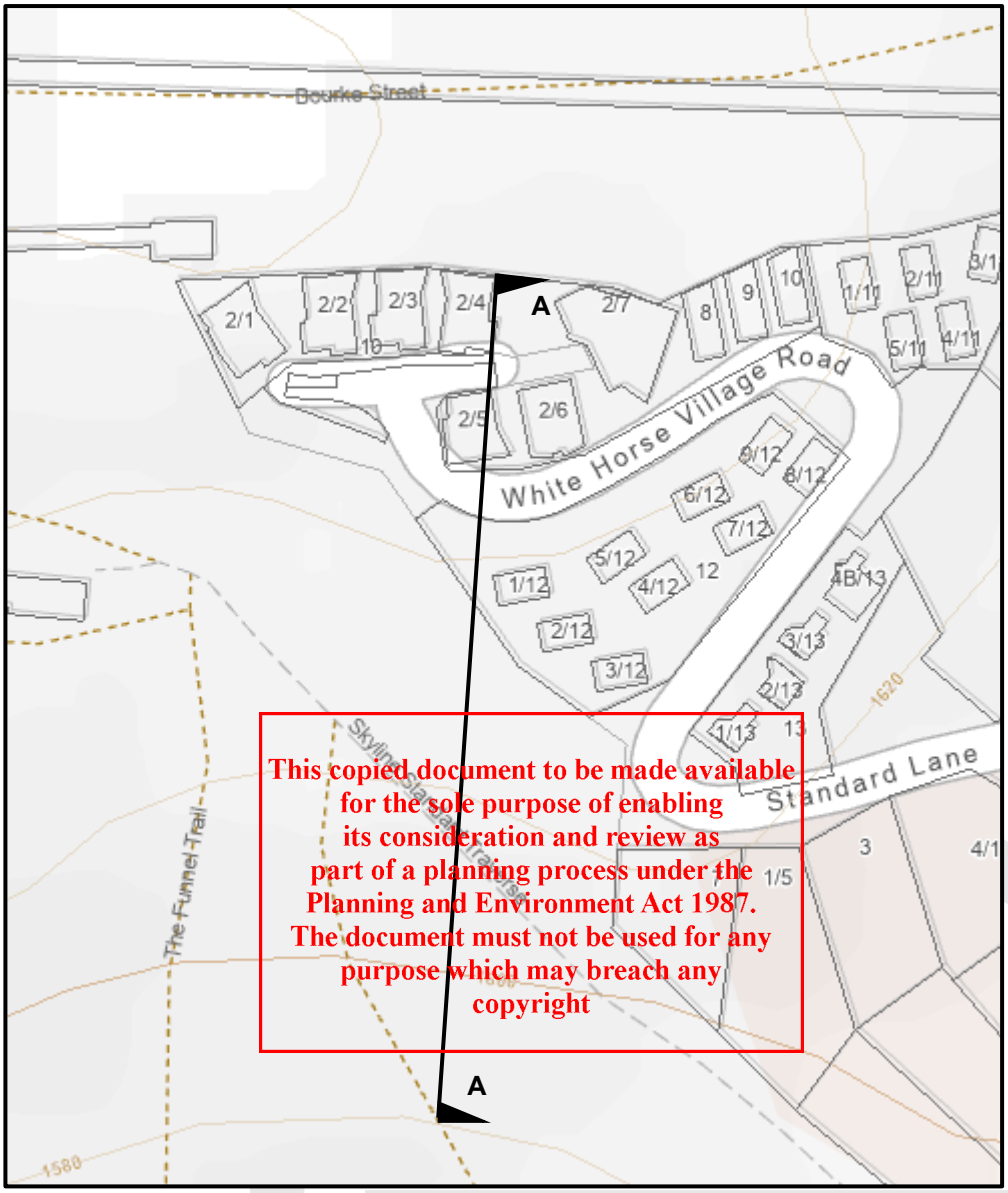
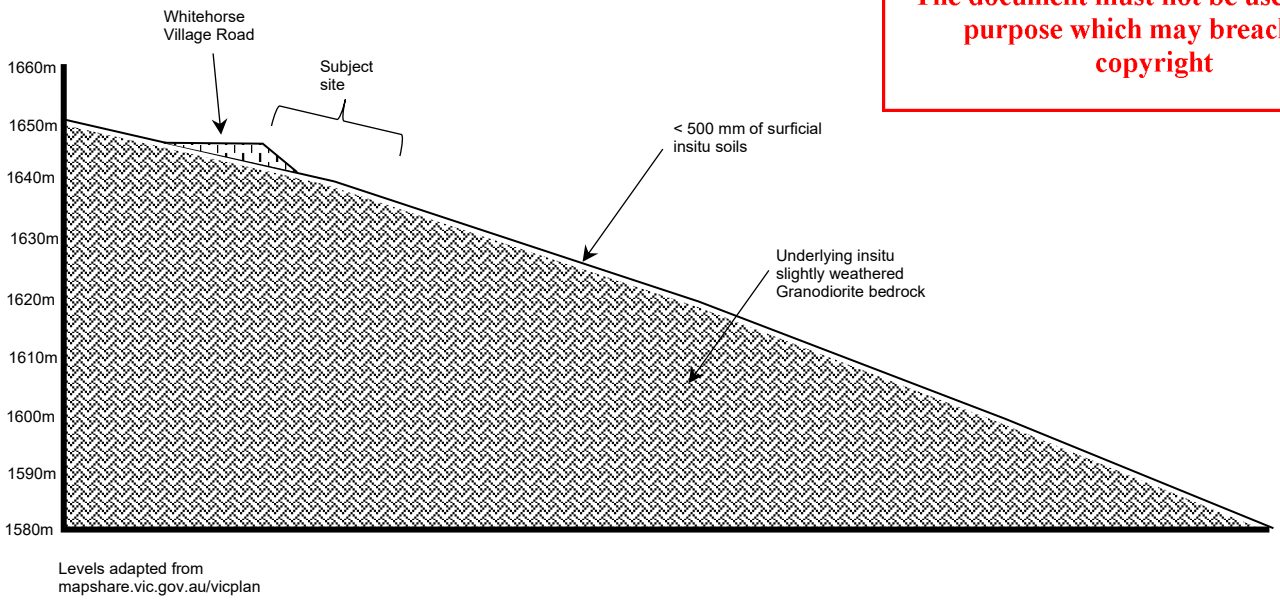


Image from mapshare.vic.gov.au/vicplan

CROSS SECTION

SECTION A - A



Levels adapted from
mapshare.vic.gov.au/vicplan

Approx scale

PO Box 6085, Croydon North VIC 3136 | info@dmlsoiltesting.com.au | www.dmlsoiltesting.com.au | P 03 9722 2611

GEOTECHNICAL BORELOG

Our Reference 20250524

Site CABIN 1A WHITEHORSE VILLAGE ROAD, MOUNT BULLER.

Client Grollo Group

Borehole/test site number ONE

Date of borehole 5/3/2026

Logged by DML

Checked by DML

Weather fine

Method Inferred fill logged via a visual assessment of the road embankment, natural profile logged from previous contractor photographs & visual assessment of nearby cut embankments.

Depth in metres	Graphic Log	Unified Soil Classification	Soil Description Material Content, Plasticity and Particle Characteristics, Consistency/density colour, secondary or other components	Moisture condition	Dynamic Cone Penetrometer	Vane Shear	Structure and other details
			FILLING Clayey Sand, minor Sandy CLAY (Brown/Grey/Red)	M			Moderately compacted Filling
			Contains numerous rock pieces & floaters throughout				
1.00							
2.00							
3.00							
4.0		SC	Clayey SAND (Bown/Red) Medium Dense	M			Residual insitu soil
		SW	Slightly Weathered Granodiorite BEDROCK Very Hard				Residual insitu bedrock
			END OF BORELOG AT 4.5 metres				

Graphic

Fill

Silt

Sand

Clay

Rock

Soil Moisture

NOTE: DESCRIPTIONS OF MOISTURE CONTENT ARE IN ACCORDANCE WITH AS 1726 1993 (GEOTECHNICAL SITE INVESTIGATIONS) ie DRY :Cohesive soils: hard and friable or powdery, well dry of Plastic Limit. Granular soils: cohesionless and free running. SLIGHTLY MOIST: Cohesive soils difficult to mould, well dry of Plastic Limit. Granular soils: slight moist feel and clump. MOIST: Cohesive soils: can be moulded with a little effort, near Plastic Limit. Granular soils: soils feel cool and darkened in colour. VERY MOIST: Cohesive soils: easily re-moulded, above Plastic Limit. Granular soils: feel very cool darkened and damp. WET: Cohesive soils: usually weakened and free water forms on hands when handling. Granular soils: granular soils tend to cohere.

D-Dry SM-Slightly Moist M-Moist VM-Very Moist W-Wet

Consistency/ Density Description

Cohesive soil	Non Cohesive
S Soft	VL Very Loose
F Firm	L Loose
ST Stiff	MD Medium Dense
VST Very Stiff	D Dense
H Hard	

Dynamic Cone Penetrometer Readings are in blows per 100 mm

Unified Soil Classification is in accordance with the Unified Soil Classification system

GEOTECHNICAL BORELOG

Our Reference 20250524

Date of borehole 5/3/2026

Site CABIN 1A WHITEHORSE VILLAGE ROAD, MOUNT BULLER.

Logged by DML

Client Grollo Group

Checked by DML

Borehole/test site number TWO

Weather fine

Method Logged from previous contractor photographs of next door & visual assessment of nearby cut embankments.

Depth in metres	Graphic Log	Unified Soil Classification	Soil Description Material Content, Plasticity and Particle Characteristics, Consistency/density colour, secondary or other components	Moisture condition	Dynamic Cone Penetrometer	Vane Shear	Structure and other details
		SC	Clayey SAND (Bown/Red) Medium Dense	M			Residual insitu soil
0.5		SW	Slightly Weathered Granodiorite BEDROCK Very Hard				Residual insitu bedrock
			End of log				
1.0							
1.5							
2.0							

Graphic

Fill

Silt

Sand

Clay

Rock

Soil Moisture

NOTE: DESCRIPTIONS OF MOISTURE CONTENT ARE IN ACCORDANCE WITH AS 1726 1993 (GEOTECHNICAL SITE INVESTIGATIONS) ie DRY :Cohesive soils: hard and friable or powdery, well dry of Plastic Limit. Granular soils: cohesionless and free running. SLIGHTLY MOIST: Cohesive soils difficult to mould, well dry of Plastic Limit. Granular soils: slight moist feel and clump. MOIST: Cohesive soils: can be moulded with a little effort, near Plastic Limit. Granular soils: soils feel cool and darkened in colour. VERY MOIST: Cohesive soils: easily re-moulded, above Plastic Limit. Granular soils: feel very cool darkened and damp. WET: Cohesive soils: usually weakened and free water forms on hands when handling. Granular soils: granular soils tend to cohere.

D-Dry SM-Slightly Moist M-Moist VM-Very Moist W-Wet

Consistency/ Density Description

Cohesive soil	Non Cohesive
S Soft	VL Very Loose
F Firm	L Loose
ST Stiff	MD Medium Dense
VST Very Stiff	D Dense
H Hard	

Dynamic Cone Penetrometer Readings are in blows per 100 mm

Unified Soil Classification is in accordance with the Unified Soil Classification system

GEOTECHNICAL BORELOG

Our Reference 20250524

Site CABIN 1A WHITEHORSE VILLAGE ROAD, MOUNT BULLER.

Client Grollo Group

Borehole/test site number THREE

Method Logged from previous contractor photographs of next door & visual assessment of nearby cut embankments.

Date of borehole 5/3/2026

Logged by DML

Checked by DML

Weather fine

Depth in metres	Graphic Log	Unified Soil Classification	Soil Description Material Content, Plasticity and Particle Characteristics, Consistency/density colour, secondary or other components	Moisture condition	Dynamic Cone Penetrometer	Vane Shear	Structure and other details
		SC	Clayey SAND (Bown/Red) Medium Dense	M			Residual insitu soil
0.5		SW	Slightly Weathered Granodiorite BEDROCK Very Hard				Residual insitu bedrock
			End of log				
1.0							
1.5							
2.0							

Graphic

Fill

Silt

Sand

Clay

Rock

Soil Moisture

NOTE: DESCRIPTIONS OF MOISTURE CONTENT ARE IN ACCORDANCE WITH AS 1726 1993 (GEOTECHNICAL SITE INVESTIGATIONS) ie DRY :Cohesive soils: hard and friable or powdery, well dry of Plastic Limit. Granular soils: cohesionless and free running. SLIGHTLY MOIST: Cohesive soils difficult to mould, well dry of Plastic Limit. Granular soils: slight moist feel and clump. MOIST: Cohesive soils: can be moulded with a little effort, near Plastic Limit. Granular soils: soils feel cool and darkened in colour. VERY MOIST: Cohesive soils: easily re-moulded, above Plastic Limit. Granular soils: feel very cool darkened and damp. WET: Cohesive soils: usually weakened and free water forms on hands when handling. Granular soils: granular soils tend to cohere.

D-Dry SM-Slightly Moist M-Moist VM-Very Moist W-Wet

Consistency/ Density Description

Cohesive soil	Non Cohesive
S Soft	VL Very Loose
F Firm	L Loose
ST Stiff	MD Medium Dense
VST Very Stiff	D Dense
H Hard	

Dynamic Cone Penetrometer Readings are in blows per 100 mm

Unified Soil Classification is in accordance with the Unified Soil Classification system

PHOTOGRAPHS

Photo 1 view of typical degree of slope on road fill embankment (taken on angle to match the slope).

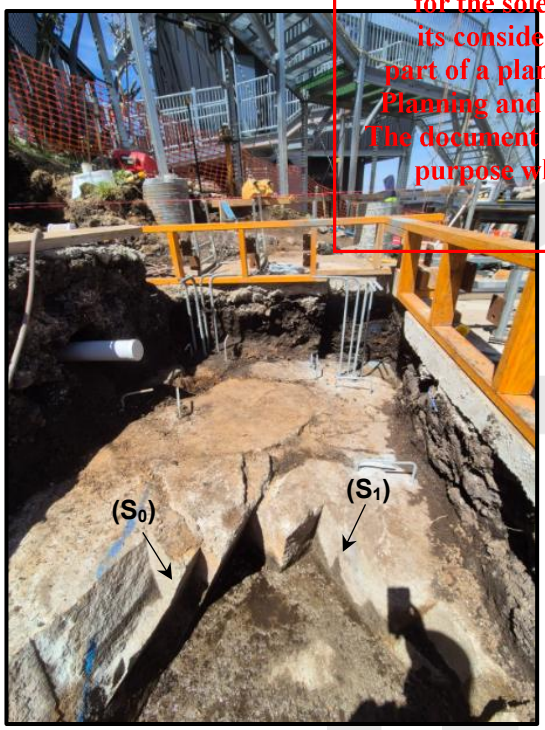


Photo 2 (previously taken by contractor) of insitu, slightly weathered granodiorite bedrock exposed in the footing excavations for that building. Note the two main fracture planes.

Photo 3 (previously taken by contractor) of insitu, slightly weathered granodiorite bedrock exposed in the footing excavations for that building.

PHOTOGRAPHS (cont)

Photo 4 outcrop of insitu, slightly weathered granodiorite bedrock downslope from the subject site.

Photo 5 view of typical insitu soil/rock profile exposed in a site cut above Whitehorse Village Road.

Photo 6 outcrop of insitu, slightly weathered granodiorite bedrock upslope from the subject site.

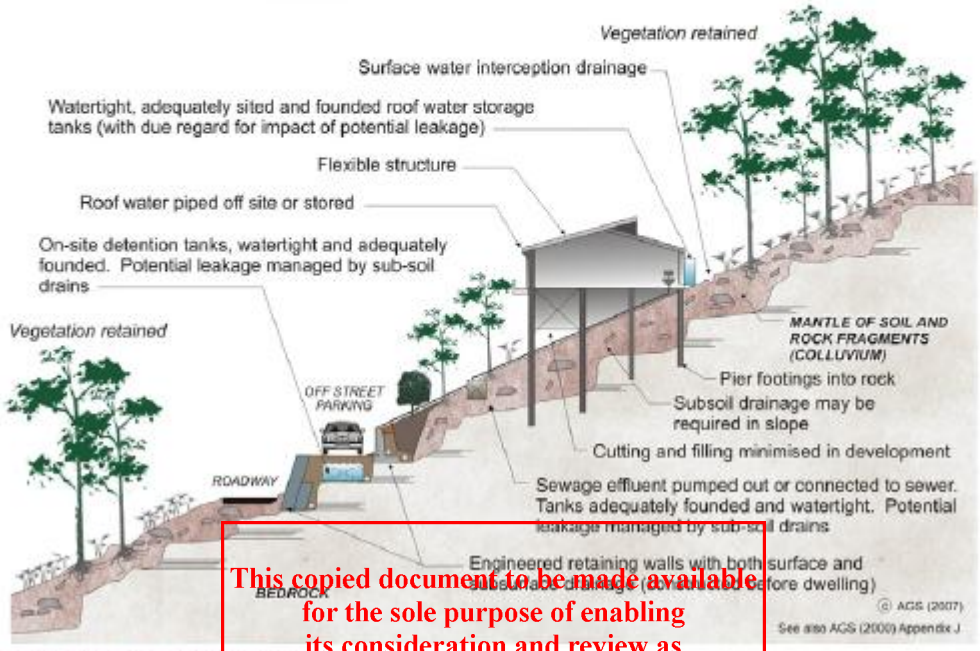
PO Box 6085, Croydon North VIC 3136 | info@dmlsoiltesting.com.au | www.dmlsoiltesting.com.au | P 03 9722 2611

AUSTRALIAN GEOGUIDE LR8 (CONSTRUCTION PRACTICE)

HILLSIDE CONSTRUCTION PRACTICE

Sensible development practices are required when building on hillsides, particularly if the hillside has more than a low risk of instability (GeoGuide LR7). Only building techniques intended to maintain, or reduce, the overall level of landslide risk should be considered. Examples of good hillside construction practice are illustrated below.

EXAMPLES OF GOOD HILLSIDE CONSTRUCTION PRACTICE



WHY ARE THESE PRACTICES GOOD?

Roadways and parking areas - are sealed and impervious kerbs which prevent water discharging straight into the hillside (GeoGuide LR5).

Cuttings - are supported by retaining walls (GeoGuide LR6).

Retaining walls - are engineer designed to withstand the lateral earth pressures and surcharges expected, and include drains to prevent water pressures developing in the backfill. Where the ground slopes steeply down towards the high side of a retaining wall, the disturbing force (see GeoGuide LR6) can be two or more times that in level ground. Retaining walls must be designed taking these forces into account.

Sewage - whether treated or not is either taken away in pipes or contained in properly founded tanks so it cannot soak into the ground.

Surface water - from roofs and other hard surfaces is piped away to a suitable discharge point rather than being allowed to infiltrate into the ground. Preferably, the discharge point will be in a natural creek where ground water exits, rather than enters, the ground. Shallow, lined, drains on the surface can fulfil the same purpose (GeoGuide LR5).

Surface loads - are minimised. No fill embankments have been built. The house is a lightweight structure. Foundation loads have been taken down below the level at which a landslide is likely to occur and, preferably, to rock. This sort of construction is probably not applicable to soil slopes (GeoGuide LR3). If you are uncertain whether your site has rock near the surface, or is essentially a soil slope, you should engage a geotechnical practitioner to find out.

Flexible structures - have been used because they can tolerate a certain amount of movement with minimal signs of distress and maintain their functionality.

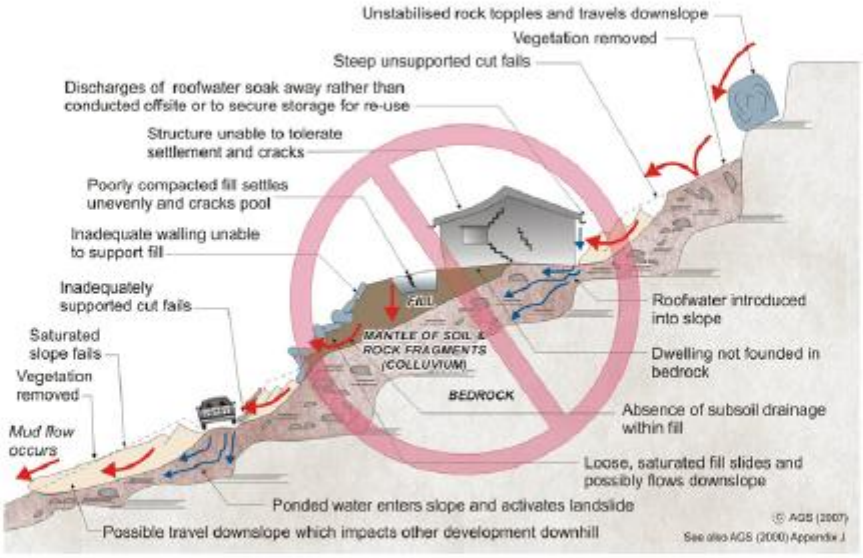
Vegetation clearance - on soil slopes has been kept to a reasonable minimum. Trees, and to a lesser extent smaller vegetation, take large quantities of water out of the ground every day. This lowers the ground water table, which in turn helps to maintain the stability of the slope. Large scale clearing can result in a rise in water table with a consequent increase in the likelihood of a landslide (GeoGuide LR5). An exception may have to be made to this rule on steep rock slopes where trees have little effect on the water table, but their roots pose a landslide hazard by dislodging boulders.

Possible effects of ignoring good construction practices are illustrated on page 2. Unfortunately, these poor construction practices are not as unusual as you might think and are often chosen because, on the face of it, they will save the developer, or owner, money. You should not lose sight of the fact that the cost and anguish associated with any one of the disasters illustrated, is likely to more than wipe out any apparent savings at the outset.

ADOPT GOOD PRACTICE ON HILLSIDE SITES

AUSTRALIAN GEOGUIDE LR8 (CONSTRUCTION PRACTICE)

EXAMPLES OF POOR HILLSIDE CONSTRUCTION PRACTICE



WHY ARE THESE PRACTICES POOR?

Roadways and parking areas - are unsurfaced and lack proper table drains (gutters) causing surface water to pond and soak into the ground.

Cut and fill - has been used to balance earthworks quantities and level the site leaving unstable cut faces and added large surface loads to the ground. Failure to compact the fill properly led to settlement, which will probably continue for several years after completion. The house and pool have been built on the fill and have settled with it and cracked. Leakage from the cracked pool and the applied surface loads from the fill have combined to cause landslides.

Retaining walls - have been avoided to minimise cost and hand placed rock walls used instead. Without applying engineering design principles, the walls have failed to provide the required support to the ground and have failed, creating a very dangerous situation.

A heavy, rigid, house - has been built on shallow, conventional, footings. Not only has the brickwork cracked because of the resulting ground movements, but it has also become involved in a man-made landslide.

Soak-away drainage - has been used for sewage and surface water run-off from roofs and pavements. This water soaks into the ground and raises the water table (GeoGuide LR5). Subsoil drains that run along the contours should be avoided for the same reason. If felt necessary, subsoil drains should run steeply downhill in a chevron, or herring bone, pattern. This may conflict with the requirements for effluent and surface water disposal (GeoGuide LR9) and if so, you will need to seek professional advice.

Rock debris - from landslides higher up on the slope seems likely to pass through the site. Such locations are often referred to by geotechnical practitioners as "debris flow paths". Rock is normally even denser than ordinary fill, so even quite modest boulders are likely to weigh many tonnes and do a lot of damage once they start to roll. Boulders have been known to travel hundreds of metres downhill leaving behind a trail of destruction.

Vegetation - has been completely cleared, leading to a possible rise in the water table and increased landslide risk (GeoGuide LR5).

DON'T CUT CORNERS ON HILLSIDE SITES - OBTAIN ADVICE FROM A GEOTECHNICAL PRACTITIONER

More information relevant to your particular situation may be found in other Australian GeoGuides:

- GeoGuide LR1 - Introduction
- GeoGuide LR2 - Landslides
- GeoGuide LR3 - Landslides in Soil
- GeoGuide LR4 - Landslides in Rock
- GeoGuide LR5 - Water & Drainage
- GeoGuide LR6 - Retaining Walls
- GeoGuide LR7 - Landslide Risk
- GeoGuide LR9 - Effluent & Surface Water Disposal
- GeoGuide LR10 - Coastal Landslides
- GeoGuide LR11 - Record Keeping

The Australian GeoGuides (LR series) are a set of publications intended for property owners; local councils; planning authorities; developers; insurers; lawyers and, in fact, anyone who lives with, or has an interest in, a natural or engineered slope, a cutting, or an excavation. They are intended to help you understand why slopes and retaining structures can be a hazard and what can be done with appropriate professional advice and local council approval (if required) to remove, reduce, or minimise the risk they represent. The GeoGuides have been prepared by the Australian Geomechanics Society, a specialist technical society within Engineers Australia, the national peak body for all engineering disciplines in Australia, whose members are professional geotechnical engineers and engineering geologists with a particular interest in ground engineering. The GeoGuides have been funded under the Australian governments' National Disaster Mitigation Program.

LANDSLIDE RISK ASSESSMENT REPORT

1.10 INTRODUCTION

(a) COMMISSION

In addition to carrying out the Slope Stability Geotechnical Assessment Report at this site, this company has been engaged by the above mentioned client to complete a site specific Landslide Risk Assessment Report at the above mentioned site.

The Geotechnical investigation and reports have been commissioned in accordance with the requirements of the Alpine Resorts Planning Scheme, Schedule 1 to Clause 44.01 Erosion Management Overlay – Amendment C31alpr.

To the best of the author's knowledge the Geotechnical investigation and reports have been undertaken in accordance with the AGS Guidelines 2007 (c). These guidelines are entitled "Practice Note Guidelines for Landslide Risk Management" and have been published in the Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007.

This Landslide Risk Assessment Report is based on site specific field investigations undertaken not more than six months prior to the application for a planning permit.

(b) SCOPE

This report is a geotechnical report and is provided to help facilitate the planning, design and construction of residential building works. It does not in any way constitute an engineering design, nor is it intended to be used as a detailed schedule of works. Due to the number of possible unforeseeable factors that can influence slope instability, the findings and recommendations contained in this report are intended to provide advice that should go some way to help reduce the likelihood of slope instability that may occur as a result of the proposed development at this site. This is not intended to be an exhaustive investigation and report. It is also stressed that this report must not be interpreted to infer that there is no risk of land slide on this site or on adjoining properties or areas.

This report must be read in conjunction with the following.

- Alpine Resorts Planning Scheme, Schedule 1 to Clause 44.01 Erosion Management Overlay – Amendment C31alpr.
- The Practice Note Guidelines for Landslide Risk Management which are published in the Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007.
- All of the development plans and documentations including as itemised in the Geotechnical Declaration below.
- The attached Geotechnical Assessment Report by D M Lawrance Soil Testing Pty Ltd.

The findings and recommendations in this report are based on the findings, opinions and conclusions of the attached Geotechnical Assessment Report, on previous experience and geological knowledge of this area, on information and documentation supplied by the client. The readily available published information relating to slope instability in this area was also considered. This report assumes that the information supplied to us and the published information is correct, relevant and complete. If this information is incorrect or incomplete in any way or if significant alterations are made to the project and/or site after our investigation, then the findings and recommendations contained in this report will need to be reviewed and if appropriate amended.

It must be understood that the geotechnical assessment of slope instability is a staged process and that this current investigation and report may identify risks that require more extensive and detailed investigation. It is possible that the level of land slide risk on some sites may not be able to be mitigated sufficiently to achieve a tolerable risk as defined in the AGS Guidelines 2007 (c).

(c) INVESTIGATIVE METHODS

As much as possible this report has been undertaken in accordance with the current requirements for Geotechnical Assessments and Landslide Risk Assessments of slope instability as outlined in the AGS Guidelines 2007 (c). This report was also undertaken in accordance with the procedures presented during the Australian Geomechanics Society Short Course "Field Techniques for Landslide Assessment, Melbourne 14th -16th November 2014".

It must be understood that, due to the lack of objective, quantitative data with regard to Landslide inventory, in the area of the subject site, this report is based largely based on the *"degree of believe method"* as defined in section 5.4.1 g) of *The Practice Note Guidelines for Landslide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007.* It is important to note that this method is sensitive to the subjective nature of the data relied upon to prepare the report. To help address this sensitivity, and where ever possible, this report attempts to err on the conservative side when making determinations of risk.

2.10 SCOPE DEFINITION

(a) PURPOSE AND SCOPE

The purpose of this risk assessment study is to provide adequate information to the relevant authority in order to determine if the proposed building works can proceed without adversely affecting the slope stability of the subject site.

The findings and recommendations in this report are limited to the specific, proposed building works as defined in section 2.0 (a) of the attached Geotechnical Assessment Report.

Another important purpose of this report is to provide advice to help reduce, but not eliminate, the risk of landslide on this site as a result of the proposed building works.

It is stressed that the following landslide risk assessment is provided on the understanding that all of the geotechnical constraints and all of the other recommendations contained in the attached Geotechnical Assessment report will be closely adhered to at all times over the life of the proposed works, including prior, during and after construction.

3.10 HAZARD ANALYSIS

(a) DATA/FIELD INVESTIGATIONS

The geotechnical date and investigations relied upon to prepare this Landslide Risk Assessment Report are contained in the attached Geotechnical Assessment Report, D M Lawrance Soil Testing reference number 20250524.

(b) LANDSLIDE CHARACTERISTION

Based on the findings of the attached Geotechnical Assessment report, no evidence was observed to indicate that any significant slope instability events have occurred on or around the subject area to date. In this case, this Landslide Risk Assessment is being carried out on the basis that there are no exceptional circumstances that would enable the geotechnical investigation to be undertaken in isolation, as per sub-Clause 4.0 of the Alpine Resorts Planning Scheme, Schedule 1 to Clause 44.01 Erosion Management Overlay – Amendment C31alpr.

Landslide characteristic descriptions are based on the definitions contained in Table B2 of *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007.*

Based on the findings of the attached Geotechnical Assessment report, and from previous experience and knowledge of this area, it is considered that the most likely, reasonably foreseeable slope instability event on or around this site over the design life of the proposed works, it is likely to be associated with 1 in 100 year rainfall event and would be best described as:

"Small, translational slide from the fill embankment on the low side of Whitehorse Village Road"

(c) FREQUENCY ANALYSIS

i) Estimation of Annual Probability (Frequency) (P_H) of Each Landslide.

Due to the lack of objective, quantitative data in the area of the subject site, the frequency analysis in this report is based on the *"degree of believe method"* as defined in section 5.4.1 (g) of *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007.*

The attached Geotechnical Assessment report has determined that the landform and geomorphology of the subject site and the immediately adjacent areas are derived from insitu weathering of the underlying bedrock. This infers that no significant landsliding has occurred in this area over geological time.

Based on this analysis, and using Appendix C of *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007* the approximate annual probability of a landslide **(P_H)** as described in section 3.10 (b) above, on or around the subject area is considered to be 10^{-4} "***Unlikely***".

It should be understood that this method is sensitive to the qualitative and subjective nature of the information used to determine the approximate annual probability of a landslide.

ii) Assessment of the Travel Distance and the Probability of the Spatial Impact, ($P_{S:H,}$) of the Elements at Risk.

As per section 5.4.3 of *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007,* the assessment of travel distance and therefore the probability of spatial impact contained in this report will be based on empirical or simplified methods.

The attached Geotechnical Assessment report has determined that the landform and geomorphology of the subject site and the immediately adjacent areas are derived from insitu weathering of the underlying bedrock. This infers that no significant landsliding has occurred in this area over geological time.

Based on this analysis, the approximate annual probability of a spatial impact of a landslide **($P_{S:H,}$)** as described in section 3.10 (b) above on the proposed works is considered to be **0.50.**

4.10 CONSEQUENCE ANALYSIS

(a) ELEMENTS AT RISK

For the purpose of this report, the elements at risk in this case are: the proposed building works which are intended for intermittent, short-term accommodation during the snow season, the associated services and infrastructure in the immediate vicinity of the proposed works and the temporary occupants of the building and visitors.

(b) TEMPORAL SPATIAL PROBABILITY - ($P_{T:S}$)

Given that the proposed works that are subject of this report consist of a cabin/unit to be used for intermittent, short-term accommodation during the snow season and allowing for the possibility of evacuation given adequate warning of the landslide, the temporal spatial probability of a landslide **($P_{T:S}$)** as described in section 3.10 (b) impacting a person is considered to be **0.10.**

(c) EVALUATION OF CONSEQUENCE TO PROPERTY

i) Estimated Vulnerability of Property ($V_{(Prop:S)}$)

The following estimated vulnerability of property has considered the following landslide characteristics: volume, position of the elements at risk relative to the instability, the magnitude of displacement and the rate of movement.

Based on the findings of the attached Geotechnical Assessment report, and considering Appendix F of *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007,* the estimated vulnerability of property **($V_{(Prop:S)}$)** at the subject site to a landslide as described in section 3.10 (b) above is **0.25**. Reference, *Marion Michael-Leiba, Fred Baynes, Grey Scott & Keith Granger (2002) Quantitative Landslide Risk Assessment of Cairns. Australian Geomechanics, June 2002.*

ii) Estimate of indicative cost of the damage. (E)

Based on Appendix C of *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007,* the estimated indicative costs of damage to property at this site is considered to be *"insignificant"*. Using the *"percentage of market value"* methodology contained in this Appendix, the estimated cost of damage to the element at risk (E) as a result of a landslide as described in section 3.10 (b) above is considered to be **1-5 %** of the current market value of the property in question. The above assessment is provided on the basis that all of the geotechnical constraints on development contained in the attached geotechnical report are adopted and followed over the design life of the building works.

(d) EVALUATION OF CONSEQUENCES TO PERSONS

i) Estimated Vulnerability of an Individual ($V_{(D:T)}$)

The following estimated vulnerability of an individual has considered the following landslide characteristics: volume of slide, type of slide, mechanism of slide initiation, velocity of sliding, depth of slide, whether the slide buries the person (s), whether the person (s) are in the open or in a vehicle or building, whether the vehicle or building collapses when impacted by the debris and the type of collapse if the vehicle or building collapses.

Based on the findings of the attached Geotechnical Assessment report, and considering Appendix F of *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007,* the estimated vulnerability of an individual (probability of loss of life given the impact **($V_{(D:T)}$)** due to a landside as described in section 3.10 (b) above, at the subject site is **0.05.** Reference, *Marion Michael-Leiba, Fred Baynes, Grey Scott & Keith Granger (2002) Quantitative Landslide Risk Assessment of Cairns. Australian Geomechanics, June 2002.*

5.10 RISK ESTIMATION

(a) QUANTITATIVE RISK ESTIMATION FOR PROPERTY ($R_{(Prop)}$)

It is stressed that the following risk estimation is conditional upon the strict adherence to the Geotechnical Constraints on Development contained in the attached Geotechnical Assessment Report over the design life of the proposed development. If these geotechnical constraints are not fully complied with, it may result in a higher degree of risk than set out in the table below.

This risk assessment is based on the Qualitative Risk Analysis Matrix - Level of Risk to Property contained in Appendix C of *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007.*

Based on the various risk values and the estimate of potential costs, contained in the Hazard Analysis and Consequence Analysis sections above, it is considered that the Estimated Risk to Property **($R_{(Prop)}$)** in relation to the subject works at this site is ***"LOW to VERY LOW"*** as defined in Appendix C of *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007.*

QUALITATIVE RISK ANALYSIS MATRIX – LEVEL OF RISK TO PROPERTY

LIKELIHOOD		CONSEQUENCES TO PROPERTY (With Indicative Approximate Cost of Damage)				
	Indicative Value of Approximate Annual Probability	1: CATASTROPHIC 200%	2: MAJOR 60%	3: MEDIUM 20%	4: MINOR 5%	5: INSIGNIFICANT 0.5%
A – ALMOST CERTAIN	10^{-1}	VH	VH	VH	H	M or L (5)
B - LIKELY	10^{-2}	VH	VH	H	M	L
C - POSSIBLE	10^{-3}	VH	H	M	M	VL
D - UNLIKELY	10^{-4}	H	M	L	L	VL
E - RARE	10^{-5}	M	L	L	VL	VL
F - BARELY CREDIBLE	10^{-6}	L	VL	VL	VL	VL

Adapted from *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007*

(b) QUANTITATIVE RISK ESTIMATION OF LOSS OF LIFE ($R_{(LoI)}$)

It is stressed that the following risk estimation is conditional upon the strict adherence to the Geotechnical Constraints on Development contained in the attached Geotechnical Assessment Report over the design life of the proposed development. If these geotechnical constraints are not fully complied with, it may result in a higher degree of risk than set out in the table below.

(P_H) Annual probability of movement occurring.	**($P_{S:H}$)**Spatial probability of impact between landslide and the subject works.	**($P_{T:S}$)** Temporal probability of impact between landslide and the individual* considering evacuation on adequate notice.	**($V_{D:T}$)** Vulnerability of the individual (probability of loss of life of the individual given impact of landside)	**($R_{(LoI)}$)** Risk of annual probability of loss of life to an individual $R_{(LoI)} = (P_H \times P_{S:H} \times P_{T:S} \times V_{D:T})$
10^{-4}	0.5	0.10	0.05	2.5×10^{-6}

* Individual is defined as the person most at risk.

6.10 RISK ASSESSMENT

(a) RISK EVALUATION

Based on the findings of this report, the degree of risk of loss of life and property loss with regard to the proposed project is considered to be within the "**Tolerable**" range as defined in *The Practice Note Guidelines for Land Slide Risk Management contained in The Journal of the Australian Geomechanics Society, Vol 42 No 1 March 2007.*

7.10 RISK MANAGEMENT

(a) RISK MITIGATION RECOMMENDATIONS

Adopt all of the geotechnical constraints and recommendations in the attached Geotechnical Assessment report at all times.

(b) SITE SPECIFIC DEVELOPMENT CONDITIONS

Refer to the attached Geotechnical Assessment report.

(c) MAINTENANCE REQUIREMENTS

i) Maintain drainage & plumbing services.

The site drainage and plumbing services around and beneath this building should be checked regularly. Any leaks or insufficiencies should be rectified immediately. It should also be ensured that the site drainage and plumbing services around and beneath this building are maintained in good working order over the life of the building.

ii) Maintain retaining walls

The non-permanent aspects of any retaining walls (ie timber sleeper whalers and soldier piles) should be checked regularly. Any aspects of the retaining wall that are observed to be suffering from biodegradation should be replaced as necessary, on an ongoing basis. It must also be ensure that all drainage associated with the retaining walls is maintained in good working order over the life of the building works.

GEOTECHNICAL DECLARATION

ALPINE RESORTS PLANNING SCHEME Schedule 1 to Clause 44.01 Erosion Management Overlay – Amendment C31alpr.

FORM 1
Declaration and/or verification made by geotechnical engineer or engineering geologist as part of a geotechnical report.

Name of application: GROLLO GROUP

Address of subject site: 1A WHITEHORSE VILLAGE ROAD, MOUNT BULLER.

I, David Lawrance of D M Lawrance Soil Testing Pty Ltd

on 27 March 2026

certify that I am a geotechnical engineer or engineering geologist as defined by the Alpine Resorts Planning Scheme Schedule 1 to Clause 44.01 Erosion Management Overlay – Amendment C31alpr, and I have: (tick appropriate box):

☑ prepared the Geotechnical Report referenced below in accordance with the Australian Geomechanics Society's Geotechnical Risk Management Guidelines and Clause 44.01 Erosion Management Overlay – Amendment C31alpr,

or

☐ technically verified that the geotechnical report referenced below has been prepared in accordance with the Australian Geomechanics Society's Geotechnical Risk Management Guidelines and Clause 44.01 Erosion Management Overlay – Amendment C31alpr

Geotechnical report details:

Report title: Geotechnical Assessment and Landslide Risk Assessment Report
Report date: 27 March 2026
Report reference: 20250524
Author: David Lawrance

Author's affiliation: Engineering Geologist BSc (Hons) Maig, RPGeo Registered Professional Geoscientist 10159

Documentation relied upon in report preparation:

Parcel B Roof Plan, Dwg No TP1.02.04, 11/11/2025, Cabin Type C4 0 Plans & Elevations Dwg No TP2.05.03, 11/11/2025, SK0-01 Floor Plans Sections, 30/10/2025, SK-02 Visual Aids, 30/10/2025.
Practice Note Guidelines for Landslide Risk Management 2007, Journal of Australian Geomechanics Society, Vol. 42: No 1, March 2007. Commentary on Practice Note Guidelines for Landslide Risk Management 2007.

I am aware that the Geotechnical Report I have either prepared or am technically verifying for the above development is to be submitted in support of a development application for the proposed development at 1A Whitehorse Village Road Mt Buller, requiring approval from the Minister for Planning.

Further, I hold a current professional indemnity insurance policy of at least $2 million.

Name David Lawrance Signature _____

Date 27 March 2026