

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

Development Application for \_\_\_\_\_  
Name of Applicant

Address of site 30 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 28/6/19 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 30 Narrabeen Park Parade, Warriewood

Report Date: 26/6/19

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>30 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>30 Narrabeen Park Parade, Warriewood</u>
Report Date: <u>26/6/19</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 25/6/19  
(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 25/6/19
- ☒ 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:**

### **New Secondary Dwelling at 30 Narrabeen Park Parade, Warriewood**

#### **1. Proposed Development**

- 1.1** Demolish the existing garage and construct a new secondary dwelling by excavating to a maximum depth of ~2.2m into the slope.
- 1.2** Details of the proposed development are shown on 9 drawings prepared by Michal Korecky, drawing number 19006, sheets numbered 1 to 9, Issue 1, dated 3/6/2019.

#### **2. Site Description**

- 2.1** The site was inspected on the 25<sup>th</sup> June, 2019.
- 2.2** This residential property is on the low side of the road and has a W aspect. The block is located on the gentle to moderately graded upper middle reaches of a hillslope. The slope falls from the road frontage to approximately the midpoint of the property at an average angle of ~15°. The slope then continues at an average angle of ~6° to the lower common boundary. The slope above and below the property continues at similar angles.
- 2.3** Low to Medium Strength Sandstone was observed to be outcropping on the opposite side of the road to the subject property (Photo 1). At the road frontage, a concrete driveway runs down the slope to a stable brick and clad garage on the uphill side of the property (Photo 2). The slope between the road frontage and the house is terraced with a series of stable brick, stack rock, and rendered masonry retaining walls (Photos 3 & 4). Some of these walls will be demolished as part of the proposed works. The single-storey brick house is supported on brick walls and brick piers (Photo 5). A near-level lawn-covered fill extends off the downhill side of the house to the lower

common boundary. The fill is supported by a stable concrete block retaining wall ~2.0m high that lines the lower common boundary (Photo 6).

### 3. Geology

The Sydney 1:100 000 Geological sheet indicates the site is underlain by the Newport Formation of the Narrabeen Group. There is a band of sandstone underlying the location of the proposed secondary dwelling that extends through the otherwise shale-dominated profile.

### 4. Subsurface Investigation

Five DCP (Dynamic Cone Penetrometer) tests were carried out to determine the relative density of the overlying soil and the depth to bedrock. The locations of the tests are shown on the site plan. 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 and the results are as follows:

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 (~RL25.1)	DCP 2 (~RL24.9)	DCP 3 (~RL23.5)	DCP 4 (~RL21.6)	DCP 5 (~RL21.5)
0.0 to 0.3	4	2	F	13	2
0.3 to 0.6	10	7	7	40	9
0.6 to 0.9	#	6	10	#	10
0.9 to 1.2		#	10		40
1.2 to 1.5			30		#
1.5 to 1.8			#		
	Refusal on Rock @ 0.5m	Refusal on Rock @ 0.7m	Refusal on Rock @ 1.3m	Refusal on Rock @ 0.6m	Refusal on Rock @ 1.0m

#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 @ 0.5m, DCP bouncing off rock surface, grey and maroon shale fragments on dry tip.

DCP2 – Refusal on rock @ 0.7m, DCP bouncing off rock surface, light brown shale fragments on dry tip.

DCP3 – Refusal on rock @ 1.3m, DCP bouncing off rock surface, clean dry tip, brown clay in collar above tip.

DCP4 – Refusal on rock @ 0.6m, DCP bouncing off rock surface, clean dry tip, brown clay in collar above tip.

DCP5 – Refusal on rock @ 1.0m, DCP thudding, brown clay on wet tip.

## **5. Geological Observations/Interpretation**

Sandstone bedrock outcrops on the opposite side of the road to the subject property (Photo 1) and the owner of the N neighbouring property informed us that he encountered sandstone during excavation works on the uphill side of his property. We interpret this to be a thick sandstone bed within the Narrabeen Group of rocks. The rock is overlain by a thin sandy soil and sandy clays. In the test locations, rock was encountered at depths of between 0.5 to 1.3m due to the terraced land surface and stepped nature of the rock. The sandstone that outcrops on the opposite side of the road is estimated to be low to medium strength and similar strength rock is expected to underlie the proposed works. 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 excavation.

## **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 beside the property. The gentle to moderately graded slope that falls across the property and continues above and below is a potential hazard (**Hazard One**). The vibrations from the proposed excavations are a potential hazard (**Hazard Two**). The proposed excavation is a potential hazard until retaining walls are in place (**Hazard Two**).

### Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two	Hazard Three
TYPE	The gentle to moderate slope that falls across the site and continues above and below failing and impacting on the proposed works.	The vibrations produced during the proposed excavations impacting on the surrounding structures.	The proposed excavation collapsing onto the work site before the retaining walls are in place.
LIKELIHOOD	'Unlikely' ( $10^{-4}$ )	'Possible' ( $10^{-3}$ )	'Possible' ( $10^{-3}$ )
CONSEQUENCES TO PROPERTY	'Medium' (12%)	'Medium' (15%)	'Medium' (15%)
RISK TO PROPERTY	'Low' ( $2 \times 10^{-5}$ )	'Moderate' ( $2 \times 10^{-4}$ )	'Moderate' ( $2 \times 10^{-4}$ )
RISK TO LIFE	$5.5 \times 10^{-7}$ /annum	$5.3 \times 10^{-7}$ /annum	$8.3 \times 10^{-6}$ /annum
COMMENTS	This level of risk is 'ACCEPTABLE'.	This level of risk to property is 'UNACCEPTABLE'. To move risk to 'ACCEPTABLE' levels the recommendations in <b>Section 12</b> are to be followed.	This level of risk to life and property is 'UNACCEPTABLE'. To move risk to 'ACCEPTABLE' levels the recommendations in <b>Section 13</b> 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**

We were informed by the owner that roof water from the carport level of the proposed secondary dwelling will have fall to Narrabeen Park Parade. This roof water is to be piped to the street drainage system through any tanks that may be required by the regulating authorities.

The remaining roof area will be less than the current roof area and hard surfaces that exist in this location. Thus, the remaining roof water may be piped to the existing stormwater system for the house through any tanks that may be required by the regulating authorities.

## **11. Excavations**

An excavation to a maximum depth of ~2.2m is required to construct the uphill side of the proposed secondary dwelling. Another excavation to a maximum depth of ~1.8m will be required to construct the lower floor and pool of the secondary dwelling. The excavations are expected to be through shallow sandy soils and firm to stiff sandy clays with Low to Medium Strength Sandstone expected between depths of ~0.5 to ~1.3m below the surface.

It is envisaged that excavations through sandy soil and sandy clays can be carried out with a bucket and excavations through rock will require grinding or rock sawing and breaking.

## **12. Vibrations**

Possible vibrations generated during excavations through sandy soils and sandy clays will be below the threshold limit for building damage.

Medium Strength Sandstone is expected to be encountered during the excavation. Excavations through rock should be carried out to minimise the potential to cause vibration



damage to the subject house and N and S neighbouring houses. The subject house will be as close as ~5.0m, the N neighbouring house will be as close as ~5.0m and the S neighbouring house will be as close as ~3.0m from the edges of the excavations. Close controls by the contractor over rock excavation are recommended so excessive vibrations are not generated.

Excavation methods are to be used that limit peak particle velocity to 10mm/sec at the supporting walls of the subject house and property boundaries. Vibration monitoring will be required to verify this is achieved.

If a milling head is used to grind the rock, vibration monitoring will not be required. Alternatively, if rock sawing is carried out around the perimeter of the excavation boundaries in not less than 1.0m lifts, a rock hammer up to 300kg could be used to break the rock without vibration monitoring. Peak particle velocity will be less than 10mm/sec at the supporting walls of the subject house and property boundaries using this method provided the saw cuts are kept well below the rock to broken.

It is worth noting that vibrations that are below thresholds for building damage may be felt by the occupants of the subject and neighbouring properties.

### **13. Excavation Support Requirements**

It is interpreted that a band of Low to Medium Strength Sandstone underlies the property in the location of the proposed secondary dwelling. While sandstone bands are common in the Narrabeen Group of Rocks, their thickness and extent can be highly variable. Therefore, it is recommended exploration core drilling be carried out on the site to confirm to the rock quality and strength before the structural design commences for the project. This is to be arranged and supervised by the geotechnical consultant and should consist of a minimum of one cored bore hole taken to a depth of not less than 6.0m near the upper boundary. The following ground support advice can be considered preliminary and will be reviewed on recovery of the drill core. It may change as a result of the assessment of the drill core.



Allowing for over-excavation, both excavations will come close to flush with the N common boundary. The upper excavation will reach a maximum depth of ~2.2m in its NE corner but will taper away in height to the S and W. A carport on the N neighbouring property appears to be within the zone of influence of this excavation. However, the owner of the N neighbouring property informed us that the carport was recently constructed and is supported on competent rock. Thus, the carport will not be impacted by the proposed excavation and only the N boundary and road reserve will fall within the zones of influence of the excavations.

Where the excavation depths through soil and clay exceed 0.6m, the cuts are to be permanently or temporarily supported along the N sides and uphill side for the upper excavation before the excavation through rock commences. The support is to be installed systematically as the excavation progresses to ensure the integrity of the N neighbouring property and road reserve into the future. If the support is temporary, it is to remain in place until the retaining wall is built as a sacrificial-type system.

Where the excavation depths taper to less than 0.6m and along the uphill and S sides of the lower excavation, cut batters will stand at near-vertical angles for a short period of time until the retaining walls are installed provided the cut batters are kept from becoming saturated. Low to Medium Strength Sandstone or better will stand at vertical angles unsupported subject to approval by the geotechnical consultant.

The soil and clay portions of the cut for the pool will stand at near-vertical angles for short periods of time until the pool structure is installed provided the cut batters are kept dry. If the cut batters through soil remain unsupported for more than a few days they are to be supported with typical pool shoring, such as sacrificial sheet iron, until the pool structure is in place. Excavations through Low to Medium Strength Sandstone will stand at vertical angles unsupported subject to approval by the geotechnical consultant.

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 can't blow off in a storm. Upslope runoff is to be diverted from the cut faces by sandbag mounds or other diversion works. 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.

During the excavation process, the geotechnical consultant is to inspect the cuts 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.

Excavation spoil is to be removed from site.

## 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 <sup>3</sup> )	'Active' K <sub>a</sub>	'At Rest' K <sub>0</sub>
Fill, Sandy Soil, and Residual Clay	20	0.40	0.55
Very Low Strength Rock	22	0.35	0.40
Medium Strength Sandstone	24	0.00	0.01

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, 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**

A concrete slab and shallow piers supported directly off Medium Strength Sandstone are suitable footings for the proposed secondary dwelling. This ground material is expected to be exposed most of the bases of the excavations. Where sandstone is not exposed, it is expected at a maximum depth of ~1.3m below the current ground surface. A maximum allowable bearing pressure of 800kPa can be assumed for footings on Medium Strength Sandstone.

The proposed pool is expected to be mostly seated in Medium Strength Sandstone. Where sandstone is not exposed at the base of the excavation, the pool is to be supported on shallow piers taken to the underlying Medium Strength Sandstone.

Naturally occurring vertical cracks (known as joints) commonly occur in sandstone. These are generally filled with soil and are the natural seepage paths through the rock. They can extend to depths of several metres and are usually relatively narrow but can range between 0.1 to 0.8m wide. If a footing falls over a joint in the rock, the construction process is simplified if with the approval of the structural engineer the joint can be spanned or alternatively the footing can be repositioned so it does not fall over the joint.

**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. 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 or the regulating authorities 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 that no temporary support is required.
- All footings are to be inspected and approved by the geotechnical consultant while the excavation equipment is 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 3



Photo 4





Photo 5



Photo 6



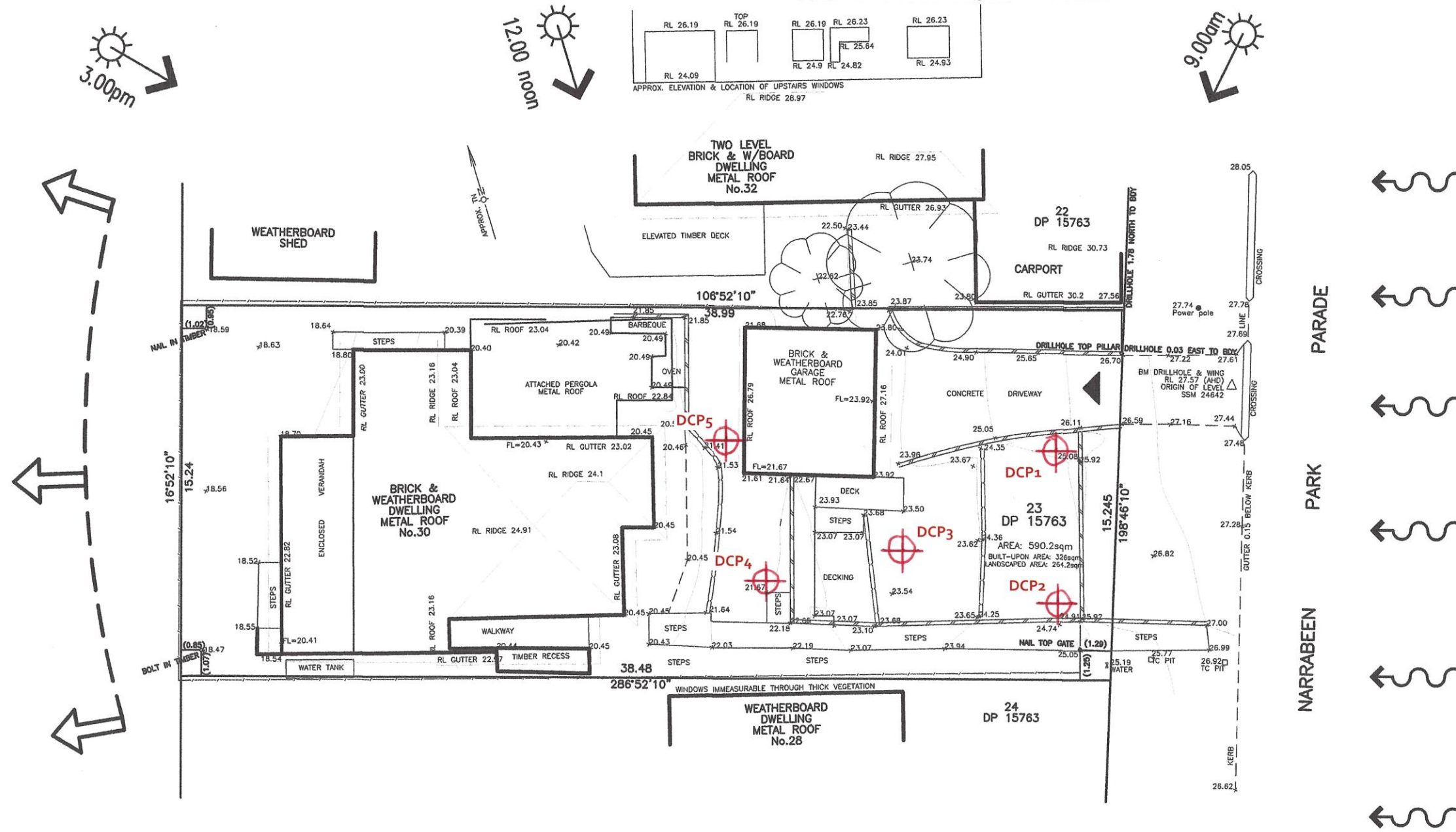
## Important Information about Your Report

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.

# SITE PLAN – showing test locations



KEY

CAR ENTRY POINT

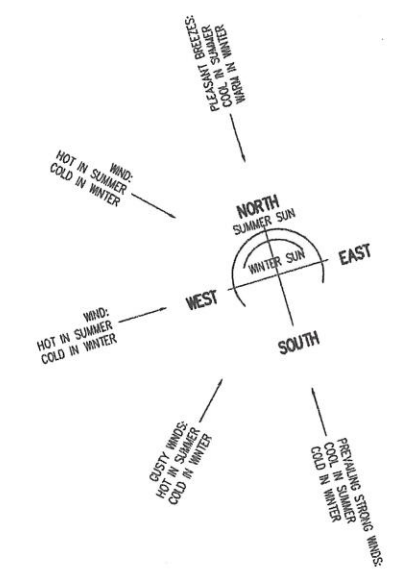
SUN DIRECTION – 22 JUNE

NOISE SOURCE

DISTRICT VIEWS OVER ADJOINING HOUSES

EXISTING SITE PLAN

1:200



GENERAL NOTES:

1. Builder to check and confirm all necessary dimensions on site prior to construction. Do not scale the drawing.

2. All dimensions that relate to site boundaries and easements are subject to verification by site survey.

3. All work to be in accordance with BUILDING CODE OF AUSTRALIA & to the satisfaction of local council requirements & other authorities.

4. All timber construction to be in accordance with the "TIMBER FRAMING" code.

5. Any detailing in addition to what is supplied shall be resolved between the owner and the builder to the owner's approval, except for any structural details or design which is to be supplied by Structural Engineer.

6. Roof water & sub-soil drainage to be disposed of in the approved manner or as directed by local council inspectors.

7. All electrical power & light outlets to be determined by owner.

8. Make good and repair all existing finishes damaged by new work. Reuse existing material where possible.

1	ISSUED FOR DA	03/06/19
No.	AMENDMENT	DATE

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DESIGN BY:

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ABN: 79 393 130 294

Email: koreckym@gmail.com      www.plansdesign.com.au

Phone: 99813332, Mob: 0438 148 944

PROJECT:

PROPOSED ADDITIONS AND ALTERATIONS

No 30 NARRABEEN PARK PARADE

WARRIEWOOD NSW 2102

CLIENT:

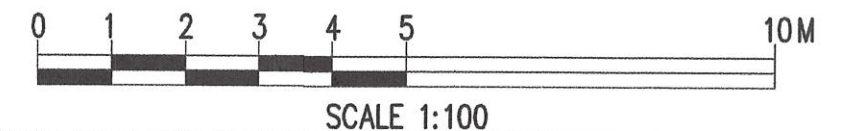
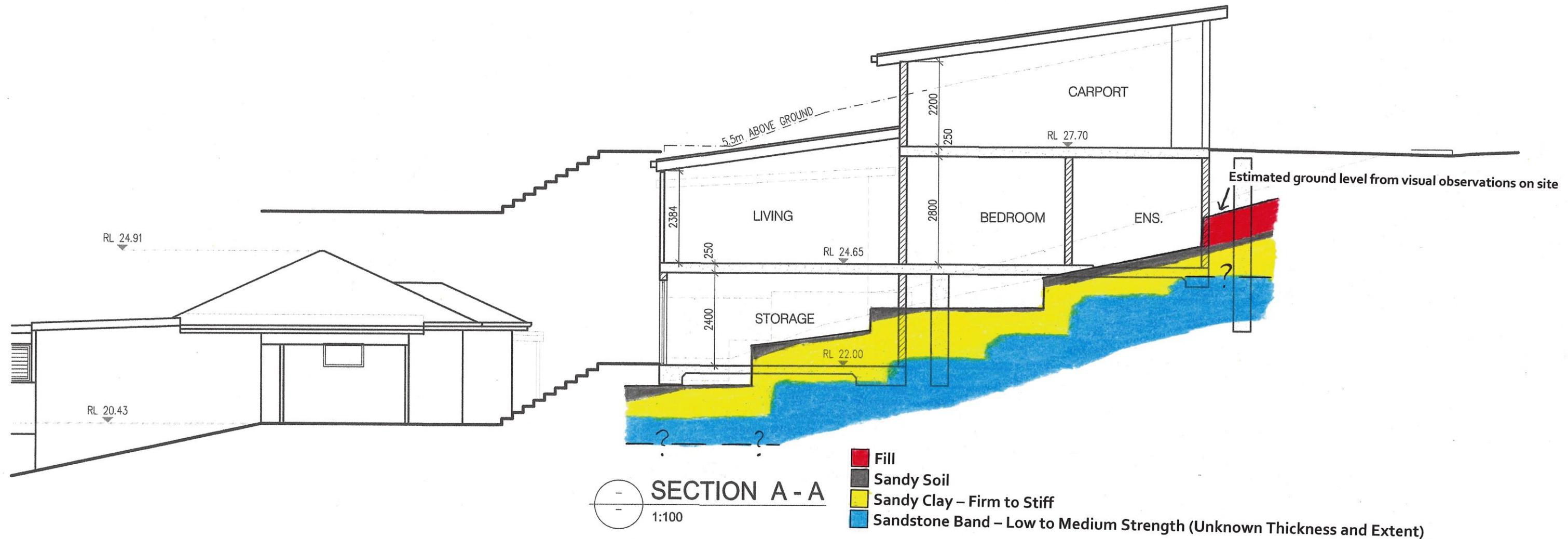
BON KAIN

LOT 23 DP 15763

DATE: 03/06/19	SCALE: AS NOTED
DRAWN: MK	ISSUE: 1
DRAWING Nr : 19006	SHEET: 1



# TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



## GENERAL NOTES:

1. Builder to check and confirm all necessary dimensions on site prior to construction. Do not scale the drawing.
2. All dimensions that relate to site boundaries and easements are subject to verification by site survey.
3. All work to be in accordance with BUILDING CODE of AUSTRALIA & to the satisfaction of local council requirements & other authorities.
4. All timber construction to be in accordance with the "TIMBER FRAMING" code.
5. Any detailing in addition to what is supplied shall be resolved between the owner and the builder to the owner's approval, except for any structural details or design which is to be supplied by Structural Engineer.
6. Roof water & sub-soil drainage to be disposed of in the approved manner or as directed by local council inspectors.
7. All electrical power & light outlets to be determined by owner.
8. Make good and repair all existing finishes damaged by new work. Reuse existing material where possible.

No.	AMENDMENT	DATE
1	ISSUED FOR DA	03/06/19

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## DESIGN BY:

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## PROJECT:

**PROPOSED ADDITIONS AND ALTERATIONS  
No 30 NARRABEEN PARK PARADE  
WARRIEWOOD NSW 2102**  
CLIENT: **BON KAIN** LOT 23 DP 15763

DATE: 03/06/19	SCALE: AS NOTED
DRAWN: MK	ISSUE: 1
DRAWING Nr : 19006	SHEET: 9

# EXAMPLES OF **GOOD** HILLSIDE PRACTICE



# EXAMPLES OF **POOR** HILLSIDE PRACTICE

