143 Prince Alfred Parade, Newport

Comments on Updates to Plans

We have reviewed the existing geotechnical report, the plans used to carry out the report, and the updated plans for DA shown on 15 drawings prepared by Rama Architects, drawings numbered DA-000, 001, 100 to 102, 300 to 303, 400, 401, 500 to 502, and 800, dated 24/9/19.

The changes include:

- Extending the proposed garage floor level upslope for a storage area. This increases the size of the excavation but does not increase its maximum depth. The added portion of the excavation is not close to any common boundaries.

The changes to the plans increase the size of the excavation but the excavation support advice in the original report still applies. Thus, this does not alter the recommendations or the risk assessment in the report carried out by this firm numbered J2282 and dated the 7th August, 2019.

White Geotechnical Group Pty Ltd.

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

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

Development Application for _____
Name of Applicant

Address of site 143 Prince Alfred Parade, Newport

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 7/8/19 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 **143 Prince Alfred Parade, Newport**

Report Date: 7/8/19

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 143 Prince Alfred Parade, Newport

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 **143 Prince Alfred Parade, Newport**

Report Date: 7/8/19

Author: BEN WHITE

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

Please mark appropriate box

☒ Comprehensive site mapping conducted **24/6/19**
(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 **24/6/19**

☒ 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:

Alterations & Additions & New Pool at **143 Prince Alfred Parade, Newport**

1. Proposed Development

1.1 Extend and lower the lower ground floor of the house by excavating to a maximum depth of ~3.9m.

1.2 Install a new pool on the uphill side of the property by excavating to a maximum depth of ~2.5m.

1.3 Various other internal and external modifications.

1.4 Details of the proposed development are shown on 15 drawings prepared by Rama Architects, drawings numbered DA-000, 001, 100 to 102, 300 to 303, 400, 401, 500 to 502, and 800, dated 31/7/19.

2. Site Description

2.1 The site was inspected on the 24th July, 2019.

2.2 This residential property is on the high side of the road and has a W aspect. It is located on the moderately graded lower middle reaches of a hillslope. From the road frontage to the upper boundary, the slope rises at an average angle of ~17°. The slope above and below the property continues at similar angles.

2.3 At the road frontage, a concrete driveway runs to a garage on the lower ground floor of the house (Photo 1). An excavation has been made at the rear of the garage and has been taken entirely through Extremely Low to Very Low Strength Shale (Photo 2). The slope between the road frontage and the house is terraced with two stable rendered masonry retaining walls (Photo 3). The part three-storey brick and clad house is supported on brick walls and brick piers (Photo 4). The supporting brick walls display no signs of movement and the supporting brick piers stand vertical. A

lawn-covered fill extends off the uphill side of the house. The fill is supported by a stable battered slope lined with large rocks (Photo 5). The slope above the lawn is terraced with two stable treated timber retaining walls (Photos 6 & 7). A well-vegetated garden area rises from the upper wall to the upper common boundary (Photo 7).

3. Geology

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

4. Subsurface Investigation

One auger hole was put down to identify the soil materials. Three Dynamic Cone Penetrometer (DCP) tests were put down to determine the relative density of the overlying soil and the depth to weathered rock. The locations of the tests are shown on the site plan. 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:

AUGER HOLE 1 (~RL32.4) **–** AH1 (Photo 8)

Depth (m)	**Material Encountered**
0.0 to 0.2	**TOPSOIL**, silty soil, dark brown and brown, medium dense, dry, fine to medium grained with fine trace organic matter and trace clay.
0.2 to 0.4	**CLAY**, weathered shale, brown and mottled orange and maroon, stiff to hard, dry, fine grained.

End of hole @ 0.4m in weathered shale. No watertable 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** (~RL30.9)	**DCP 2** (~RL32.4)	**DCP 3** (~RL32.2)
0.0 to 0.3	12	12	2
0.3 to 0.6	40	43	14
0.6 to 0.9	#	#	15
0.9 to 1.2			20
1.2 to 1.5			43
1.5 to 1.8			#
	End of Test @ 0.6m	End of Test @ 0.6m	End of Test @ 1.5m

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

DCP Notes:

DCP1 – End of test @ 0.6m, DCP still very slowly going down, brown shale on dry tip.
DCP2 – End of test @ 0.6m, DCP still very slowly going down, light brown shale on dry tip.
DCP3 – End of test @ 1.5m, DCP still very slowly going down, brown clay on wet 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 thin silty soil over firm to stiff silty clays. The silty clays and clays merge into the underlying weathered rock at an average depth of ~0.3m below the current surface. The weathered zone was exposed at the rear of the garage and observed to be Extremely Low to Very Low Strength Shale. 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 surface flows were observed on the property during the inspection. Normal sheet wash will move onto the site from the slope above during heavy down pours.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed beside the property. The moderately graded slope that falls across the property and continues above and below is a potential hazard (**Hazard One**). The proposed excavations are a potential hazard until retaining walls are installed (**Hazard Two**). The proposed excavation for the lower ground floor undercutting the footings of the house is a potential hazard (**Hazard Three**).

Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two	Hazard Three
TYPE	The moderate slope that falls across the property and continues above and below failing and impacting on the property.	The proposed excavations collapsing onto the work site and impacting the neighbouring properties before retaining walls are in place.	The proposed excavation for the lower ground floor undercutting the footings of the house and causing movement (Photo 2).
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (20%)	'Medium' (35%)	'Major' (40%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Moderate' (2×10^{-4})	'High' (6×10^{-4})
RISK TO LIFE	8.3×10^{-7}/annum	5.9×10^{-4}/annum	8.3×10^{-5}/annum
COMMENTS	'ACCEPTABLE' level of risk to life & property.	This level of risk to property is '**UNACCEPTABLE**'. To move 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 the risk levels 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 the street. 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 ~3.9m is required to extend and lower the lower ground floor of the house. Another excavation to a maximum depth of ~2.5m is required to install the proposed pool. Both excavations are expected to be through a shallow soil over a firm to stiff clay with Extremely Low to Very Low Strength Shale expected at an average depth of ~0.3m below the current surface. Excavations through sandy soil, clay, and Extremely Low to Very Low Strength Shale can be carried out with an excavator and bucket.

12. Vibrations

Possible vibrations generated during excavations through soil, clay, and Extremely Low to Very Low Strength Shale will be below the threshold limit for building damage.

13. Excavation Support Requirements

As this job is considered technically complex and due to the depth of the excavations, close proximity of the excavations to existing house footings, and the close proximity to the neighbouring property, we recommend it be carried out by builders and contractors who are well-experienced in similar work and can provide a proven history of completed work. We recommend a pre-construction meeting between the structural engineer, the builder, and the geotechnical consultant to discuss and confirm the excavation plan and to ensure suitable excavation equipment will be on site.

Bulk Excavation for the Proposed Extension and Lowering of the Lower Ground Floor

The excavation for the proposed lower ground floor will reach a maximum depth of ~3.9m and, allowing for back-wall drainage, will be taken underneath the existing house and will be close to flush with the S common boundary for the elevator shaft. The neighbouring house to the S will be set back ~1.4m from the edge of the excavation. Thus, the subject and S neighbouring house will be within the zone of influence of the excavation. In this instance, the zone of influence is the area above a theoretical 45° line from the base of the excavation through shale and clay towards the surrounding structures or boundaries. This line reduces to 30° through the sandy soil. It is proposed to extend the lower ground floor level by pushing an excavation drive under the house above, whose footprint currently extends further upslope.

As the excavation drives are pushed forward, the house will need to be propped and supported with beams as necessary where the existing foundations are close to the cut or with the proposed excavation footprint. The Extremely Low to Very Low Strength Shale cut batters are expected to stand unsupported for short periods until retaining walls are in place. We recommend installing the walls systematically as the excavation is pushed forward so cut batters are not left unsupported for long periods.

The materials and labour to construct the retaining walls are to be organised so, as the excavation is progressed, they can be installed.

Where the excavation extends beyond the existing house footprint for the proposed lift, to ensure the integrity of the S neighbouring house and property, the excavation is to be supported before the excavation commences. One such suitable method is to install four piles (one at each corner) with shoring installed between the piles immediately after the bulk excavation is complete. To drill the pier holes for the wall, a powerful excavator or small pilling rig that can excavate through medium strength rock will be required. If a machine of this type is not available, we recommend carrying out core drilling before the construction commences

to confirm the strength of the rock and to ensure the excavation equipment is capable of reaching the required depths.

The geotechnical consultant is to inspect the drilling process of the entire first pile and the ground materials at the base of all pier holes/excavations for ground support purposes.

The geotechnical consultant is to be on site when the excavation drive is commenced to confirm the rock strength is as expected and that no temporary support is required. Additional inspections will be required should any soft sections of rock or seepage be encountered as the excavation is progressed

Bulk Excavation for Proposed Pool

The excavation for the proposed pool and pool area will involve the removal of the treated timber retaining walls on the uphill side of the property. Following the removal of these walls, the excavation faces will reach a maximum depth of ~2.5m, will come close to flush with the N common boundary, and will be set back ~1.5m from the S common boundary. No structures on the N or S neighbouring properties or subject property will be within the zone of influence of the excavation.

The common boundary fences within the zones of influence of the excavation are to be braced before the excavation commences.

The existing treated timber retaining walls on the uphill side of the property will be demolished and new retaining walls will be installed as part of the proposed works (Photos 6 & 7). The walls are to be dismantled from the top down and any fill, soil, and clay behind the walls are expected to stand at near-vertical angles until the new retaining walls are installed. Where the retaining wall is to be removed for the installation of the proposed pool, the fill, soil, and clay behind the wall is to be lowered simultaneously. This work is to be conducted in an orderly manner.

The N side of the cut will reach a maximum depth of only 0.7m and is expected to stand at near-vertical angles for short periods of time until the retaining wall is installed provided the cut batters are kept from becoming saturated.

If any cut batters remain unsupported for more than a few days before retaining wall construction commences, the top 0.7m of each cut is to be battered at 45° before they are to be supported with typical pool shoring, such as sacrificial sheet iron, until the pool structure/retaining walls are in place.

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 can't blow off in a storm. The materials and labour to construct the retaining structures 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 in 1.5m intervals as they are 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 excavation spoil is to be removed from site following the current NSW 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/m³)	**'Active' K_a**	**'At Rest' K_0**	**Passive**
Soil and Residual Clays	20	0.40	0.55	N/A
Extremely Low to Very Low Strength Shale	22	0.25	0.35	Kp 2.5 ultimate

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. Any house or slope surcharge loads are to be accounted for in the design. It should be noted that passive pressure is an ultimate value and should have an appropriate safety factor applied. No passive resistance should be assumed for the top 0.4m to account for any disturbance from the excavation. Rock strength and relevant earth pressure coefficients are to be confirmed on site by the geotechnical consultant.

Should the piered retaining wall be temporarily propped, to prevent toe 'kick out', we recommend the piers be embedded at least 1.0m below the base of the excavation.

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 raft or thickened edge concrete slab supported on the underlying Extremely Low to Very Low Strength Shale are suitable footings for the proposed lower ground floor level. This ground material is expected to be exposed across the base of the proposed excavation.

The pool is expected to be mostly seated in Extremely Low to Very Low Strength Shale with the downhill edge in the firm to stiff clays. To ensure a uniform bearing material, shallow piers may be required to ensure a uniform bearing material where weathered shale where it is not exposed (the downhill edge).

Retaining wall footings can be supported on the underlying Extremely Low to Very Low Strength Shale.

A maximum allowable pressure of 600kPa can be assumed for Extremely Low to Very Low Strength Shale.

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.

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 certification for the regulating authorities or the owner if the following inspections have not been carried out during the construction process.

- The geotechnical consultant is to inspect the ground materials while the first pier for the ground support is being dug to assess the ground strength and to ensure it is in line with our expectations.

- All finished pier holes for the piled wall for ground support are to be inspected and measured before concrete is placed.

- The geotechnical consultant is to be on site when the excavation drive is commenced for the extension to the lower ground floor to confirm the rock strength is as expected and that no temporary support is required. Additional inspections will be required should any soft sections of rock or seepage be encountered as the excavation is progressed

- During the excavation process for the pool and pool area, 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 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

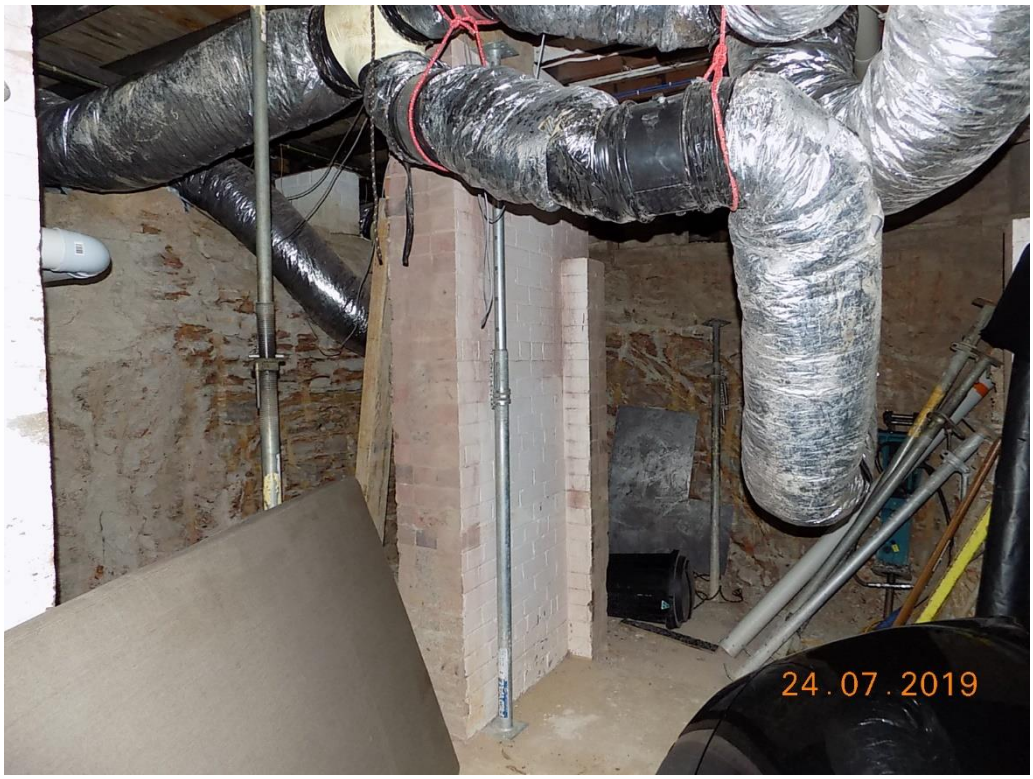


Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

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

Important Information about Your Report

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

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

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

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

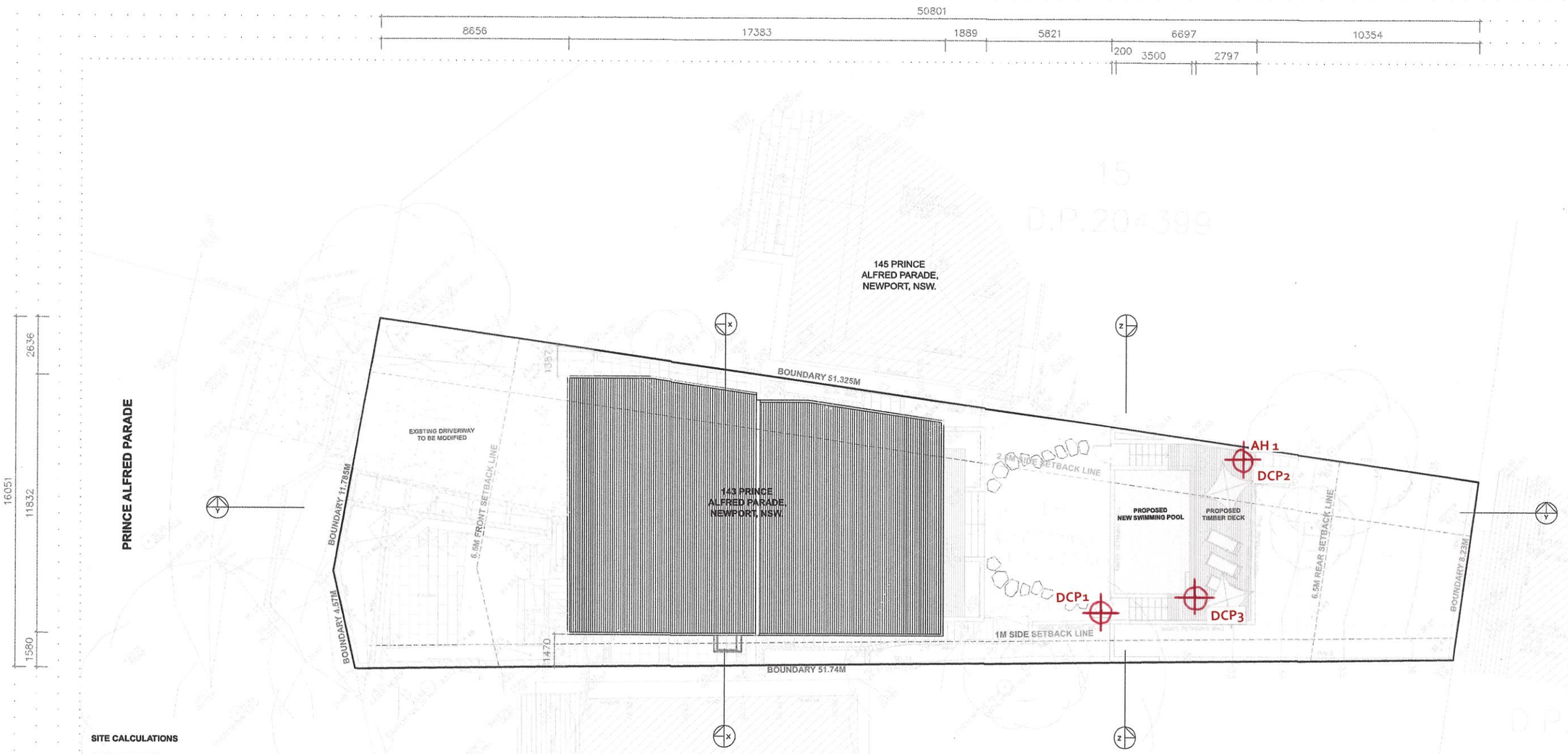
- The report addresses issues relating to your specific design and site. If the proposed project design changes, aspects of the report may no longer apply. Contact White Geotechnical if this occurs.

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

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

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

SITE PLAN – showing test locations



SITE CALCULATIONS

TOTAL SITE AREA	628.6m²
EXISTING TOTAL GROSS FLOOR AREA (INC. GARAGE)	239.2m²
EXISTING GARAGE AREA	45m²
EXISTING LOWER GROUND GROSS FLOOR AREA (EX. GAR)	8.2m²
EXISTING GROUND FLOOR GROSS FLOOR AREA	95m²
EXISTING FIRST FLOOR GROSS FLOOR AREA	91m²
EXISTING ROOF AREA	192m²
EXISTING TOTAL EXTERNAL TERRACE AREA/DECK	50m²
EXISTING TOTAL HARD SURFACE AREA	322.75m²
EXISTING TOTAL SOFT LANDSCAPE AREA (NOT INC 6% TOLERANCE)	305.85m² (48%)
PROPOSED TOTAL GROSS FLOOR AREA (INC. GARAGE)	250.3m²
PROPOSED GARAGE AREA	45m²
PROPOSED LOWER GROUND GROSS FLOOR AREA (EX. GAR)	15.3m²
PROPOSED GROUND FLOOR GROSS FLOOR AREA	97m²
PROPOSED FIRST FLOOR GROSS FLOOR AREA	93m²
PROPOSED ROOF AREA	193m²
PROPOSED TOTAL EXTERNAL TERRACE AREA	85m²
PROPOSED POOL VOLUME	30m³
PROPOSED TOTAL HARD SURFACE AREA	380m²
PROPOSED TOTAL SOFT LANDSCAPE AREA (NOT INC 6% TOLERANCE)	248.6m² (39%)

SITE PLAN 1:100 @ A1 OR 1:200 @A 3

NORTH

LEGEND:

7.03 DENOTES EXISTING SPOT LEVEL

RL 7.10 DENOTES PROPOSED LEVEL

NOTE: THESE DRAWINGS ARE NOT FOR CONSTRUCTION. FOR DA APPROVAL ONLY.
NOTE: DO NOT SCALE OFF THIS DRAWING
NOTE: ALL WORKS TO BE IN ACCORDANCE WITH THE B.C.
NOTE: ALL WORKS TO BE IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS.
NOTE: ALL WORKS TO BE IN ACCORDANCE WITH THE BASIX REQUIREMENTS

KEY:

- DENOTES AREA OF PROPOSED ADDITION
- DENOTES AREA OF PROPOSED CHANGES TO EXISTING BUILDING
- DENOTES PROPOSED WALLS
- DENOTES EXISTING WALLS TO REMAIN
- DENOTES OUTLINE OF EXISTING BUILDING
- DENOTES OUTLINE OF EXISTING TO BE DEMOLISHED

PROJECT:
ALTERATIONS & ADDITIONS TO EXISTING DWELLING INCLUDING NEW SWIMMING POOL

CLIENT:
FRED REZO

LOCATION:
143 PRINCE ALFRED PDE, NEWPORT

PROJECT STAGE:
DA

DRAWING TITLE:
SITE PLAN

SCALE:
1:100 @ A3

DATE OF ISSUE:
31.07.2019

DRAWING NO.
DA-001

REVISION:
-

rama

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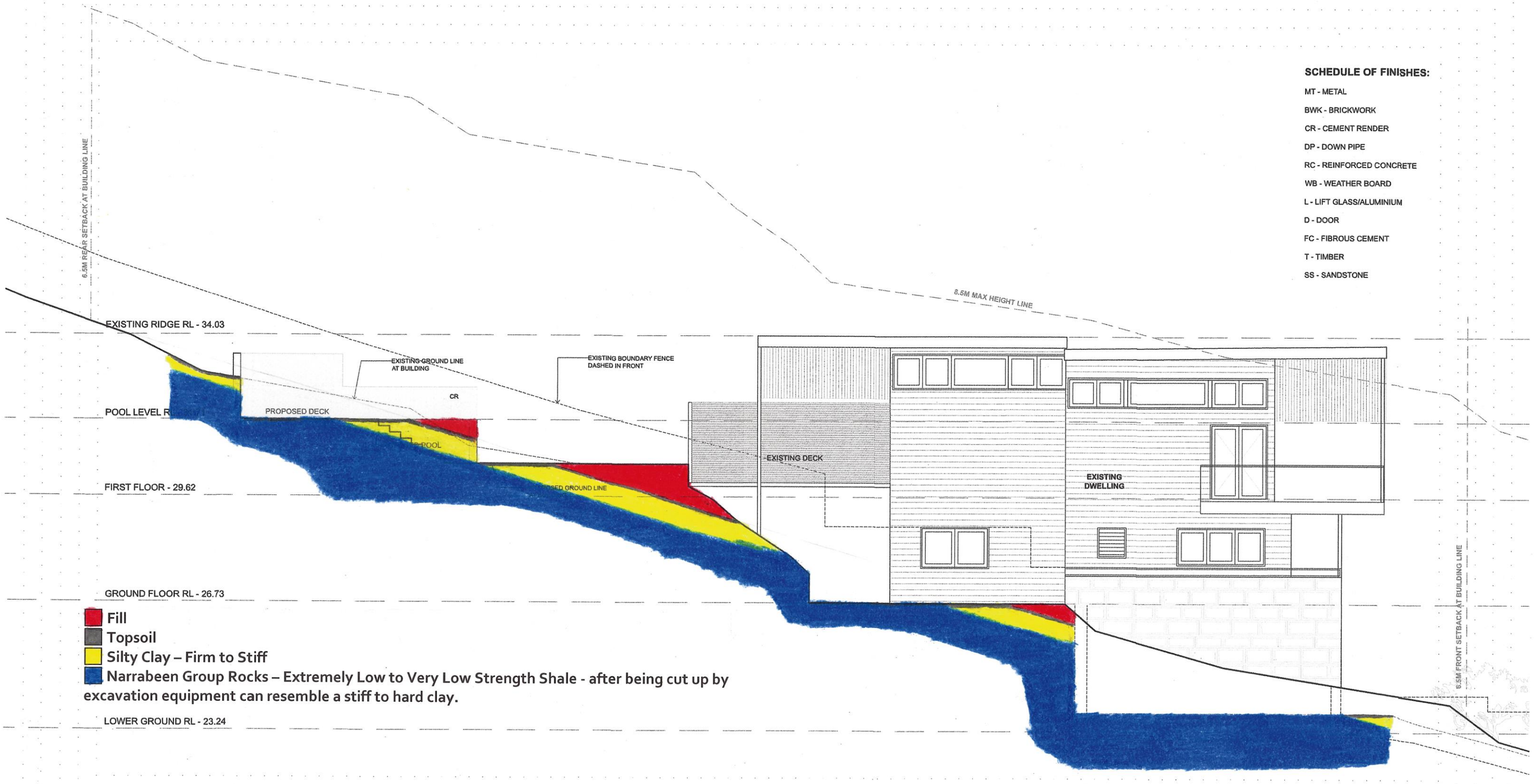
ABN 612 713 435

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials



SCHEDULE OF FINISHES:

MT - METAL

BWK - BRICKWORK

CR - CEMENT RENDER

DP - DOWN PIPE

RC - REINFORCED CONCRETE

WB - WEATHER BOARD

L - LIFT GLASS/ALUMINIUM

D - DOOR

FC - FIBROUS CEMENT

T - TIMBER

SS - SANDSTONE

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

NORTH ELEVATION 1:50 @ A1 OR 1:100 @A 3

LEGEND:

7.03 DENOTES EXISTING SPOT LEVEL

RL 7.10 DENOTES PROPOSED LEVEL

NOTE: THESE DRAWINGS ARE NOT FOR CONSTRUCTION. FOR DA APPROVAL ONLY.
NOTE: DO NOT SCALE OFF THIS DRAWING
NOTE: ALL WORKS TO BE IN ACCORDANCE WITH THE B.C.
NOTE: ALL WORKS TO BE IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS.
NOTE: ALL WORKS TO BE IN ACCORDANCE WITH THE BASIX REQUIREMENTS

KEY:

- DENOTES AREA OF PROPOSED ADDITION
- DENOTES AREA OF PROPOSED CHANGES TO EXISTING BUILDING
- DENOTES PROPOSED WALLS
- DENOTES EXISTING WALLS TO REMAIN
- DENOTES OUTLINE OF EXISTING BUILDING
- DENOTES OUTLINE OF EXISTING TO BE DEMOLISHED

PROJECT:
ALTERATIONS & ADDITIONS TO EXISTING DWELLING INCLUDING NEW SWIMMING POOL

CLIENT:
FRED REZO

LOCATION:
143 PRINCE ALFRED PDE, NEWPORT

PROJECT STAGE:
DA

DRAWING TITLE:
ELEVATION SHEET 02

SCALE:
1:100 @ A3

DATE OF ISSUE:
31.07.2019

DRAWING NO.
DA-301

REVISION:
-

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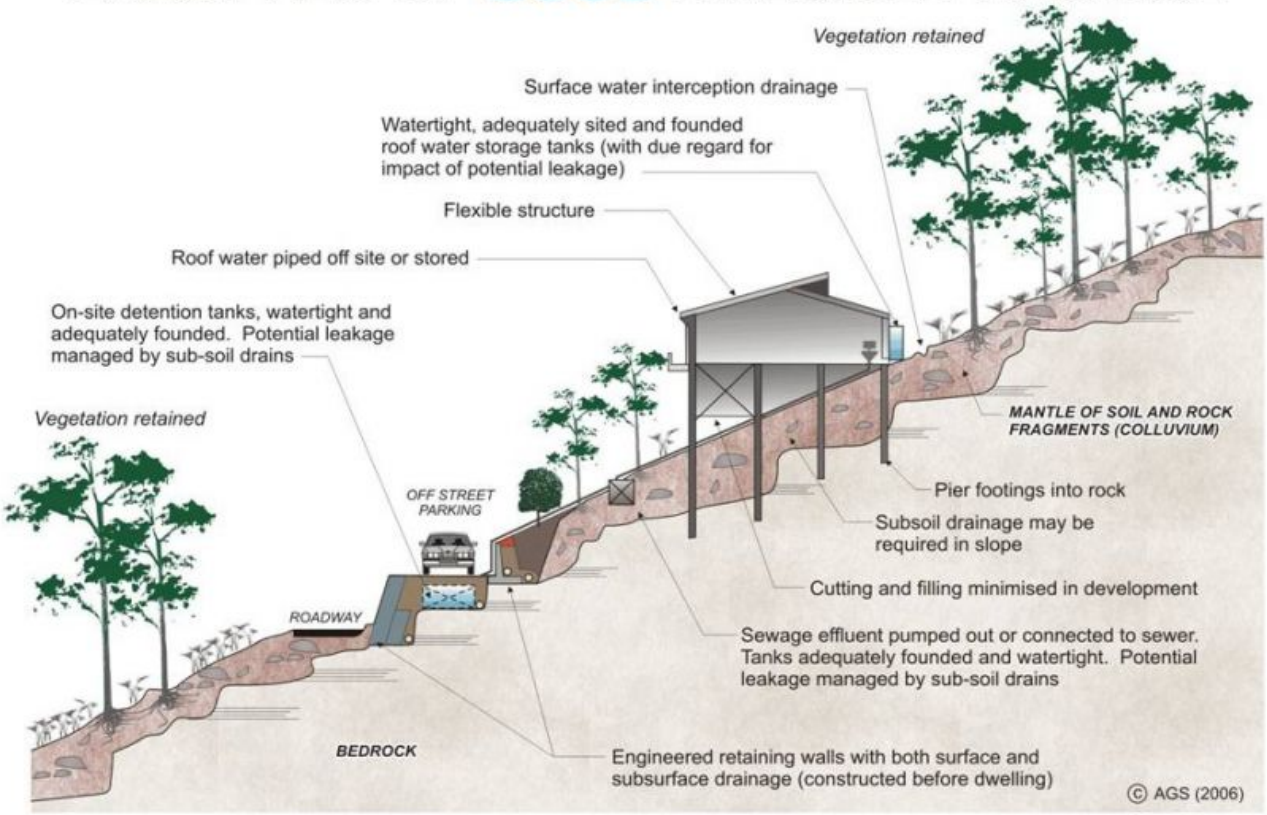
EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE