GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 1 – To be submitted with Development Application

Development Application for Sam Ginsburg
Name of Applicant

Address of site 117 Rickard Road, North Narrabeen

The following checklist covers the minimum requirements to be addressed in a Geotechnical Risk ***Declaration made by geotechnical engineer or engineering geologist or coastal engineer (where applicable) as part of a geotechnical report***

I, Ben White *on behalf of* White Geotechnical Group Pty Ltd
(Insert Name) (Trading or Company Name)

on this the 4/5/23 certify that I am a geotechnical engineer or engineering geologist or coastal engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009 and I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least $10million.

I:
Please mark appropriate box

☒ have prepared the detailed Geotechnical Report referenced below in accordance with the Australia Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

☒ am willing to technically verify that the detailed Geotechnical Report referenced below has been prepared in accordance with the Australian Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

☐ have examined the site and the proposed development in detail and have carried out a risk assessment in accordance with Section 6.0 of the Geotechnical Risk Management Policy for Pittwater - 2009. I confirm that the results of the risk assessment for the proposed development are in compliance with the Geotechnical Risk Management Policy for Pittwater - 2009 and further detailed geotechnical reporting is not required for the subject site.

☐ have examined the site and the proposed development/alteration in detail and I am of the opinion that the Development Application only involves Minor Development/Alteration that does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.

☐ have examined the site and the proposed development/alteration is separate from and is not affected by a Geotechnical Hazard and does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.

☐ have provided the coastal process and coastal forces analysis for inclusion in the Geotechnical Report

Geotechnical Report Details:

Report Title: Geotechnical Report **117 Rickard Road, North Narrabeen**

Report Date: 4/5/23

Author: BEN WHITE

Author's Company/Organisation: **WHITE GEOTECHNICAL GROUP PTY LTD**

Documentation which relate to or are relied upon in report preparation:

Australian Geomechanics Society Landslide Risk Management March 2007.

White Geotechnical Group company archives.

I am aware that the above Geotechnical Report, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by Pittwater Council as the basis for ensuring that the Geotechnical Risk Management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature

Name Ben White

Chartered Professional Status MScGEOLAusIMM CP GEOL

Membership No. 222757

Company White Geotechnical Group Pty Ltd

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 1(a) - Checklist of Requirements for Geotechnical Risk Management Report for Development Application

Development Application for _____
Name of Applicant

Address of site 117 Rickard Road, North Narrabeen

The following checklist covers the minimum requirements to be addressed in a Geotechnical Risk Management Geotechnical Report. This checklist is to accompany the Geotechnical Report and its certification (Form No. 1).

Geotechnical Report Details:

Report Title: Geotechnical Report **117 Rickard Road, North Narrabeen**

Report Date: 4/5/23

Author: BEN WHITE

Author's Company/Organisation: WHITE GEOTECHNICAL GROUP PTY LTD

Please mark appropriate box

☒ Comprehensive site mapping conducted **28/4/23**
(date)

☒ Mapping details presented on contoured site plan with geomorphic mapping to a minimum scale of 1:200 (as appropriate)

☒ Subsurface investigation required
- ☐ No Justification _____
- ☒ Yes Date conducted **28/4/23**

☒ Geotechnical model developed and reported as an inferred subsurface type-section

☒ Geotechnical hazards identified
- ☒ Above the site
- ☒ On the site
- ☒ Below the site
- ☐ Beside the site

☒ Geotechnical hazards described and reported

☒ Risk assessment conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
- ☒ Consequence analysis
- ☒ Frequency analysis

☒ Risk calculation

☒ Risk assessment for property conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009

☒ Risk assessment for loss of life conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009

☒ Assessed risks have been compared to "Acceptable Risk Management" criteria as defined in the Geotechnical Risk Management Policy for Pittwater - 2009

☒ Opinion has been provided that the design can achieve the "Acceptable Risk Management" criteria provided that the specified conditions are achieved.

☒ Design Life Adopted:
- ☒ 100 years
- ☐ Other _____
specify

☒ Geotechnical Conditions to be applied to all four phases as described in the Geotechnical Risk Management Policy for Pittwater - 2009 have been specified

☒ Additional action to remove risk where reasonable and practical have been identified and included in the report.

☐ Risk assessment within Bushfire Asset Protection Zone.

I am aware that Pittwater Council will rely on the Geotechnical Report, to which this checklist applies, as the basis for ensuring that the geotechnical risk management aspects of the proposal have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated, and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature _____

Name Ben White

Chartered Professional Status MScGEOLAusIMM CP GEOL

Membership No. 222757

Company White Geotechnical Group Pty Ltd

GEOTECHNICAL INVESTIGATION:

Alterations and Additions at **117 Rickard Road, North Narrabeen**

1. Proposed Development

1.1 Demolish the existing balcony. Lower the level of the existing lower ground floor and extend to the E by excavating to a maximum depth of ~1.4m.

1.2 Construct a new deck above the proposed lower ground floor addition.

1.3 Details of the proposed development are shown on 22 drawings prepared by Studio T, project number 2301, drawings numbered E-00 to E-06, P-00 to P-06, S-00 to S-02 and X-01 to X-04, Revision A, dated 2/4/23.

2. Site Description

2.1 The site was inspected on the 28th April, 2023.

2.2 This residential property is on the high side of the road and has a NE aspect. It is located on the steeply graded middle reaches of a hillslope. The natural slope rises across the property at an average angle of ~20°. The slope above the property continues at steep angles for some 30m before easing at the crest of the hill. The slope below the property gradually decreases in grade.

2.3 Stable sandstone flagging ~1.7m high lines a cut for the road and fill for a garden area above (Photo 1). Other low fill batters for garden areas and gravel pathways are located on the downhill side of the house. The single storey brick and timber clad house is supported on brick walls and piers (Photos 2 & 3). The supporting walls and piers stand vertical and show no significant signs of movement (Photo 4). A cut ~2.5m high provides a level platform for a paved area on the uphill side of the house. The cut is lined with sandstone flagging (Photos 5 & 6). The flagging displays minor cracking. See '**Section 16** Ongoing Maintenance'. A steeply graded garden and

lawn area extends from the uphill side of the cut to the uphill property boundary (Photo 7). Detached sandstone joint blocks are scattered across the slope.

3. Geology

The Sydney 1:100 000 Geological sheet indicates the site is underlain by the Newport Formation of the Narrabeen Group. This is described as interbedded laminite, shale, and quartz to lithic quartz sandstone.

4. Subsurface Investigation

One hand Auger Hole (AH) was put down to identify the soil materials. Three Dynamic Cone Penetrometer (DCP) tests were put down to determine the relative density of the overlying soil and the depth to weathered rock. The locations of the tests are shown on the site plan attached. It should be noted that a level of caution should be applied when interpreting DCP test results. The test will not pass through hard buried objects so in some instances it can be difficult to determine whether refusal has occurred on an obstruction in the profile or on the natural rock surface. This is not expected to have been an issue for this site. But due to the possibility that the actual ground conditions vary from our interpretation there should be allowances in the excavation and foundation budget to account for this. We refer to the appended "Important Information about Your Report" to further clarify. The results are as follows:

AUGER HOLE 1 (~RL25.2) **–** AH1 (Photo 8)

Depth (m)	**Material Encountered**
0.0 to 1.0	**FILL**, sandy soil and clay, with some rock fragments, dark brown, brown orange, moist, fine to course grained.

Refusal @ 1.0m, auger grinding on rock. No water table encountered.

DCP TEST RESULTS – Dynamic Cone Penetrometer			
Equipment: 9kg hammer, 510mm drop, conical tip.			Standard: AS1289.6.3.2 -1997
Depth(m) Blows/0.3m	**DCP 1** (~RL25.2)	**DCP 2** (~RL25.2)	**DCP 3** (~RL25.6)
0.0 to 0.3	4	6	5
0.3 to 0.6	7	10	6
0.6 to 0.9	9	14	6
0.9 to 1.2	#	5	15
1.2 to 1.5		#	#
	Refusal on Rock @ 0.8m	Refusal on Rock @ 1.0m	Refusal on Rock @ 1.2m

#refusal/end of test. F=DCP fell after being struck showing little resistance through all or part of the interval.

DCP Notes:

DCP1 – Refusal on Rock @ 0.8m, DCP bouncing off rock surface, white rock fragments and dark brown soil on moist tip.

DCP2 – Refusal on Rock @ 1.0m, DCP bouncing off rock surface, white rock fragments and dark brown soil on moist tip.

DCP3 – Refusal on Rock @ 1.2m, DCP bouncing off rock surface, white rock fragments and dark brown soil on moist tip.

5. Geological Observations/Interpretation

The natural slope materials are colluvial at the near surface and residual at depth. In the test locations, the ground materials consist of fill and a thin sandy topsoil over firm to stiff clays. Fill to an estimated maximum depth of ~1.0m provides level platforms for garden areas across the property. In the test locations, the clays merge into the weathered zone of the underlying rock at depths of between ~0.8m to ~1.2m below the current surface. The weathered zone of the underlying rock is interpreted as Extremely Low to Low Strength Rock. It is to be noted that this material is a soft rock and can appear as a mottled stiff clay when it is cut up by excavation equipment. See Type Section attached for a diagrammatical representation of the expected ground materials.

6. Groundwater

Ground water seepage is expected to move over the denser and less permeable clay and weathered rock layers in the profile. Due to the slope and elevation of the block, the water table is expected to be many metres below the base of the proposed works.

7. Surface Water

No evidence of surface flows were observed on the property during the inspection. It is expected that normal sheet wash will move onto the site from above the property during heavy down pours. If the owners know, or become aware in the future, that overland flows enter the property during heavy prolonged rainfall events our office is to be informed so appropriate drainage measures can be recommended and installed. It is a condition of the slope stability assessment in Section 8 (**Hazard One**) that this be done.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed beside the property. The steeply graded slope that rises across the property and continues above and below is a potential hazard (**Hazard One**). The proposed excavation is a potential hazard (**Hazard Two**).

RISK ANALYSIS SUMMARY ON NEXT PAGE

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two
TYPE	The steep slope that rises across the property and continues above and below failing and impacting on the property.	The proposed excavation for the lower ground floor collapsing onto the worksite, undercutting the subject house and impacting the neighbouring properties during the excavation process.
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (12%)	'Medium' (20%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Moderate' (2×10^{-4})
RISK TO LIFE	6.6×10^{-7}/annum	9.3×10^{-7}/annum
COMMENTS	This level of risk is 'ACCEPTABLE', provided the recommendations in **Section 7** are followed.	This level of risk to property is 'UNACCEPTABLE**'**. To move the risk to 'ACCEPTABLE' levels, the recommendations in **Section 13** are to be followed.

(See Aust. Geomech. Jnl. Mar 2007 Vol. 42 No 1, for full explanation of terms)

9. Suitability of the Proposed Development for the Site

The proposed development is suitable for the site. No geotechnical hazards will be created by the completion of the proposed development provided it is carried out in accordance with the requirements of this report and good engineering and building practice.

10. Stormwater

The fall is to Rickard Road. All stormwater from the proposed development is to be piped to the street drainage system through any tanks that may be required by the regulating authorities.

11. Excavations

An excavation to a maximum depth of ~1.4m is required to construct the proposed lower ground floor addition. The excavation is expected to be through fill, topsoil and clay, with Extremely Low to Low Strength Rock expected at depths of between ~0.8m to ~1.2m below the current surface.

It is envisaged that excavations through fill, soil, clay and Extremely Low to Low Strength Rock can be carried out with an excavator and toothed bucket.

12. Vibrations

It is expected the proposed excavation will be carried out with an excavator and toothed bucket and the vibrations produced will be below the threshold limit for building or infrastructure damage using a domestic sized excavator up to 20 tonne.

13. Excavation Support Requirements

An excavation to a maximum depth of ~1.4m is required to construct the proposed lower ground floor addition. Allowing for backwall drainage, the excavation comes flush with the subject house walls and is set back ~0.5m from the E common boundary and ~0.5m from a low masonry retaining wall on the W neighbouring property. Given that the W neighbouring retaining wall supports a cut on the W neighbouring property, it is expected the foundations that support the wall are below the zone of influence of the excavation.

The subject house walls and E common boundary will be within the zone of influence of the excavation. In this instance, the zone of influence is the area above a theoretical 30° line (from horizontal) through fill/soil and a 45° line through clay/weathered rock from the base of the excavation towards the surrounding structures and boundaries.

The brick walls supporting the existing house may be founded below the base of the excavation. To confirm, exploration pits along the walls will need to be put down by the

builder to determine the foundation depth and material. These are to be inspected by the geotechnical consultant.

If the foundations are confirmed to be below the base of the excavation, the excavation may commence. If they are not, the walls will need to be underpinned prior to the excavation commencing. The extent of the area of the required exploration pits/underpinning are shown in red on the attached Lower Ground Floor Plan.

Underpinning is to follow the underpinning sequence 'hit one miss two'. Under no circumstances is the bulk excavation to be taken to the edges of the walls and then underpinned. Underpins are to be constructed from drives that should not exceed 0.6m in width along strip footings and should be proportioned according to footing size for other foundation types. Allowances are to be made for drainage through the underpinning to prevent a build-up of hydrostatic pressure. Underpins that are not designed as retaining walls are to be supported by retaining walls. The void between the retaining walls and the underpinning is to be filled with free-draining material such as gravel.

The E side of the excavation (where underpinning is not required) will need to be temporarily or permanently supported prior to the commencement of the excavation, or during the excavation process in a staged manner, so cut batters are not left unsupported. The support will need to be designed by the structural engineer. See the Lower Ground Floor attached for the minimum extent of the required shoring shown in blue.

Where underpinning/shoring is not required on the W side of the excavation, the low excavation is expected to stand at near vertical angles for short periods of time until the retaining walls are in place, provided the cut batters are kept from becoming saturated.

Upslope runoff is to be diverted from the cut faces by sandbag mounds or other diversion works. All unsupported cut batters are to be covered to prevent access of water in wet weather and loss of moisture in dry weather. The covers are to be tied down with metal pegs or other suitable fixtures so they cannot blow off in a storm. The materials and labour to

construct the retaining walls are to be organised so shoring walls can be installed as required. The excavation is to be carried out during a dry period. No excavations are to commence if heavy or prolonged rainfall is forecast. If the cut batters remain unsupported for more than a few days before the construction of the retaining walls they are to be temporarily supported until the retaining walls are in place.

All excavation spoil is to be removed from site following the current Environmental Protection Agency (EPA) waste classification guidelines.

14. Retaining Structures

For cantilever or singly propped retaining structures it is suggested the design be based on a triangular distribution of lateral pressures using the parameters shown in Table 1.

Table 1 – Likely Earth Pressures for Retaining Walls

Unit	Earth Pressure Coefficients		
	Unit weight (kN/m^3)	'Active' K_a	'At Rest' K_0
Fill and Topsoil	20	0.40	0.55
Residual Clays	20	0.35	0.45
Extremely Low to Low Strength Rock	22	0.25	0.38

For rock classes refer to Pells et al "Design Loadings for Foundations on Shale and Sandstone in the Sydney Region". Australian Geomechanics Journal 1978.

It is to be noted that the earth pressures in Table 1 assume a level surface above the wall, do not account for any surcharge loads and assume retaining structures are fully drained. Ground materials and relevant earth pressure coefficients are to be confirmed on site by the geotechnical consultant.

All retaining structures are to have sufficient back-wall drainage and be backfilled immediately behind the structure with free draining material (such as gravel). This material is to be wrapped in a non-woven Geotextile fabric (i.e. Bidim A34 or similar), to prevent the drainage from becoming clogged with silt and clay. If no back-wall drainage is installed in retaining structures the full hydrostatic pressures are to be accounted for in the retaining structure design.

15. Foundations

The proposed lower ground floor addition with deck above is expected to be seated in Extremely Low Strength Rock on better on the uphill side. This is a suitable foundation material. On the downhill side where the weathered rock drops away with the slope, piers taken to and embedded at least 0.6m into Extremely Low Strength Rock or better from the downhill edge of the footing will be required. This ground material is expected at depths of between ~0.8m to ~1.2m below the current surface. A maximum allowable bearing pressure of 600kPa can be assumed for footings embedded in Extremely Low Strength Rock or better. It should be noted that this material is a soft rock and a rock auger will cut through it so the builders should not be looking for refusal to end the footings.

As the bearing capacity of weathered rock reduces when it is wet, we recommend the footings be dug, inspected, and poured in quick succession (ideally the same day if possible). If the footings get wet, they will have to be drained and the soft layer of weathered rock on the footing surface will have to be removed before concrete is poured.

If a rapid turnaround from footing excavation to the concrete pour is not possible, a sealing layer of concrete may be added to the footing surface after it has been cleaned.

NOTE: If the contractor is unsure of the footing material required, it is more cost effective to get the geotechnical professional on site at the start of the footing excavation to advise on footing depth and material. This mostly prevents unnecessary over excavation in clay like shaly rock but can be valuable in all types of geology.

16. Ongoing Maintenance

The cracked sandstone flagging that lines a ~2.5m high cut (Photos 5 & 6) is to be monitored by the owners on an annual basis or after heavy and prolonged rainfall events, whichever occurs first. A photographic record of these inspections is to be kept. Should further movement occur the flagging is to be remediated or replaced so it meets current engineering standards. We can carry out these inspections upon request.

17. Geotechnical Review

The structural plans are to be checked and certified by the geotechnical engineer as being in accordance with the geotechnical recommendations. On completion, a Form 2B will be issued. This form is required for the Construction Certificate to proceed.

18. Inspections

The client and builder are to familiarise themselves with the following required inspections as well as council geotechnical policy. We cannot provide geotechnical certification for the Occupation Certificate if the following inspections have not been carried out during the construction process.

- The geotechnical consultant is to inspect any exploration pits required to expose the foundation materials of the existing subject house walls.
- All footings are to be inspected and approved by the geotechnical consultant while the excavation equipment and contractors are still onsite and before steel reinforcing is placed or concrete is poured.

White Geotechnical Group Pty Ltd.

Reviewed By:

Dion Sheldon
BEng(Civil)(Hons),
Geotechnical Engineer.

Ben White M.Sc. Geol.,
AusIMM., CP GEOL.
No. 222757
Engineering Geologist.

Photo 1

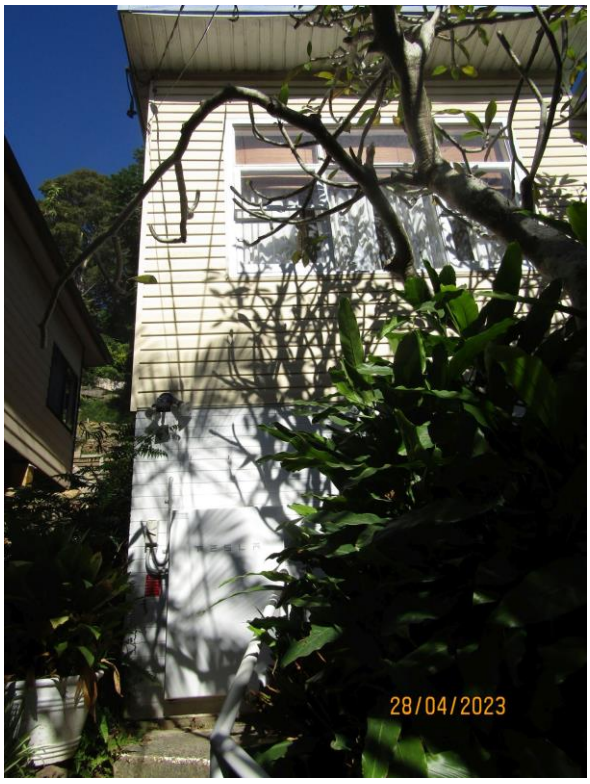

Photo 2

Photo 3

Photo 4

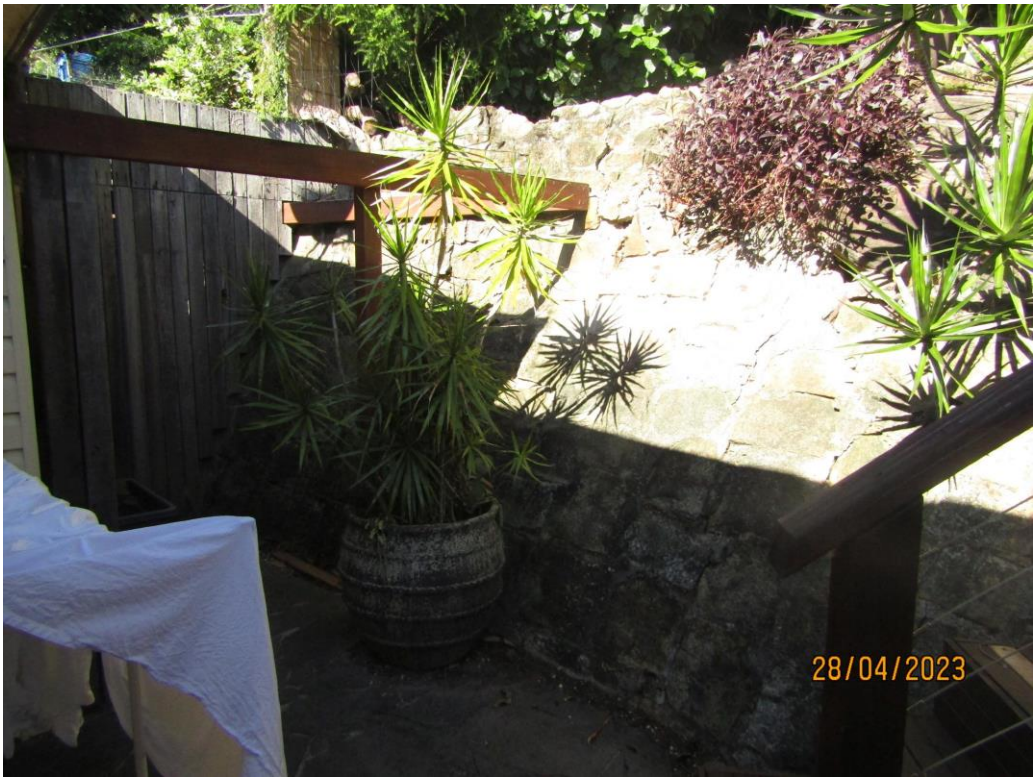

Photo 5

Photo 6

Photo 7

Photo 8: AH1 – Downhole is from left to right.

Important Information about Your Report

It should be noted that Geotechnical Reports are documents that build a picture of the subsurface conditions from the observation of surface features and testing carried out at specific points on the site. The spacing and location of the test points can be limited by the location of existing structures on the site or by budget and time constraints of the client. Additionally, the test themselves, although chosen for their suitability for the particular project, have their own limiting factors. The testing gives accurate information at the location of the test, within the confines of the test's capability. A geological interpretation or model is developed by joining these test points using all available data and drawing on previous experience of the geotechnical consultant. Even the most experienced practitioners cannot determine every possible feature or change that may lie below the earth. All of the subsurface features can only be known when they are revealed by excavation. As such, a Geotechnical report can be considered an interpretive document. It is based on factual data but also on opinion and judgement that comes with a level of uncertainty. This information is provided to help explain the nature and limitations of your report.

With this in mind, the following points are to be noted:

- If upon the commencement of the works the subsurface ground or ground water conditions prove different from those described in this report, it is advisable to contact White Geotechnical Group immediately, as problems relating to the ground works phase of construction are far easier and less costly to overcome if they are addressed early.

- If this report is used by other professionals during the design or construction process, any questions should be directed to White Geotechnical Group as only we understand the full methodology behind the report's conclusions.

- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

- This report should not be applied to any other project other than that outlined in section 1.0.

- This report is to be read in full and should not have sections removed or included in other documents as this can result in misinterpretation of the data by others.

- It is common for the design and construction process to be adapted as it progresses (sometimes to suit the previous experience of the contractors involved). If alternative design and construction processes are required to those described in this report, contact White Geotechnical Group. We are familiar with a variety of techniques to reduce risk and can advise if your proposed methods are suitable for the site conditions.

LEGEND

- BOUNDARY LINE
- DEMOLISHED WORKS
- INDICATES PROPOSED
- INDICATES EXISTING
- KEY BUILDING SETOUT

GROUND FLOOR PLAN – showing test locations

STUDIO T

+61 412 472 296
tyla.venish@outlook.com

LEGEND

AC-1	AIR CONDITIONING	MS-1	METAL SHEET CLADDING
BRK-1	BRICK	PAVE	PAVING
BRK-2	BRICK (PAINTED)	RS-1	ROOF SHEET
CONC	CONCRETE	RS-2	ROOF SHEET (WALL)
DP-1	DOWNPIPE	RT-1	ROOF TILE
FC-1	FIBRECEMENT SHEET	SR-1	SCREEN (FIXED)
GZ-1	GLAZING (CLEAR)	SR-2	SCREEN (ADJUSTABLE)
GZ-2	GLAZING (FROSTED)	WB-1	WEATHERBOARD
GUTR	GUTTER	TC-1	TIMBER CLADDING

REVISIONS

			DRAWN BY
A	02.04.23	FOR DEVELOPMENT APPLICATION	TV
B			
C			

FOR : AUTHORITY APPROVAL (NOT FOR CONSTRUCTION)

1. These drawings are for the purpose of authority approval only. If used for any purpose other than authority approval, then Studio T makes no representations regarding the accuracy or completeness of these drawings.
2. If used for any purpose other than authority approval, then the user assumes full responsibility for loss resulting from any errors, variants, defects or omissions in the supplied information. The user will carry out all relevant investigations and satisfy themselves concerning the contents, correctness and sufficiency of these documents.
3. The user should confirm sufficiency of all contacts with a Registered Architect.

PROPERTY OWNER(S)
SAM + JEFF GINSBURG

PROPERTY ADDRESS
117 RICKARD ROAD
NORTH NARRABEEN

NORTH

SCALE
1:120 @ A3

DRAWING NAME
PROPOSED GROUND FLOOR PLAN

2301-P-01

REVISION
A

LOWER GROUND FLOOR PLAN – showing test locations

LEGEND
- BOUNDARY LINE
- DEMOLISHED WORKS
- INDICATES PROPOSED
- INDICATES EXISTING
- KEY BUILDING SETOUT

115 RICKARD RD

Minimum extent of required shoring shown in blue.

RICKARD RD

RL 25.66

ENTRY

DCP2

AH 1

117 RICKARD RD

MUD

CELLAR

Walls that require confirmation via exploration pits shown in red.

DCP1

STUDY
FFL 25.66

EXTENT OF DEMOLISHED EXISTING DASHED RED

DCP3

4795

965

119 RICKARD RD

STUDIO T

+61 412 472 296
tyla.venish@outlook.com

LEGEND

AC-1	AIR CONDITIONING	MS-1	METAL SHEET CLADDING
BRK-1	BRICK	PAVE	PAVING
BRK-2	BRICK (PAINTED)	RS-1	ROOF SHEET
CONC	CONCRETE	RS-2	ROOF SHEET (WALL)
DP-1	DOWNPIPE	RT-1	ROOF TILE
FC-1	FIBRECEMENT SHEET	SR-1	SCREEN (FIXED)
GZ-1	GLAZING (CLEAR)	SR-2	SCREEN (ADJUSTABLE)
GZ-2	GLAZING (FROSTED)	WB-1	WEATHERBOARD
GUTR	GUTTER	TC-1	TIMBER CLADDING

REVISIONS

			DRAWN BY
A	02.04.23	FOR DEVELOPMENT APPLICATION	TV
B			
C			

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PROPERTY OWNER(S)
SAM + JEFF GINSBURG

PROPERTY ADDRESS
117 RICKARD ROAD
NORTH NARRABEEN

NORTH

SCALE
1:120 @ A3

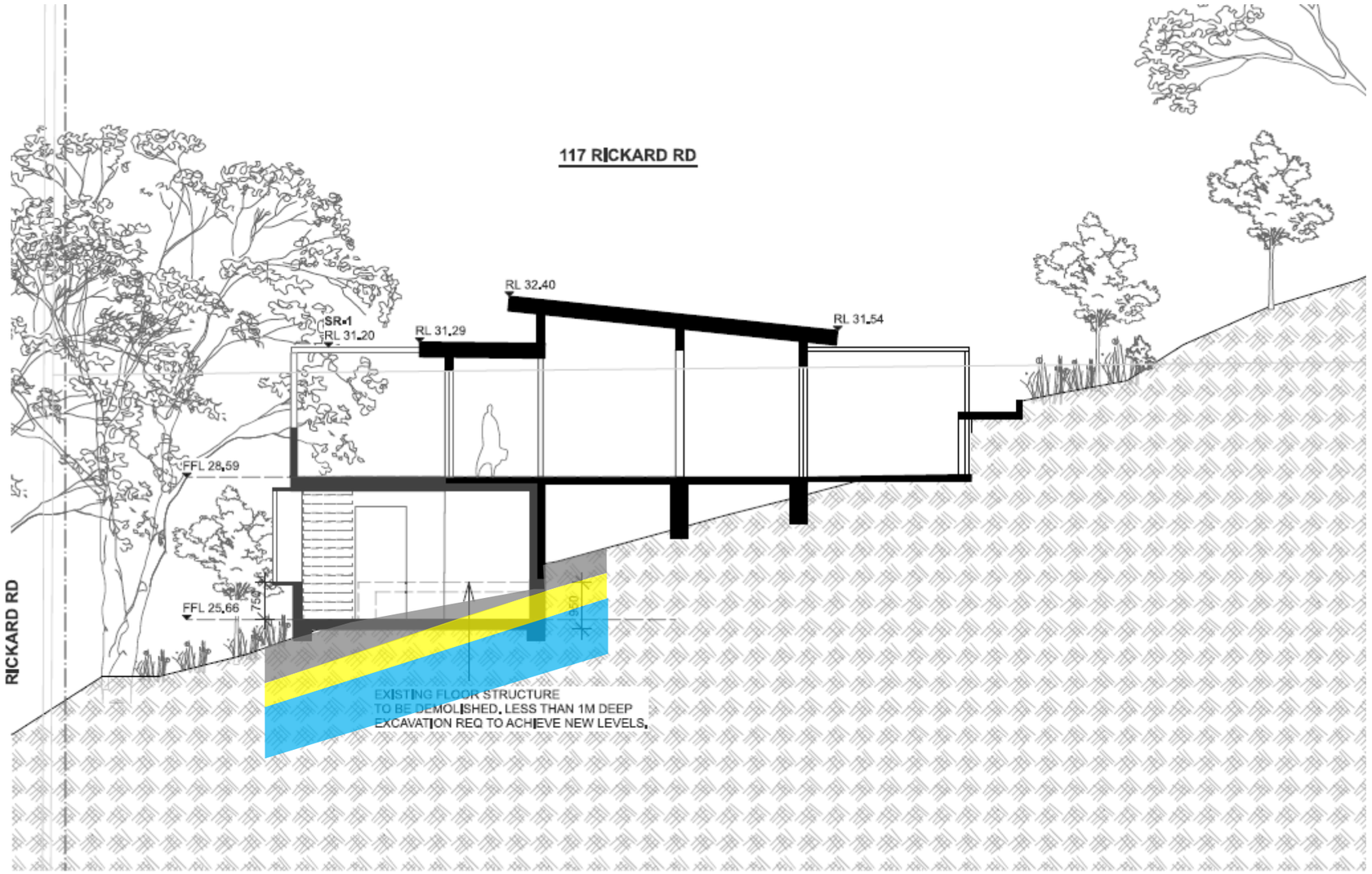
DRAWING NAME
PROPOSED LOWER GROUND FLOOR PLAN

2301-P-02

REVISION
A

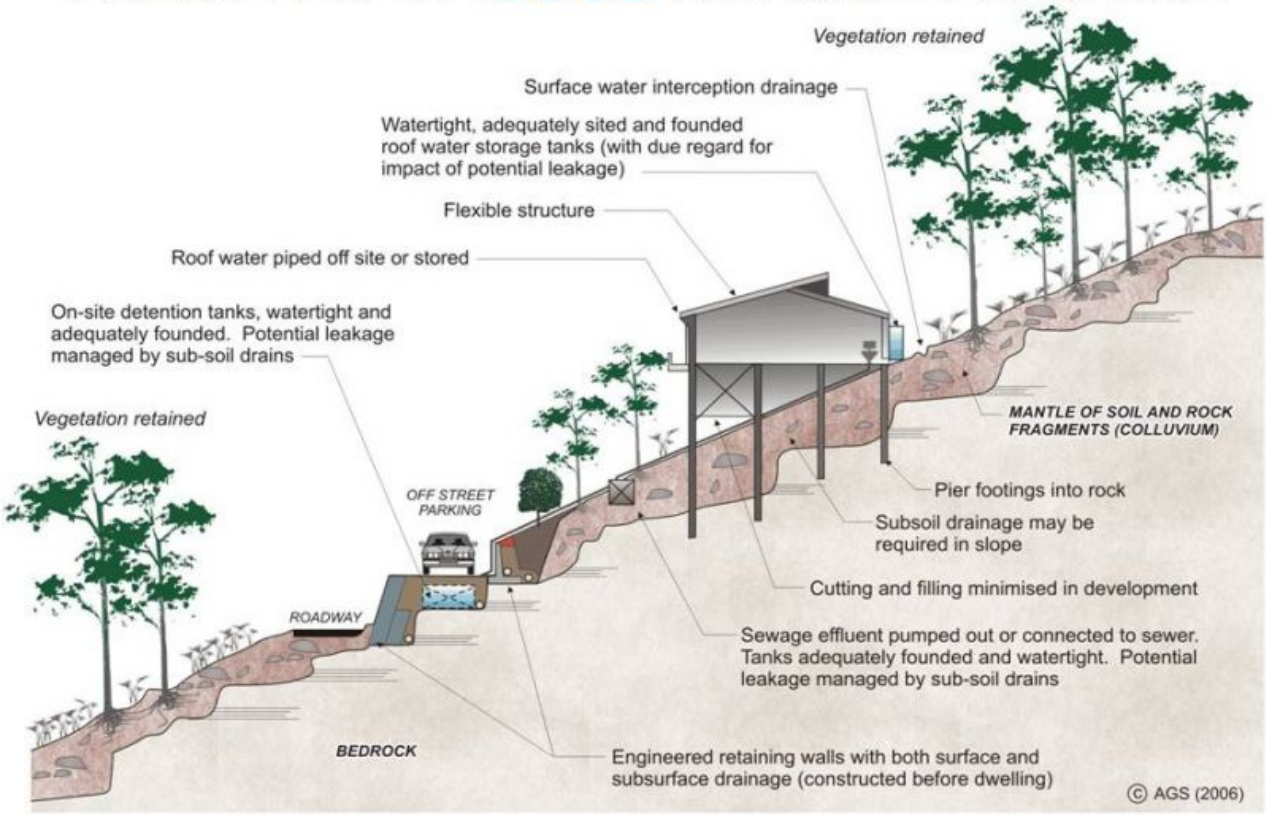
VECTORWORKS EDUCATIONAL VERSION

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



Fill and Topsoil
Clay – Firm to Stiff
Narrabeen Group Rocks – Extremely Low to Low Strength Rock - after being cut up by excavation equipment can resemble a stiff to hard clay.

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE