

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

Development Application for _____
Name of Applicant

Address of site 46 Narrabeen Park Parade, Warriewood

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 24/11/22 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 46 Narrabeen Park Parade, Warriewood

Report Date: 21/11/22

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	<u>46 Narrabeen Park Parade, Warriewood</u>

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 <u>46 Narrabeen Park Parade, Warriewood</u>
Report Date: <u>21/11/22</u>
Author: <u>BEN WHITE</u>
Author's Company/Organisation: <u>WHITE GEOTECHNICAL GROUP PTY LTD</u>

Please mark appropriate box

- ☒ Comprehensive site mapping conducted 17/11/22
(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 17/11/22
- ☒ 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 46 Narrabeen Park Parade, Warriewood

1. Proposed Development

- 1.1** Construct a new two-storey extension on the downhill side of the house by excavating to a maximum depth of ~2.2m.
- 1.2** Construct a new carport on the uphill side of the property.
- 1.3** Various other minor internal and external alterations.
- 1.4** Details of the proposed development are shown on 11 architectural drawings prepared by Gartner Trovato Architects, project number 2229, drawings numbered DA-01 to DA-11, dated 15/11/22.

2. Site Description

- 2.1** The site was inspected on the 17th November, 2022.
- 2.2** This residential property is on the low side of the road and has a NW aspect. It is located on the gentle to moderately graded upper reaches of a hillslope. The natural slope falls across the property at an average angle of ~9°. The slope above eases into the crest of the ridge while slope below the property continues at similar angles.
- 2.3** At the road frontage, a concrete driveway runs down the slope past the N side of the house to a parking area on the downhill side of the property (Photo 1). The single-storey brick house is supported on brick walls and brick piers (Photo 2). The supporting brick walls show no significant signs of movement and the supporting brick piers stand vertical. The remaining area is covered by gentle to moderately sloping lawns and gardens.

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. Nine 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 be an issue for the testing on this site. However, excavation and foundation budgets should always allow for the possibility that the interpreted ground conditions in this report vary from those encountered during excavations. See the appended "Important information about your report" for a more comprehensive explanation. The results are as follows:

AUGER HOLE 1 (~RL27.8) – AH1 (Photo 3)

Depth (m)	Material Encountered
0.0 to 0.3	TOPSOIL , clayey soil, dark brown, damp, medium dense, fine to medium grained with fine trace organic matter.
0.3 to 0.5	TOPSOIL , gravelly soil, dark brown, medium dense, damp, coarse grained with fine trace organic matter.
0.5 to 0.8	CLAY , orange mottled brown, stiff, dry, fine grained.
0.8 to 1.0	CLAY , derived from weathered shale, red mottled yellow & white, stiff to very stiff, dry, fine grained.

End of test @ 1.0m in clay. 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 (~RL28.6)	DCP 2 (~RL27.1)	DCP 3 (~RL26.9)	DCP 4 (~RL26.6)	DCP 5 (~RL26.6)	DCP 6 (~RL27.8)	DCP 7 (~RL29.8)	DCP 8 (~RL31.3)	DCP 9 (~RL31.7)
0.0 to 0.3	11	7	11	3	6	4	12	7	7
0.3 to 0.6	#	8	14	5	8	12	16	9	9
0.6 to 0.9		10	15	#	15	14	44	14	10
0.9 to 1.2		#	15		16	18	19	10	30
1.2 to 1.5			9		#	#	#	9	#
1.5 to 1.8			16					#	
1.8 to 2.1			#						
	Refusal on Rock @ 0.3m	Refusal on Rock @ 0.8m	Refusal on Rock @ 1.7m	Refusal on Rock @ 0.7m	Refusal on Rock @ 1.0m	Refusal on Rock @ 1.0m	Refusal on Rock @ 1.0m	Refusal on Rock @ 1.3m	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 @ 0.3m, DCP bouncing off rock surface, yellow sandstone fragments on dry tip.

DCP2 – Refusal on rock @ 0.8m, DCP bouncing off rock surface, white impact dust on dry tip.

DCP3 – Refusal on rock @ 1.7m, DCP bouncing off rock surface, brown clay on wet tip.

DCP4 – Refusal on rock @ 0.7m, DCP bouncing off rock surface, yellow sandstone fragments on dry tip.

DCP5 – Refusal on rock @ 1.0m, DCP bouncing off rock surface, clean dry tip.

DCP6 – Refusal on rock @ 1.0m, DCP bouncing off rock surface, red clay on dry tip.

DCP7 – Refusal on rock @ 1.0m, DCP bouncing off rock surface, clean dry tip.

DCP8 – Refusal on rock @ 1.3m, DCP bouncing off rock surface, orange sandstone fragments on dry tip.

DCP9 – Refusal on rock @ 1.2m, DCP bouncing off rock surface, white impact dust on dry tip, red clay in collar above tip.

5. Geological Observations/Interpretation

The slope materials are colluvial at the near surface and residual at depth. In the test locations, the ground materials consist of a shallow soil over clays. The clay merges into the underlying weathered rock at depths of between 0.3m to 1.7m below the current surface. DCP3 was likely deeper due to a variable weathering profile. The weathered zone is interpreted to be Extremely Low to Very Low Strength Rock. The DCP was bouncing off the rock surface at the end of every test. This could be due to the presence of harder bands in laminite or it could be a sandstone band, noting sandstone bands in the shale profile can be discontinuous. It is to be noted that this material 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

Normal ground water seepage is expected to move over the buried surface of the rock and through the cracks. 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 significant surface flows were observed on the property during the inspection. Normal sheet wash from the slope above will be intercepted by the street drainage system for Narrabeen Park Parade above.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed above or beside the property. The gentle to moderately graded slope that falls across the property and continues below is a potential hazard (**Hazard One**). The proposed excavation is a potential hazard until the retaining walls are in place (**Hazard Two**). The excavation undercutting the footings of the subject house is a potential hazard (**Hazard Three**).

Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two	Hazard Three
TYPE	The gentle to moderate slope that falls across the property and continues below failing and impacting on the proposed works.	The proposed excavation collapsing onto the work site before retaining walls are in place.	The proposed excavation undercutting the footings of the house causing failure.
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (12%)	'Medium' (30%)	'Medium' (35%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Moderate' (2×10^{-4})	'Moderate' (2×10^{-4})
RISK TO LIFE	8.3×10^{-7} /annum	4.9×10^{-4} /annum	5.3×10^{-5} /annum
COMMENTS	This level of risk is 'ACCEPTABLE'.	This level of risk to life and property is 'UNACCEPTABLE'. To move the risk to 'ACCEPTABLE' levels, the recommendations in Section 13 are to be followed.	This level of risk to life and property is 'UNACCEPTABLE'. To move 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 away from the street. The stormwater engineer is to refer to council stormwater policy for suitable options for stormwater disposal.

11. Excavations

An excavation to a maximum depth of ~2.2m is required for the proposed extension.

It is expected the excavation will be through a thin topsoil over clay. Extremely Low to Very Low Strength Rock is expected at depths of between 0.3 to 1.7m below the current surface. Excavations through soil, clay, and Extremely Low to Very Low Strength Rock can be carried out with an excavator and a toothed bucket.

12. Vibrations

No excessive vibrations will be generated by excavation through soil, clay, or Extremely Low to Very Low Strength Rock. Any vibrations generated by a domestic machine and toothed bucket up to 16 ton will be below the threshold limit for infrastructure or building damage. Should hard competent (Medium Strength Rock or better) be encountered, excavation is to stop and our office contacted for vibration advice and appropriate excavation advice. Failure to do so could result in vibration induced damage occurring to surrounding structures.

13. Excavation Support Requirements

The excavation for the proposed basement will reach a maximum depth of ~2.2m. Allowing for 0.5m of back-wall drainage, the setbacks are as follows:

- Flush with the existing house.
- ~2.3m from the S common boundary.

As such, the existing house and S common boundary will be within the zone of influence of the proposed excavation. In this instance, the zone of influence is the area above a theoretical 30° line through soil and a 45° line through clay/shale from the base of the excavation towards the surrounding boundaries or structures.

Where the subject house falls within the zone of influence of the excavation, 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 extend below the zone of influence of the proposed excavation, the excavation may commence. If they are not, the supporting walls will need to be underpinned to below the zone of influence of the cut prior to the excavation commencing. See the site plan attached for the minimum extent of the required exploration pits/underpinning.

Where the subject house falls over the footprint of the proposed excavation, the house is to be propped and supported with beams as necessary prior to the excavation through rock commencing.

Underpinning is to follow the underpinning sequence 'hit one miss two'. Under no circumstances is the bulk excavation to be taken to the edge of the wall and then underpinned. Underpins are to be constructed from drives that should not exceed 0.6m in width along the supporting walls of the house. 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 fence on the S common boundary can be temporarily braced until the retaining wall is in place.

Where room permits, the soil portions of the excavation are expected to stand temporarily at batter angles of 30° (1.0 Vertical to 1.7 Horizontal) and the clay/shale portions are expected to stand temporarily at batter angles of 45° (1.0 Vertical to 1.0 Horizontal). Where there is not room for these batters, such as along the S side of the excavation, the excavation will need to be temporarily or permanently supported prior to the commencement of excavation, or during the excavation process in a staged manner, so cut batters are not left unsupported. The support will need to be designed / approved by the structural engineer. See the site plan attached for the minimum extent of the required shoring.

During the excavation process, the geotechnical consultant is to inspect the cut in 1.5m intervals as it is lowered, while the machine/excavation equipment is on site, to ensure the ground materials are as expected and no additional temporary support is required.

Upslope runoff is to be diverted from the cut faces by sandbag mounds or other diversion works. Unsupported cut batters through soil and clay 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 on completion of the excavations they can be constructed as soon as possible. The excavations are to be carried out during a dry period. No excavations are to commence if heavy or prolonged rainfall is forecast.

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 pressure distribution of lateral pressures using the parameters shown in Table 1.

Table 1 – Likely Earth Pressures for Retaining Structures

Unit	Earth Pressure Coefficients		
	Unit weight (kN/m ³)	'Active' K _a	'At Rest' K ₀
Soil and Residual Clays	20	0.40	0.55
Extremely Low Strength Rock	22	0.25	0.35
Rock up to Very Low Strength Rock	22	0.22	0.3

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 structure, do not account for any surcharge loads, (e.g., the existing house structure) and assume retaining structures are fully drained. Rock strength 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 likely hydrostatic pressures are to be accounted for in the structural design.

15. Foundations

The proposed carport can be supported on piers taken to and embedded no less than 0.3m into the underlying Extremely Low to Very Low Strength Rock. This ground material is expected at depths between 1.0 to 1.3m below the current surface in the area of the proposed carport.

The proposed extension to the house can be supported on a concrete slab and piers taken to and embedded no less than 0.3m into the underlying Extremely Low to Very Low Strength Rock. This ground material is expected to be exposed across a portion of the base of the excavation. Where the slope drops away on the downhill side, it is expected at a maximum depth of ~1.7m below the current surface.

A maximum allowable bearing pressure of 600kPa can be assumed for footings on Extremely Low to Very Low Strength Rock. 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.

Ideally, footings should be founded on the same footing material across the old and new portions of the structure. Where the footing material changes across the structure,

construction joints or similar are to be installed to prevent differential settlement, where the structure cannot tolerate such movement.

As the bearing capacity of clay and shale 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 wet clay or shale 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 and inspected by the geotechnical consultant.

NOTE: If the contractor is unsure of the footing material required, it is more cost-effective to get the geotechnical consultant 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. 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.

17. 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 owners and Occupation Certificate if the following inspections have not been carried out during the construction process.

- During the excavation process, the geotechnical consultant is to inspect the cut in 1.5m intervals as it is lowered, while the machine/excavation equipment is on site, to

ensure the ground materials are as expected and no additional temporary support is required.

- 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.



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



Photo 1



Photo 2



Photo 8 (AH1 – Downhole is from Top to Bottom)

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.

43 NARRABEEN PARK PARADE

BOUNDARY 123° 15' 45.72m

NEW DOOR

DCP7

DCP6 AH1

DCP4

DCP3

DCP2

DCP5

DCP1

DCP8

DCP9

Minimum extent of required exploration pits / underpinning shown in green

Minimum extent of required shoring shown in blue

BOUNDARY 197° 55' 45.925m

BOUNDARY 213° 15' 15.24m

NARRABEEN PARK PARADE

44 NARRABEEN PARK PARADE

EXISTING UNDERCROFT

TERRACE

BED 3

LDY

W-01

W-02

W-03

W-04

W-05

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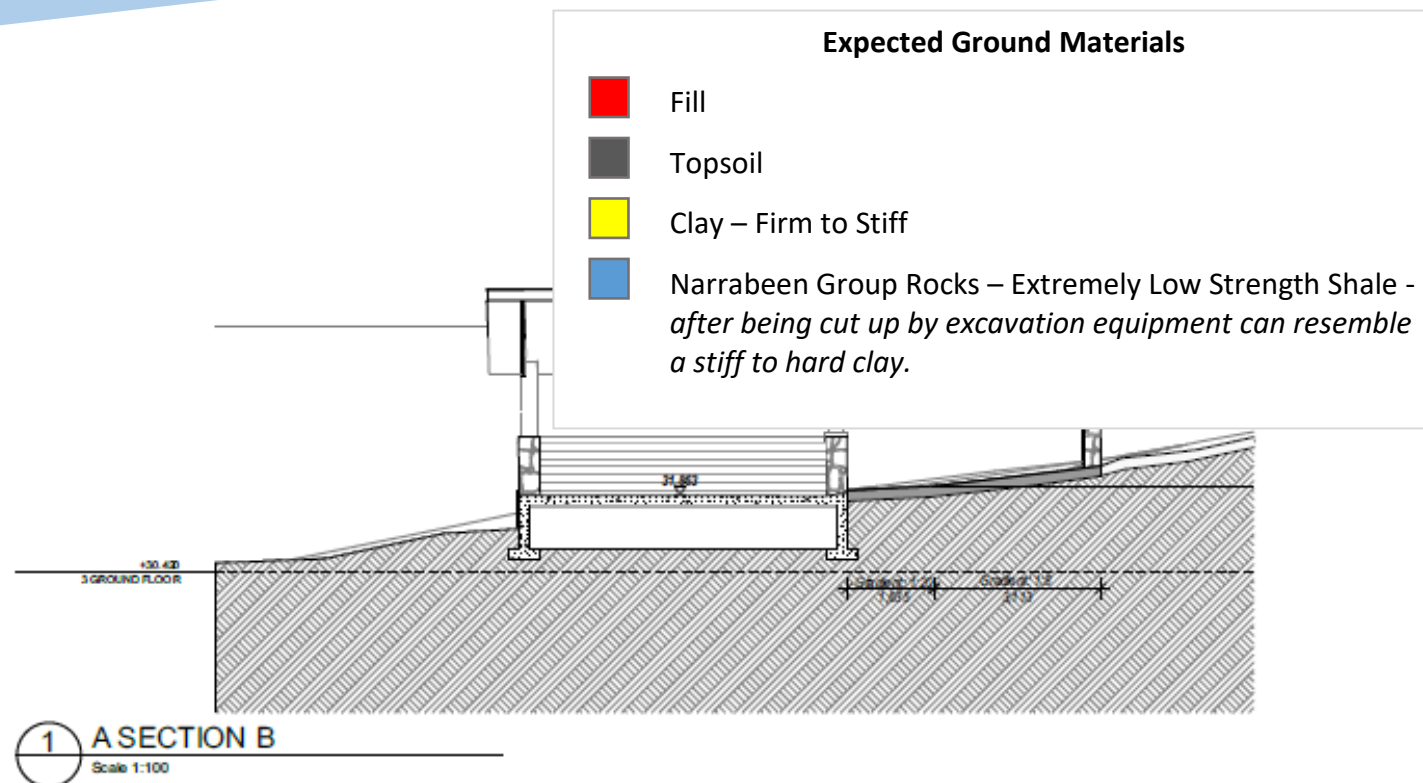
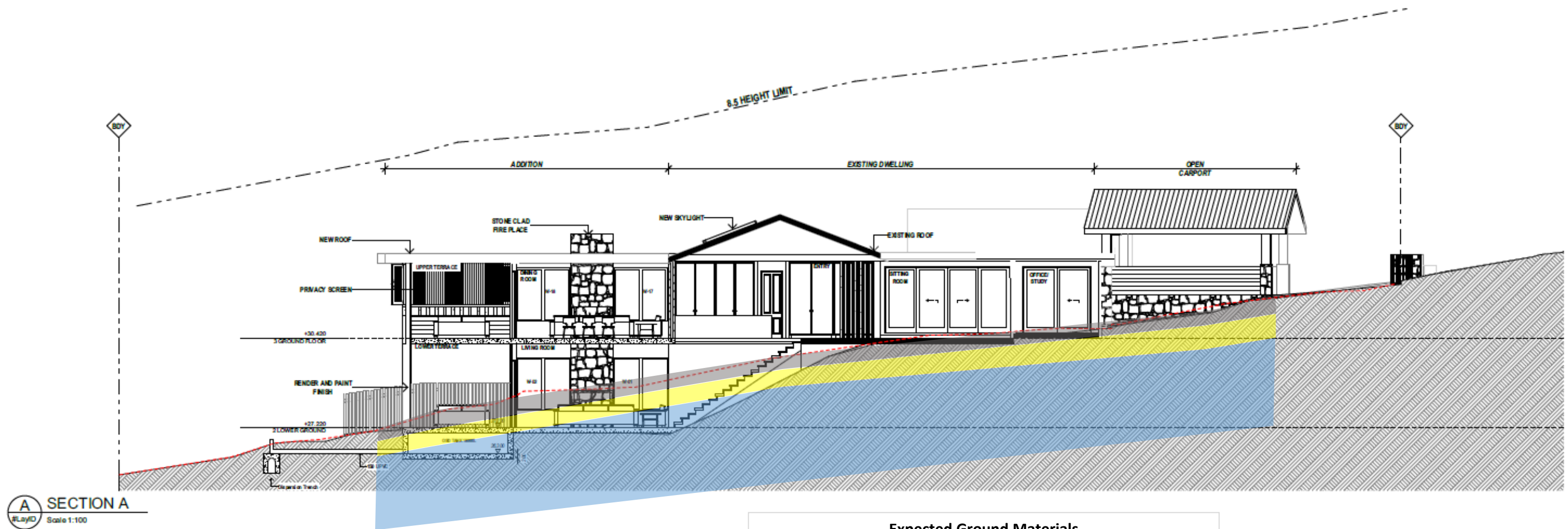
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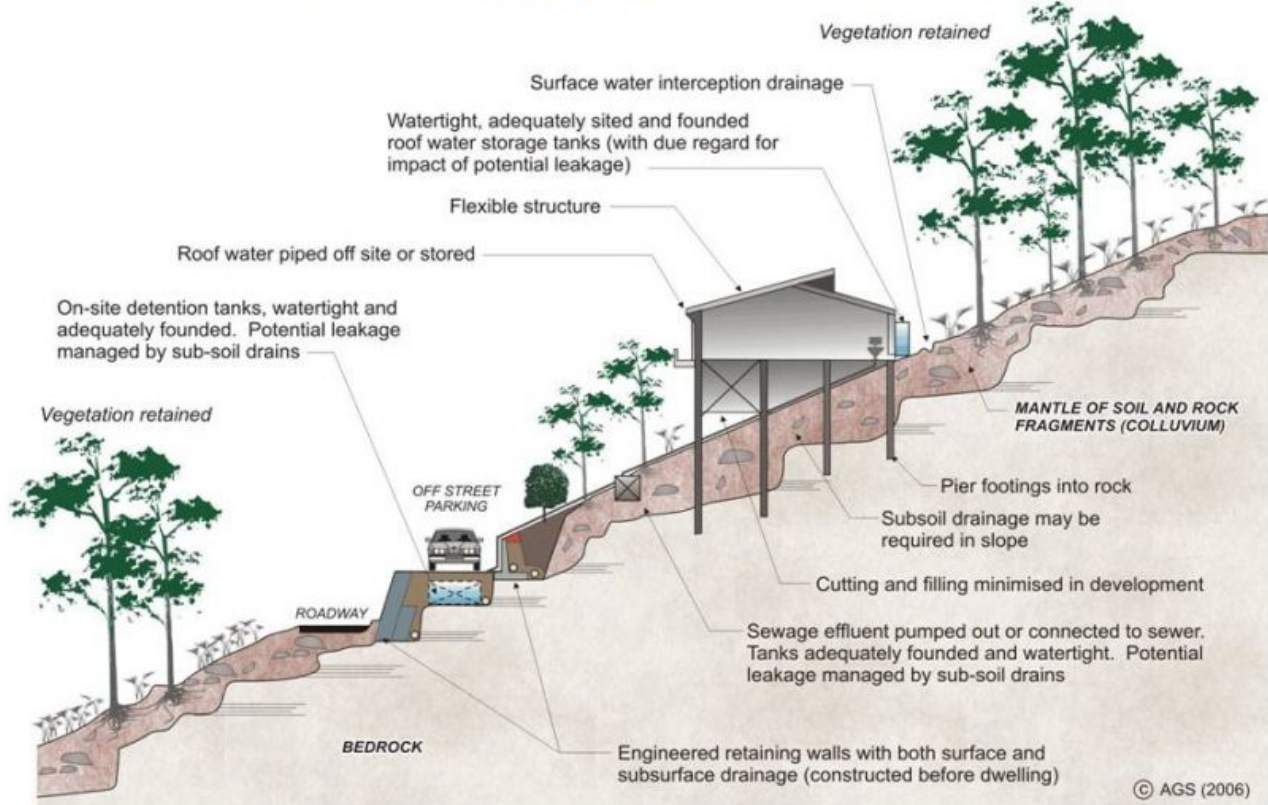
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TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE

