

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

Development Application for _____
Name of Applicant

Address of site 61B Wandeen Road, Clareville

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 17/12/21 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 61B Wandeen Road, Clareville
Report Date: 15/12/21


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>61B Wandeen Road, Clareville</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>61B Wandeen Road, Clareville</u>
Report Date: <u>15/12/21</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 5/5/21
(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 5/5/21
- ☒ 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 and New Pool at 61B Wandeen Road, Clareville

1. Proposed Development

- 1.1** Demolish the existing carport and extend the existing house roof over the parking area to form a new carport.
- 1.2** Extend the SE and NW sides of the existing ground floor.
- 1.3** Construct a new lower ground floor extension by excavating to a maximum depth of ~2.2m.
- 1.4** Construct a new above ground pool and deck on the downhill side of the house.
- 1.5** Various other minor internal and external alterations.
- 1.6** Details of the proposed development are shown on 10 drawings prepared by Chrofi, Project number 2046, drawings numbered A-DA-101 to 103, A-DA-201 to 204, A-DA-301, 302, and 601, Revision F, dated 8/12/21.

2. Site Description

- 2.1** The site was inspected on the 5th May, 2021.
- 2.2** This residential property has dual access. It is on the downhill side of a Right of Carriageway (ROW) off Wandeen Road and is on the uphill side of a different ROW off Georgia Lee Place. The property has a SW aspect. It is located on the gentle to steeply graded upper middle reaches of a hillslope. The slope falls from the upper boundary to the downhill side of the house at an average angle of <5°. The slope continues from the downhill side of the house to the lower boundary at an average angle of ~36° where sandstone outcrops and steps down the slope. The slope above the property continues at easing angles. The grade below the property continues at steep angles.

2.3 At the road frontage to Wandeen Road, a concrete and bitumen ROW runs past the uphill side of the property (Photo 1). A concrete driveway diverts off the ROW and runs to a carport attached to the SW side of the house (Photo 2). The carport will be demolished as part of the proposed works. An excavation has been made in the slope between the ROW and the house for a lawn area (Photo 3). The cut is supported by a stable brick and formed concrete retaining wall reaching ~1.0m. Competent Medium Strength Sandstone outcrops through this lawn. The part two-storey brick house is supported on brick walls, brick piers, and steel posts (Photo 4). No significant signs of movement were observed in the supporting brick walls and the supporting brick piers and steel posts stand vertical. Some of the supporting walls, posts, and piers were observed to be supported directly off outcropping sandstone. The outcropping sandstone that falls below the NW side of the house displays no significant geological defects and is considered stable (Photo 5). The outcropping sandstone that falls below the SE side of the house is undercut in two locations (Photos 6 & 7). See **Section 14** for recommendations regarding these undercut joint blocks. A steep, well-vegetated slope falls from the base of the outcrops to the uphill side of a bitumen ROW off Georgia Lee Place (Photo 8).

3. Geology

The Sydney 1:100 000 Geological sheet indicates the site is underlain by Hawkesbury Sandstone. It is described as a medium to coarse grained quartz sandstone with very minor shale and laminite lenses.

4. Subsurface Investigation

Six DCP (Dynamic Cone Penetrometer) tests were put down 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 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:

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 (~RL70.6)	DCP 2 (~RL68.7)	DCP 3 (~RL69.2)	DCP 4 (~RL67.0)	DCP 5 (~RL68.0)	DCP 6 (~RL72.1)
0.0 to 0.3	Rock Exposed at Surface	1F	3	F	3	Rock Exposed at Surface
0.3 to 0.6		1	#	3	9	
0.6 to 0.9		#		20	22	
0.9 to 1.2				6	#	
1.2 to 1.5				#		
		Refusal on Rock @ 0.5m	Refusal on Rock @ 0.2m	Refusal on Rock @ 1.1m	Refusal on Rock @ 0.9m	

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

DCP Notes:

DCP1 – Rock exposed at surface.

DCP2 – Refusal on rock @ 0.5m, DCP bouncing off rock surface, white impact dust on dry tip.

DCP3 – Refusal on rock @ 0.2m, DCP bouncing off rock surface, white impact dust on dry tip.

DCP4 – Refusal on rock @ 1.1m, DCP bouncing off rock surface, white impact dust on dry tip.

DCP5 – Refusal on rock @ 0.9m, DCP bouncing off rock surface, white impact dust on dry tip.

DCP6 – Rock exposed at surface.

5. Geological Observations/Interpretation

The surface features of the block are controlled by the outcropping and underlying sandstone bedrock that steps down the property forming sub-horizontal benches between the steps.

Where the grade is steeper, the steps are larger, and the benches narrower. Where the slope eases, the opposite is true. Where the rock is not exposed, it is overlain by a sandy soil over sandy clays that fill the bench step formation. In the test locations, the depth to rock ranged between 0.2 to 1.1m below the current surface, being slightly deeper due to the stepped nature of the underlying bedrock. The outcropping sandstone on the property is estimated to be Medium Strength or better. 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 surface flows were observed on the property during the inspection. The ROW above will provide only limited drainage diversion from surface flows as the road is not guttered above the subject property (Photo 1). It is expected that normal sheet wash will move onto the site from above the property during heavy down pours.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed above or beside the property. The gentle to steeply graded land surface that falls across the property and continues below is a potential hazard (**Hazard One**). The construction works on the downhill side of the house impacting on the undercut rock face is a potential hazard (**Hazard Two**). The vibrations from the proposed excavation are a potential hazard (**Hazard Three**). A loose boulder, wedge, or similar geological defect toppling onto the work site during the excavation process is a potential hazard (**Hazard Four**).

Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two
TYPE	The gentle to steep slope that falls across the property and continues below failing and impacting on the proposed works.	The construction works on the downhill side of the house impacting on the undercut rock face causing failure (Photos 6 & 7).
LIKELIHOOD	'Unlikely' (10^{-4})	'Unlikely' (10^{-4})
CONSEQUENCES TO PROPERTY	'Medium' (15%)	'Medium' (35%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Low' (2×10^{-5})
RISK TO LIFE	5.5×10^{-7} /annum	4.2×10^{-6} /annum
COMMENTS	This level of risk is 'ACCEPTABLE' provided the recommendations in Section 15 are carried out.	This level of risk is 'ACCEPTABLE' provided the recommendations in Section 14 are followed.

HAZARDS	Hazard Three	Hazard Four
TYPE	The vibrations produced during the proposed excavations impacting on the supporting walls of the neighbouring houses.	A loose boulder, wedge, or similar geological defect toppling onto the work site during the excavation process.
LIKELIHOOD	'Possible' (10^{-3})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (15%)	'Medium' (20%)
RISK TO PROPERTY	'Moderate' (2×10^{-4})	'Moderate' (2×10^{-4})
RISK TO LIFE	5.3×10^{-7} /annum	4.6×10^{-5} /annum
COMMENTS	This level of risk to property is 'UNACCEPTABLE'. To move risk to 'ACCEPTABLE' levels, the recommendations in Section 12 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 to Georgia Lee Place. Roof water from the 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 ~2.2m is required to construct the proposed lower ground floor extension. The excavation is expected to be almost entirely through Medium Strength Sandstone.

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 soil will be below the threshold limit for building damage. The majority of the proposed excavations are expected to be through Medium Strength Sandstone.

Excavations through Medium Strength Sandstone or better should be carried out to minimise the potential to cause vibration damage to the subject house. The supporting walls of the subject house will be immediately beside the proposed excavation. 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 8mm/sec at the supporting walls of the subject house. Vibration monitoring will be required to verify this is achieved. The vibration monitoring equipment must include a light/alarm so the operator

knows if vibration limits have been exceeded. It also must log and record vibrations throughout the excavation works.

In Medium Strength Rock or better, techniques to minimise vibration transmission will be required. These include:

- Rock sawing the excavation perimeter to at least 1.0m deep prior to any rock breaking with hammers, keeping the saw cuts below the rock to be broken throughout the excavation process.
- Limiting rock hammer size.
- Rock hammering in short bursts so vibrations do not amplify.
- Rock breaking with the hammer angled away from the nearby sensitive structures.
- Creating additional saw breaks in the rock where vibration limits are exceeded.

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

13. Excavation Support Requirements

The excavation will come close to flush with the supporting walls of the subject house. However, apart from a thin layer of soil over the rock, the excavation will be taken almost entirely through Medium Strength Sandstone and any nearby structures are already supported on the rock. As such, no structures or boundaries will be within the zone of influence of the excavation.

The shallow soil portions of the cut batters are to be battered temporarily at 1.0 Vertical to 2.0 Horizontal (30°) until the retaining walls are in place. Excavations through Medium Strength Sandstone or better will stand at vertical angles unsupported subject to approval by the geotechnical consultant.

If any supporting piers or posts are required to be removed, the house is to be propped and supported with beams prior to the excavation through rock commencing.

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 excavations as they approach to not less than 1.0m horizontally from the supporting posts and piers of the house to confirm the stability of the cut to go flush with the footings.

Additionally, during the excavation process, the geotechnical consultant is to inspect the excavations as they are lowered in 1.5m intervals to ensure the ground materials are as expected and no wedges or other geological defects are present that could require additional support. Should additional ground support be required, this will likely involve the use of mesh, sprayed concrete, and rock bolts.

Upon completion of the excavations, it is recommended all cut faces be supported with retaining walls to prevent any potential future movement of joint blocks in the cut faces that can occur over time, when unfavourable jointing is obscured behind the excavation faces. Additionally, retaining walls will help control seepage and to prevent minor erosion and sediment movement.

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

14. Foundations

The proposed lower ground floor extension is to be supported on a concrete slab and piers taken to and embedded to not less than 0.3m into the underlying Medium Strength Sandstone. This material is expected to be exposed across the majority of the base of the excavation and at shallow depths not exceeding ~1.1m below the current surface where the slope drops away on the downhill side. All other proposed works are to be supported on piers

taken to and embedded at least 0.3m into the underlying Medium Strength Sandstone. No foundations are to be supported on any undercut portions of the exposed rock outcrops. Where footings are over an exposed sloping rock surface, they may be supported off level pads cut into the rock. Assume a maximum allowable bearing pressure of 1000kPa for footings supported off 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.

15. Site Maintenance/Remedial Works

Where slopes approach or exceed 30° (such as on the downhill side of the property – Photo 8), it is prudent for the owners to occasionally inspect the slope (say annually or after heavy rainfall events, whichever occurs first). Should any of the following be observed: movement or cracking in retaining walls, cracking in any structures, cracking or movement in the slope surface, tilting or movement in established trees, leaking pipes, or newly observed flowing water, or changes in the erosional process or drainage regime, then a geotechnical consultant should be engaged to re-assess the slope. We can carry out these inspections upon request. The risk assessment in **Section 8** is subject to this site maintenance being carried out.

16. Geotechnical Review

The structural plans are to be checked and certified by the geotechnical consultant 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 owner 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 excavations as they approach to no less than 1.0m from the supporting posts and piers of the house to confirm the stability of the cut to go flush with the footings.
- During the excavation process, the geotechnical consultant is to inspect the cut faces as they are lowered in 1.5m intervals to ensure ground materials are as expected and that there are no wedges or other defects present in the rock that may require additional support.
- 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 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8

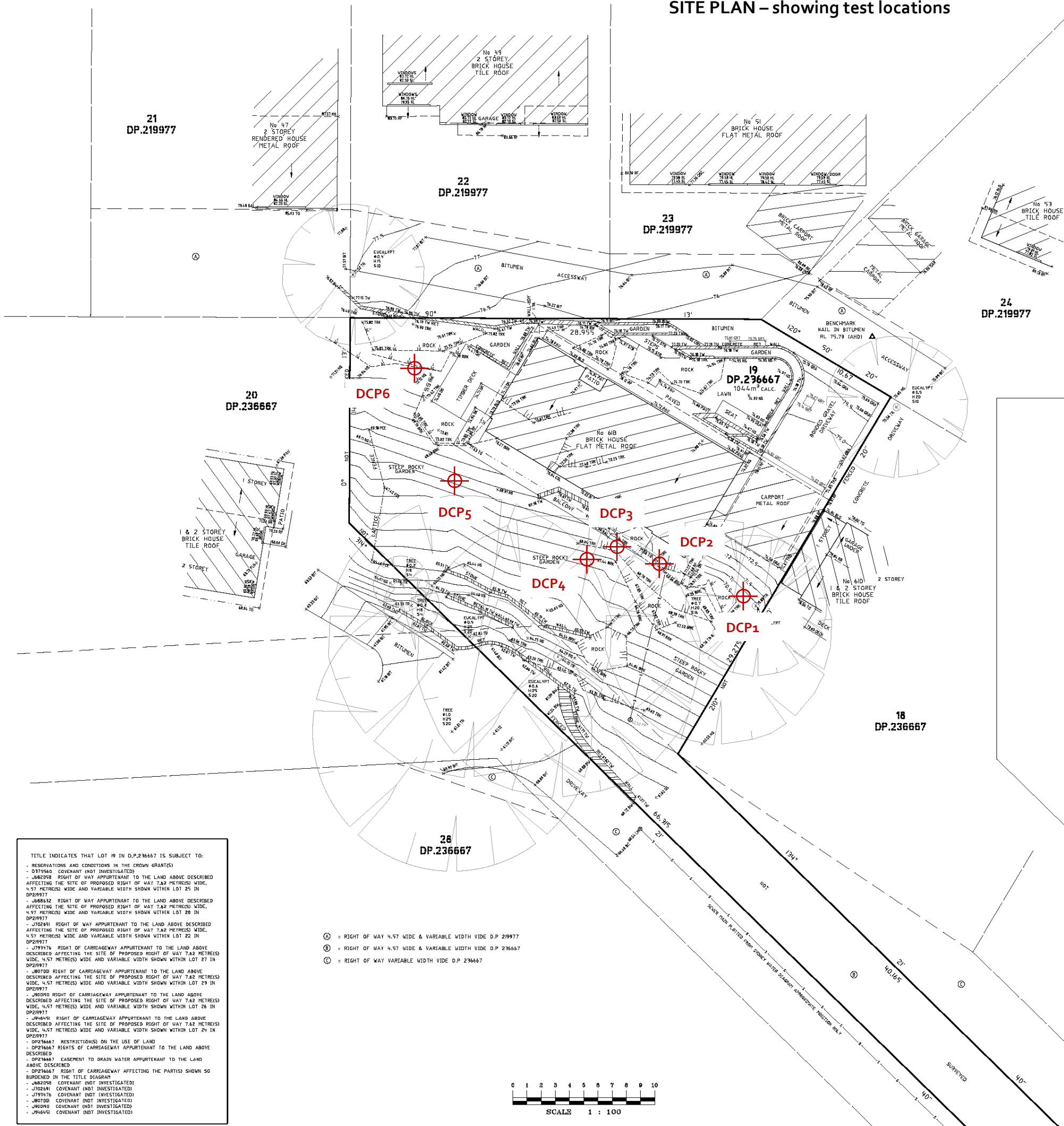
Important Information about Your Report

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



TITLE INDICATES THAT LOT 19 IN D.P.236667 IS SUBJECT TO:

- RESERVATIONS AND CONDITIONS IN THE CROWN GRANTS)
- D379560 COVENANT (NOT INVESTIGATED)
- J682058 RIGHT OF WAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE OF PROPOSED RIGHT OF WAY 7.82 METRES WIDE, 4.57 METRES WIDE AND VARIABLE WIDTH SHOWN WITHIN LOT 25 IN DP219977
- J683132 RIGHT OF WAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE OF PROPOSED RIGHT OF WAY 7.82 METRES WIDE, 4.57 METRES WIDE AND VARIABLE WIDTH SHOWN WITHIN LOT 28 IN DP219977
- J702491 RIGHT OF WAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE OF PROPOSED RIGHT OF WAY 7.82 METRES WIDE, 4.57 METRES WIDE AND VARIABLE WIDTH SHOWN WITHIN LOT 22 IN DP219977
- J793176 RIGHT OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE OF PROPOSED RIGHT OF WAY 7.82 METRES WIDE, 4.57 METRES WIDE AND VARIABLE WIDTH SHOWN WITHIN LOT 27 IN DP219977
- J807008 RIGHT OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE OF PROPOSED RIGHT OF WAY 7.82 METRES WIDE, 4.57 METRES WIDE AND VARIABLE WIDTH SHOWN WITHIN LOT 29 IN DP219977
- J600903 RIGHT OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE OF PROPOSED RIGHT OF WAY 7.82 METRES WIDE, 4.57 METRES WIDE AND VARIABLE WIDTH SHOWN WITHIN LOT 26 IN DP219977
- J964691 RIGHT OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE SITE OF PROPOSED RIGHT OF WAY 7.82 METRES WIDE, 4.57 METRES WIDE AND VARIABLE WIDTH SHOWN WITHIN LOT 24 IN DP219977
- DP219977 RESTRICTIONS ON THE USE OF LAND
- DP219977 RIGHTS OF CARRIAGEWAY APPURTENANT TO THE LAND ABOVE DESCRIBED
- DP219977 EASEMENT TO DRAIN WATER APPURTENANT TO THE LAND ABOVE DESCRIBED
- DP219977 RIGHT OF CARRIAGEWAY AFFECTING THE PART(S) SHOWN SO BARRICADED IN THE TITLE DIAGRAM
- J682058 COVENANT (NOT INVESTIGATED)
- J702491 COVENANT (NOT INVESTIGATED)
- J793176 COVENANT (NOT INVESTIGATED)
- J807008 COVENANT (NOT INVESTIGATED)
- J600903 COVENANT (NOT INVESTIGATED)
- J964691 COVENANT (NOT INVESTIGATED)

NOTES

- A BOUNDARY SURVEY HAS BEEN UNDERTAKEN.
- WALL TO BOUNDARY DIMENSIONS SHOWN HEREON MUST NOT BE USED FOR CONSTRUCTION.
- IF CONSTRUCTION IS INTENDED TO BE UNDERTAKEN ON OR ADJACENT TO PROPERTY BOUNDARIES THE BOUNDARIES OF THE LAND MUST BE MARKED ON THE BUILDING SETOUT.
- THIS SURVEY IS FOR DESIGN PURPOSES OF THE SUBJECT LAND ONLY. THIS PLAN MUST NOT BE USED FOR ANY OTHER MATTER, PURPOSE OR CONSTRUCTION SETOUT.
- TREE SIZES ARE ESTIMATES ONLY.
- THIS PLAN HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF MARK TYRRELL.
- RELATIONSHIP OF IMPROVEMENTS TO BOUNDARIES IS DIAGNOSTIC ONLY. WHERE OFFSETS ARE CRITICAL THEY SHOULD BE CONFIRMED BY FURTHER SURVEY.
- EXCEPT WHERE SHOWN BY DIMENSION LOCATION OF DETAIL WITH RESPECT TO BOUNDARIES IS INDICATIVE ONLY.
- ONLY VISIBLE SERVICES HAVE BEEN LOCATED. UNDERGROUND SERVICES HAVE NOT BEEN LOCATED. DIAL BEFORE YOU DIG SERVICES (OR THIS SHOULD BE USED AND A FULL UTILITY INVESTIGATION INCLUDING A UTILITY LOCATION SURVEY SHOULD BE UNDERTAKEN BEFORE CARRYING OUT ANY CONSTRUCTION ACTIVITY IN OR NEAR THE SURVEYED AREA.
- SEWER MAIN PLOTTED FROM SYDNEY WATER SEWER DIAGRAM. LOCATION SHOULD BE MARKED ON SITE IF CRITICAL.
- CRITICAL SPOT LEVELS SHOULD BE CONFIRMED WITH SURVEYOR.
- CONTOURS SHOWN DEPICT THE TOPOGRAPHY. THEY DO NOT REPRESENT THE EXACT LEVEL AT ANY PARTICULAR POINT. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
- CONTOUR INTERVAL - 0.5 metre - SPOT LEVELS SHOULD BE ADOPTED.
- POSITION OF RIDGE LINES ARE DIAGNOSTIC ONLY (NOT TO SCALE).
- THE INFORMATION IS ONLY TO BE USED AT A SCALE ACCURACY OF 1:50.
- DO NOT SCALE OFF THIS PLAN / FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED READINGS.
- COPYRIGHT © THIS SURVEYORS 2020
- NO PART OF THIS SURVEY MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF THE COPYRIGHT OWNER EXCEPT AS PERMITTED BY THE COPYRIGHT ACT 1968.
- ANY PERMITTED DOWNLOADING, ELECTRONIC STORAGE, DISPLAY, PRINT, COPY OR REPRODUCTION OF THIS SURVEY SHOULD CONTAIN NO ALTERATION OR ADDITION TO THE ORIGINAL SURVEY.
- THIS NOTICE MUST NOT BE ERASED.

LEGEND:

- BAL = BALCONY
- BIT = BITUMEN
- BLD = EXTERNAL BUILDING
- BRK = BOTTOM OF ROCK
- BRW = BOTTOM OF WALL
- COL = COLUMN
- CON = CONCRETE
- CP = CARPORT
- DK = DECK
- DSL = DOOR SILL LEVEL
- FCE = FENCE
- FL = FLOOR LEVEL
- GAR = GARAGE
- GRA = GRAVEL
- GRT = GRATE
- HL = WINDOW HEAD LEVEL
- LH = LAMP HOLE
- NS = NATURAL SURFACE
- PAY = PAVING
- PP = POWER POLE
- RET = RETAINING
- RF = TOP OF ROOF
- RR = ROOF RIDGE
- SIP = SEWER INSPECTION PIT
- SL = WINDOW SILL LEVEL
- STR = STEPS
- TG = TOP OF GUTTER
- TOL = TOP OF KERB
- TR = TREE OF ROCK
- TRK = TOP OF WALL
- TRW = TOP OF WALL
- EL = ELECTRICITY



HORIZONTAL DATUM:

CO-ORDINATE SYSTEM: ASSUMED

VERTICAL DATUM:

DATUM: AUSTRALIAN HEIGHT DATUM (AHD)

B.M. ADOPTED: PM 5444

R.L. 38.970 (ORDER L2)

SOURCE: S.C.I.M.S. (26/03/10)

4 LABELLING AMENDED 28/09/20

3 FRONT YARD UPDATED 22/09/20

2 DETAIL UPDATED 2/07/18

1 FIRST ISSUE 22/09/10

LGA: NORTHERN BEACHES SHEET 1 OF 1

CLIENT:

MARK TYRRELL
618 WANDEN ROAD
CLAREVILLE NSW 2107

PLAN SHOWING

DETAIL & LEVEL OVER PART

OF LOT 19 IN D.P.236667

BEING 618 WANDEN ROAD

CLAREVILLE NSW 2107

C.M.S. Surveyors

Pty Limited

ACN: 090 240 201

PO Box 483 One Way

NSW 2098

2/888 South Creek Road

One Way NSW 2098

Telephone: (02) 8971 4802

Facsimile: (02) 8971 4802

E-mail: info@cmsurveyors.com.au

SURVEYED DRAWN CHECKED APPROVED

SK/PB VS/CP SK/PB DT/AF

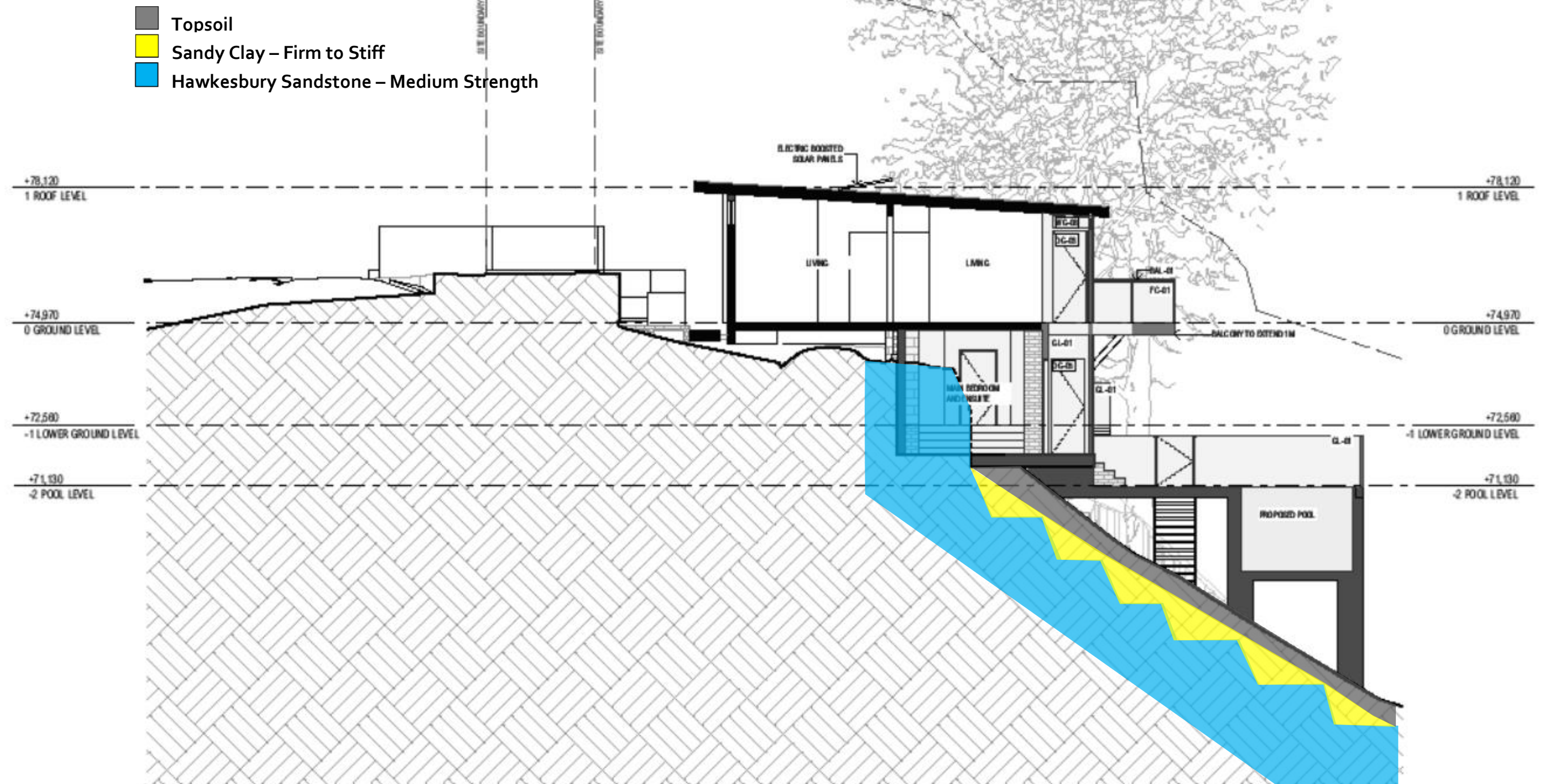
SURVEY INSTRUCTION SCALE DATE OF SURVEY

6645C 1:50 09/09/10-22/09/18

DRAWING NAME ISSUE

6645Adetail 3

CAD FILE 6645Cdetail.dwg



- 0-869-87661-0**

CHROFI

811 THE CORSO MARLYN MONROE MILANO, ITALY
T +39 02 8898 8300 E info@calzedonia.com

C AND BOPHA FURNISHING CO. INC. 146 7TH ST. ST. CINCINNATI OHIO 45202
300 30' 18" BIRMINGHAM ARCHITECT JOHN CROFT ST. CINCINNATI OHIO 45202

IT IS DRAWING SHOULD BE MADE IN CO-ORDINATION WITH ALL RELEVANT CONTRACTS, SPECIFICATION, APPROPRIATE DRAWINGS. DO NOT SCALE DRAWING & DIMENSIONS GIVEN. VERIFY ALL DIMENSIONS & USE APPROPRIATE MEASURING TOOL. C-SPRING NOT FITTING DRAWING IS NOTED IN COMMENT.

REV	DATE	DESCRIPTION
A	10/04/20	ISSUED FOR INFORMATION
B	10/04/20	ISSUED FOR INFORMATION
C	09/07/21	ISSUED FOR INFORMATION
D	11/07/21	ISSUED TO BE DEVELOPER SUPPLEMENT
E	11/08/21	ISSUED TO BE DEVELOPER SUPPLEMENT B
F	06/10/21	ISSUED TO BE DEVELOPER SUPPLEMENT B - UPDATED

[illegible]

PROJECT
2046 Tyrrell's House
618 Woodson Rd., Champlin

PROJECT NUMBER: 14001006

1.000

HCN

Learning

JMC

Is this a review?

1:100

Language

A3

Learn



S-02 SECTION

SHEET NUMBER

A-DA-302

1950N

7

EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE

