2131 Pittwater Road, Church Point

Geotechnical Comments for Section 4.55 Plans

We have reviewed the existing geotechnical report, the original plans, and the 15 amended plans by CHROFI, project 25002, drawings numbered DA501, revision 01. DA000 to 001, DA 100 to 103, DA200 to 201, DA300 to 301, DA400, DA500, and DA502 to 503, revision 03. All dated 24/06/2025.

The changes are as follows:

- Move the lower ground floor excavation further SW with no significant change in excavation depth.
- Rotate the proposed pool 90°.
- Internal and external alterations to the house layout, increasing the number of existing walls and slabs to be demolished.

The changes are considered minor from a geotechnical perspective. Increasing the amount of demolition of existing walls on the ground floor level decreases the amount of underpinning required, reducing the overall complexity and risk of the project. The changes do not alter the recommendations or the risk assessment in the original report carried out by this firm numbered J5617 and dated the 31st October, 2024.

White Geotechnical Group Pty Ltd.

Nathan Gardner B.Sc. (Geol. & Geophys. & Env. Stud.)
AIG., RPGeo Geotechnical & Engineering.
No. 10307
Engineering Geologist & Environmental Scientist.

Reviewed By:

Ben White M.Sc. Geol.,
AIG., RPGeo Geotechnical & Engineering.
No. 10306
Engineering Geologist.

REGISTERED PROFESSIONAL GEOSCIENTIST
AUSTRALIAN INSTITUTE OF GEOSCIENTISTS
BENJAMIN WHITE
RPGeo No: 10306

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

Development Application for _____
Name of Applicant

Address of site 2131 Pittwater Road, Church Point

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 31/10/24 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 **2131 Pittwater Road, Church Point**

Report Date: 31/10/24

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 MScGEOL AIG., RPGeo

Membership No. 10306

Company **White Geotechnical Group Pty Ltd**

REGISTERED PROFESSIONAL GEOSCIENTIST
AUSTRALIAN INSTITUTE OF GEOSCIENTISTS
BENJAMIN WHITE
RPGeo No: 10306

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 2131 Pittwater Road, Church Point

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 **2131 Pittwater Road, Church Point**

Report Date: 31/10/24

Author: BEN WHITE

Author's Company/Organisation: **White Geotechnical Group Pty Ltd**

Please mark appropriate box

☒ Comprehensive site mapping conducted **1/8/24** (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 **1/8/24**

☒ 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 MScGEOL AIG., RPGeo

Membership No. 222757

Company **White Geotechnical Group Pty Ltd**

GEOTECHNICAL INVESTIGATION:

Additions and Alterations and New Pool at **2131 Pittwater Road, Church Point**

1. Proposed Development

1.1 Demolish most of the existing internal and external walls of the house.

1.2 Extend the lower ground floor of the house upslope and install a lift by excavating to a maximum depth of ~2.8m.

1.3 Extend the ground floor of the house to the NW by excavating to a maximum depth of ~1.7m.

1.4 Demolish the existing pool and install a new pool in the same location.

1.5 Minor internal and external alterations and additions.

1.6 Details of the proposed development are shown on 24 drawings prepared by Archisoul Architects, project 2251, drawings numbered DA01 to DA24, dated 28.10.2024.

2. Site Description

2.1 The site was inspected on the 1st August, 2024.

2.2 This residential property is on the high side of the road and has a NE aspect. It is located on the gentle to moderately graded lower reaches of a hillslope. The natural slope rises across the property at an average angle of ~9°. The slope above the property continues at moderate angles. The slope below the property eases to near level angles at the waterfront.

2.3 At the road frontage, a concrete ROW (Right of Carriageway) and driveway run to a garage under the downhill side of the house (Photo 1). Fill for the driveway and garden bedding between the road frontage (Photo 2) and the house is supported by a

stable rendered masonry retaining wall (Photo 3) which approximates the downhill and SE boundaries. The part two-story house is supported on rendered masonry walls. Horizontal hairline cracking in the rendering was observed in some of the supporting walls. This minor cracking is not attributed to foundation movement. The house foundations are currently considered stable. Most of the supporting walls of the house will be demolished as part of the proposed works. A stable pool (Photo 4) and tiled patio occupies the space between the upper and lower portions of the house. The pool will also be demolished as part of the proposed works. The cut for the patio is supported by a stable rendered masonry retaining wall reaching ~1.5m high (Photo 5). Above the house a cut for level garden bedding is supported by a stable low sandstone block retaining wall which approximates the uphill common boundary (Photo 6).

3. Geology

The Sydney 1:100 000 Geological Sheet indicates the contact of Hawkesbury Sandstone and the Narrabeen Group Rocks cuts through the middle of the property, although at a residential scale the map is not always accurate. Ground testing and observations on site indicate that the property is underlain by geology which is consistent with the Narrabeen Group. The Narrabeen Group of Rocks are described as interbedded laminite, shale, and quartz to lithic quartz sandstone.

4. Subsurface Investigation

Two hand Auger Holes (AH) were put down to identify the soil materials. Four Dynamic Cone Penetrometer (DCP) tests were put down to determine the relative density of the overlying sand and the depth to weathered rock. The locations of the tests are shown on the site plan attached. It should be noted that a level of caution should be applied when interpreting DCP test results. The test will not pass through hard buried objects so in some instances it can be difficult to determine whether refusal has occurred on an obstruction in the profile or on the natural rock surface. This is not expected to have been an issue for this site. But due to the possibility that the actual ground conditions vary from our interpretation there should be

allowances in the excavation and foundation budget to account for this. We refer to the appended "Important Information about Your Report" to further clarify. The results are as follows:

AUGER HOLE 1 (~RL3.8) **–** AH1 (Photo 7)

Depth (m)	Material Encountered
0.0 to 0.1	**FILL**, dark brown, Medium Dense, damp, medium grained
0.1 to 0.4	**CLAYEY FILL**, brown, Soft, damp, fine to medium grained, clay fragments included.
0.4 to 0.7	**CLAYEY SANDY SOIL**, dark brown, Soft, damp, fine to medium grained.
0.7 to 1.2	**CLAYEY SAND**, brown to light brown, Medium Dense to Dense, damp, fine to medium grained.
1.2 to 1.5	**CLAY**, mottled maroon, orange, yellow, grey, Very Stiff, damp, charcoal inclusions.
1.5 to 1.7	**CLAY**, derived from weathered shale, mottled orange and grey, Stiff, damp.

End of test @ 1.7m in clay derived from weathered shale. No water table encountered.

AUGER HOLE 2 (~RL8.5) **–** AH2 (Photo 8)

Depth (m)	Material Encountered
0.0 to 0.2	**FILL**, brown, Dense, dry, fine to medium grained.
0.2 to 0.4	**CLAY**, mottled orange and grey, Hard, dry, fine to medium grained, soil lenses present.
0.4 to 0.6	**SANDY CLAY**, derived from weathered shale, mottled maroon, orange, and grey, Hard, dry, fine to medium grained.

End of test @ 0.6m in clay derived from weathered shale. No water table encountered.

DCP TEST RESULTS ON THE NEXT PAGE

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** (~RL3.6)	**DCP 2** (~RL3.8)	**DCP 3** (~RL8.5)	**DCP 4** (~RL8.5)
0.0 to 0.3	3	3	8	18
0.3 to 0.6	13	7	8	31
0.6 to 0.9	17	12	24	43
0.9 to 1.2	7	19	22	#
1.2 to 1.5	9	17	30	
1.5 to 1.8	8	15	#	
1.8 to 2.1	5	12		
2.1 to 2.4	12	15		
2.4 to 2.7	22	36		
2.7 to 3.0	12	38		
3.0 to 3.3	17	#		
3.3 to 3.6	20			
3.6 to 3.9	25			
3.9 to 4.2	32			
4.2 to 4.5	#			
	End of Test @ 4.2m	End of Test @ 3.0m	End of Test @ 1.3m	End of Test @ 0.7m

#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 @ 4.2m, DCP still very slowly going down, grey sandy clay on wet tip and in collar above tip.

DCP2 – End of test @ 3.0m, DCP still very slowly going down, grey clay on damp tip, orange, maroon and yellow clay smeared up DCP rod.

DCP3 – End of test @ 1.3m, DCP thudding and still very slowly going down, clean dry tip.

DCP4 – End of test @ 0.7m, DCP thudding and still very slowly going down, clean dry tip.

5. Geological Observations/Interpretation

The natural slope materials are colluvial at the near surface and residual at depth. In the test locations, the ground materials consist of younger sandy clay alluvial sediment at the downhill boundary which overlies deep weathered clay. Filling has been placed across the property for landscaping. The clays merge into the weathered zone of the underlying shale at depths of between 2.4m to 3.9m below the current surface on the downhill side of the house, and depths of 0.3m to 1.2m on the uphill side of the house. This variation in depth is due to the fills and sediment on the downhill side of the property, and cuts on the uphill side, as well as a variable weathering profile. The weathered zone is interpreted as Extremely Low to Very Low Strength Shale. It is to be noted that this material can appear as a mottled stiff clay when it is cut up by excavation equipment. See Type Section attached for a diagrammatical representation of the expected ground materials.

6. Groundwater

Normal ground water seepage is expected to move over the denser and less permeable clay and weathered shale layers in the sub-surface profile. The water table was not encountered in AH1 at ~1.7m (~RL2.1) but is expected to sit just above the waterline. As such, it is expected to be at least 3.0m below the base of the proposed excavation. It should be noted the watertable fluctuates with the tide and climatic changes.

7. Surface Water

No evidence of surface flows were observed on the property during the inspection. It is expected that normal sheet wash will move onto the site from above the property during heavy down pours.

8. Geotechnical Hazards and Risk Analysis

No geotechnical hazards were observed above, below, or beside the property. The moderately graded slope that rises across the property is a potential hazard (**Hazard One**). The proposed excavations are a potential hazard until retaining structures are in place

(**Hazard Two**). The proposed excavations undercutting the walls of the house which are to remain, is a potential hazard (**Hazard Three**). The additional surcharge loads from the proposed works are a potential hazard to the existing retaining walls for the house (**Hazard Four**).

Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two
TYPE	The moderate slope that rises across the property failing and impacting on the proposed works.	The excavations collapsing onto the work site before retaining structures are in place.
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (12%)	'Medium' (15%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Moderate' (2×10^{-4})
RISK TO LIFE	8.3×10^{-7}/annum	5.9×10^{-5}/annum
COMMENTS	This level of risk is 'ACCEPTABLE'.	This level of risk to life and property is 'UNACCEPTABLE'. To move risk to 'ACCEPTABLE' levels, the recommendations in **Section 13 and 14** are to be followed.

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

RISK ANALYSIS SUMMARY CONTINUED ON THE NEXT PAGE

HAZARDS	Hazard Three	Hazard Four
TYPE	The proposed excavations undercutting the walls of the house (which are shown on the plans to remain) causing damage or failure.	The additional surcharge loads from the works transferring onto the existing retaining walls which support the cuts for the house causing damage and instability.
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^{-5}/annum	5.6×10^{-5}/annum
COMMENTS	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.	This level of risk to life and property is 'UNACCEPTABLE'. To move the risk to 'ACCEPTABLE' levels the recommendations in **Section 14** 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 Pittwater Road. 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

Two excavations will be required for the proposed development:

- An excavation to a maximum depth of ~2.8m to extend the lower ground floor on the uphill side and install the proposed lift.

- An excavation to a maximum depth of ~1.7m to extend the ground floor of the house to the NW.

The excavations are expected to be through fill, soil, clayey sand, and clay, with Extremely Low to Very Low Strength Shale expected at depths of between ~0.3m and ~2.4m in the area of the proposed excavations. It is envisaged that excavations through soil, clay, and Extremely Low to Very Low Strength Shale can be carried out with an excavator and toothed bucket.

12. Vibrations

It is expected the proposed excavations will be carried out with an excavator and bucket and the vibrations produced will be below the threshold limit for building or infrastructure damage using a domestic sized excavator up to 16 tonnes.

13. Excavation Support Requirements

Allowing 0.5m for back wall drainage, the depths and setbacks for the proposed excavations are as follows:

- The lower ground floor excavation will reach a maximum depth of ~2.8m and be set back ~0.6m from the subject house walls.
- The excavation to extend the ground floor of the house to the NW will reach a maximum depth of ~1.7m and come ~flush with the subject house walls.

These supporting walls are shown on the plans to remain. As such, they will lie within the Zone of Influence of the excavations. In this instance, the zone of influence is the area above a theoretical 45° line (from horizontal) from the base of the excavation towards the surrounding structures and boundaries. This line reduces to 30° through the fill and soil.

Following the demolition of any non-retaining structures, where any walls that are to remain fall within the zone of influence of any excavations, exploration pits along the walls will need to be put down by the builder to determine the foundation depth and material. These are to be inspected by the geotechnical consultant.

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

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

The excavation requires the demolition of the retaining walls supporting the cut for the lower ground floor of the house and cut for the NW patio on the uphill side (Photo 5). The walls are to be demolished from the top down in an orderly manner with the ground material behind the walls being systematically lowered at the same time. The batter slope is not to exceed 1.0 Vertical to 1.7 Horizontal (30°) as the walls are demolished.

The demolition of the existing pool is to be carried out in an orderly manner, this may involve the underpinning of surrounding retaining walls as described above, during the demolition process to ensure the integrity of the subject house and SE common boundary. The geotechnical consultant is to be on site at the commencement of the pool demolition to ensure any necessary underpinning of the surrounding walls are carried out.

Where room permits, the sides of the proposed excavation are also expected to stand temporarily at batter angles of 30°. Where there is not room for these batters, the excavation will need to be temporarily or permanently supported prior to the commencement of the excavation, or during the excavation process in a staged manner, so cut batters are not left

unsupported. The support will need to be designed / approved by the structural engineer. See the site plan attached for the minimum extent of the required shoring shown in blue.

During the excavation process, the geotechnical consultant is to inspect the cuts 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 the batter slope/temporary support is adequate.

All unsupported cut batters are to be covered to prevent access of water in wet weather and loss of moisture in dry weather. The covers are to be tied down with metal pegs or other suitable fixtures so they cannot blow off in a storm. The materials and labour to construct the retaining walls are to be organised so on completion of the excavations they can be constructed as soon as possible. The excavations are to be carried out during a dry period. No excavations are to commence if heavy or prolonged rainfall is forecast.

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

14. Retaining Structures

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

TABLE 1 ON THE NEXT PAGE

Table 1 – Likely Earth Pressures for Retaining Structures

Unit	Earth Pressure Coefficients		
	Unit weight (kN/m^3)	'Active' K_a	'At Rest' K_0
Fill and Topsoil	20	0.40	0.55
Residual Clays	20	0.35	0.45
Extremely Low Strength Rock	22	0.25	0.38
Very Low Strength Rock	22	0.22	0.35

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 from the slope 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 full hydrostatic pressures are to be accounted for in the retaining structure design.

15. Foundations

The proposed additions and alterations to the house can be supported on Extremely Low to Very Low Strength Shale. This material is expected to be exposed across the uphill side of the proposed excavations. Where it is not exposed, and where weathered rock drops away with the slope, piers will be required to maintain a uniform foundation material across the

structure. To ensure no surcharge loads are added to the retaining walls supporting the existing cuts for the house, where necessary, the works are to be supported on piers taken to below the Zone of Influence of the walls.

The foundations supporting the existing house are currently unknown. Ideally, footings should be founded on the same footing material across the old and new portions of the structure. Where the footing material does change across the structure, construction joints or similar are to be installed to prevent differential settlement, where the structure cannot tolerate such movement in accordance with a 'Class M' site.

The proposed pool can also be supported on piers taken to the underlying Extremely Low to Very Low Strength Shale. Extremely Low to Very Low Strength Shale is expected at depths of between ~0.3m and ~2.4m below the current surface in the location of the proposed works.

A maximum allowable bearing pressure of 600kPa can be assumed for footings on Extremely Low to Very Low Strength Shale. It should be noted that this material is a soft rock and a rock auger will cut through it so the builders should not be looking for refusal to end the footings.

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

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

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

16. Geotechnical Review

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

17. Inspections

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

- The exploration pits to determine the foundation material along the walls that fall within the Zone of Influence of the proposed excavations are to be inspected by the geotechnical consultant to determine if underpinning is necessary. This is to occur before the bulk excavations commence.
- The geotechnical consultant is to be on site at the commencement of the pool demolition to ensure any necessary underpinning of the surrounding walls are carried out.
- During the excavation process, the geotechnical consultant is to inspect the cuts 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 the batter slope/temporary support is adequate.
- All footings are to be inspected and approved by the geotechnical consultant while the excavation equipment and contractors are still onsite and before steel reinforcing is placed or concrete is poured.

White Geotechnical Group Pty Ltd.

Reviewed By:

Nathan Gardner B.Sc. (Geol. & Geophys. & Env. Stud.)
AIG., RPGeo Geotechnical & Engineering.
No. 10307
Engineering Geologist & Environmental Scientist.

Ben White M.Sc. Geol.,
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No. 10306
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Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7 – AH1 – downhole is top to bottom

Photo 8– AH2 – downhole is top to bottom

Important Information about Your Report

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

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

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

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

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

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

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

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

SITE PLAN – showing test locations

EXISTING FSR, PRIVATE OPEN SPACE & LANDSCAPE CALCULATION:

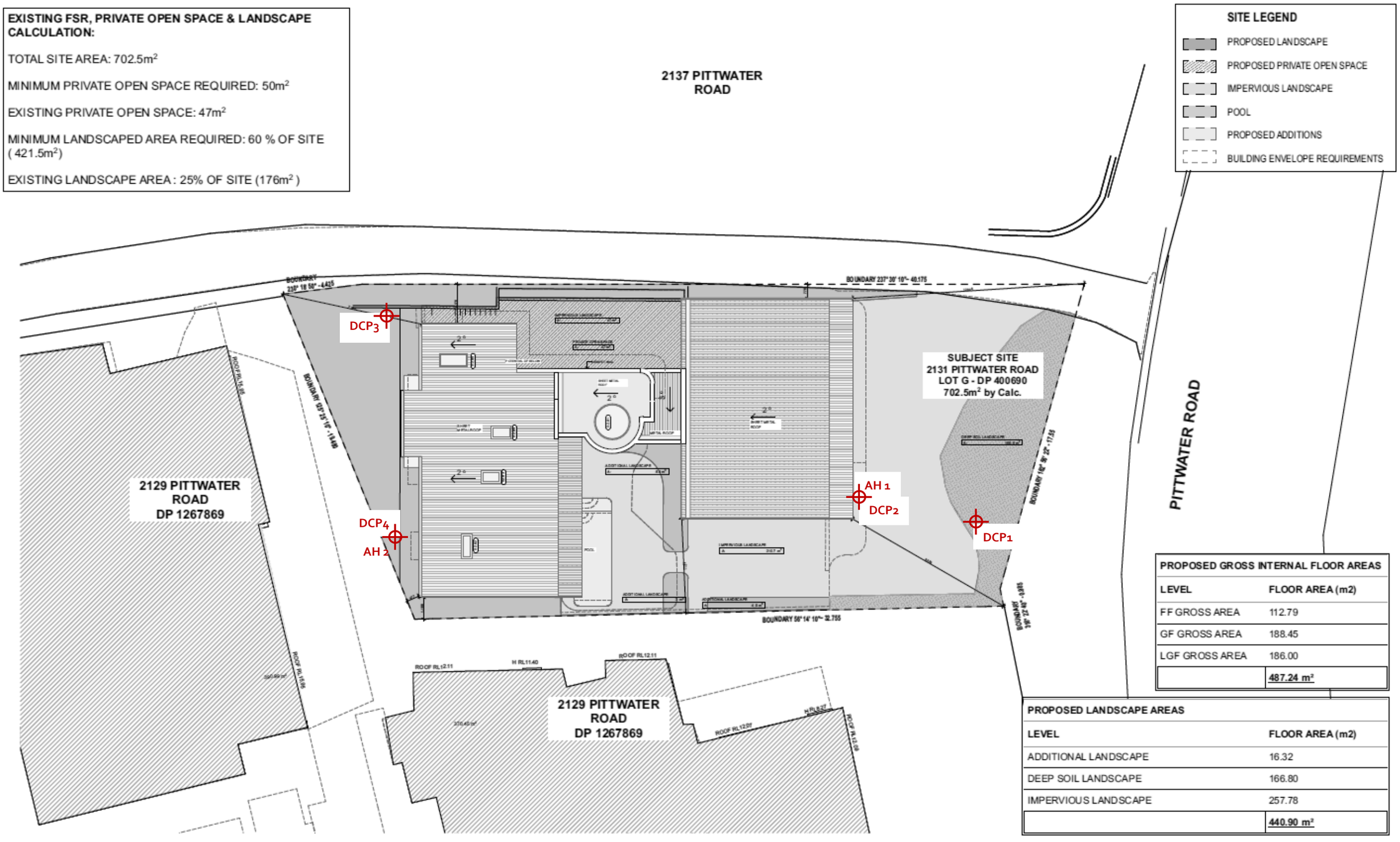
TOTAL SITE AREA: 702.5m²

MINIMUM PRIVATE OPEN SPACE REQUIRED: 50m²

EXISTING PRIVATE OPEN SPACE: 47m²

MINIMUM LANDSCAPED AREA REQUIRED: 60 % OF SITE (421.5m²)

EXISTING LANDSCAPE AREA : 25% OF SITE (176m²)



PROPOSED GROSS INTERNAL FLOOR AREAS	
LEVEL	FLOOR AREA (m2)
FF GROSS AREA	112.79
GF GROSS AREA	188.45
LGF GROSS AREA	186.00
	487.24 m²

PROPOSED LANDSCAPE AREAS	
LEVEL	FLOOR AREA (m2)
ADDITIONAL LANDSCAPE	16.32
DEEP SOIL LANDSCAPE	166.80
IMPERVIOUS LANDSCAPE	257.78
	440.90 m²

ARCHITECT

ARCHISOUL ARCHITECTS

UNIT 23/28-34 ROSEBERRY STREET
BALGOWLAH NSW AUSTRALIA 2093
Ph: 02 9976 5449
www.archisoul.com.au

REV	DATE	DESCRIPTION
01	23/10/2024	STAGE 2 - DA

PROJECT DETAILS

Drawn | Checked JG - RR - RP
Plot Date: 28/10/2024
Project Status Development Application
Client: Brad & Louise Dowe
Project: 2251

DRAWING TITLE :
PROPOSED SITE PLAN

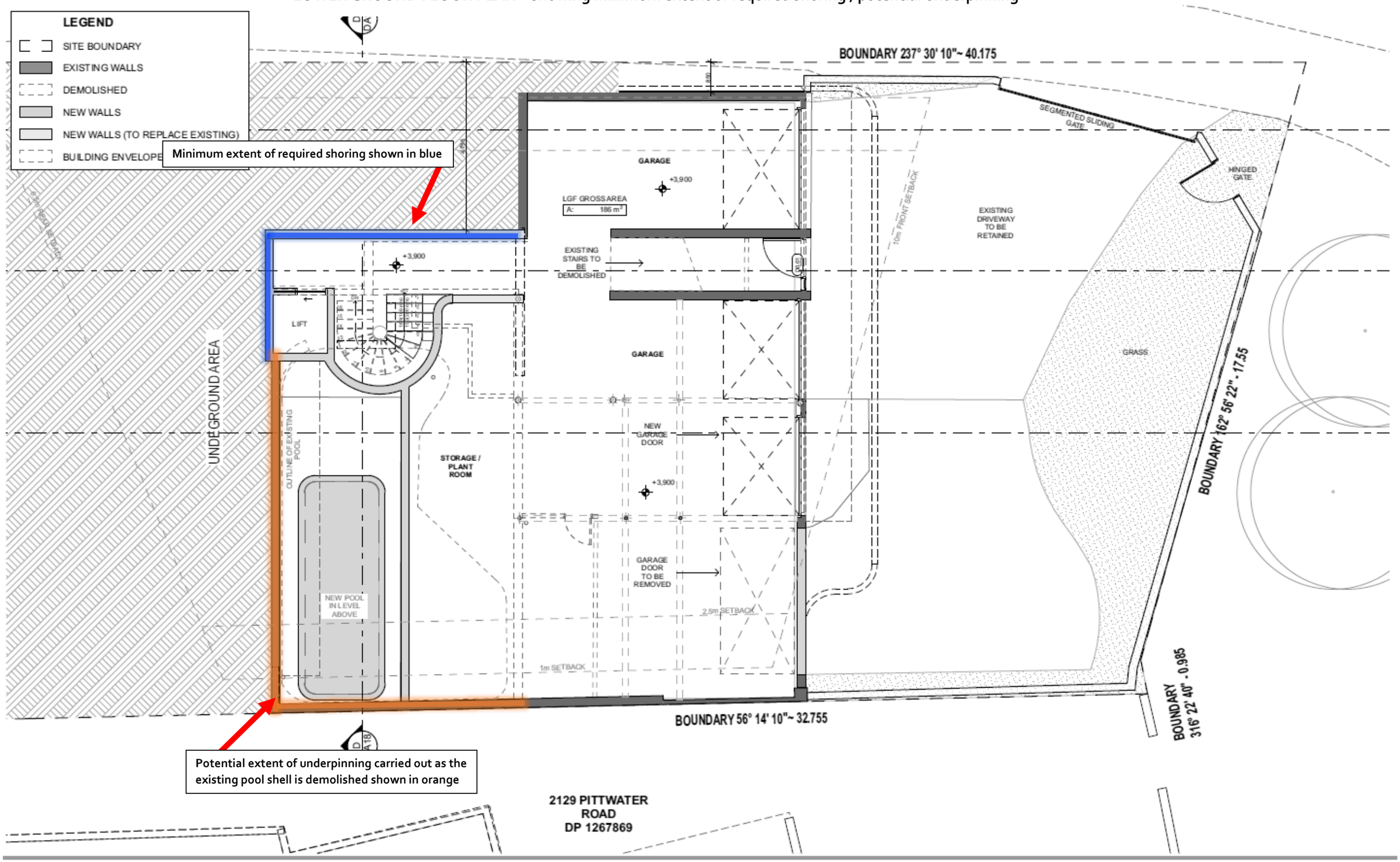
PROJECT NAME :
2131 Pittwater Road, Church Point

REVISION NO.
01

DRAWING NO.
DA10

SCALE:
1:200 @ A3

LOWER GROUND FLOOR PLAN – showing minimum extent of required shoring / potential underpinning



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01	23/10/2024	STAGE 2 - DA

PROJECT DETAILS

Drawn | Checked JG - RR - RP
Plot Date: 28/10/2024
Project Status Development Application

Client: Brad & Louise Dowe

Project: 2251

DRAWING TITLE :
PROPOSED LOWER GROUND FLOOR PLAN

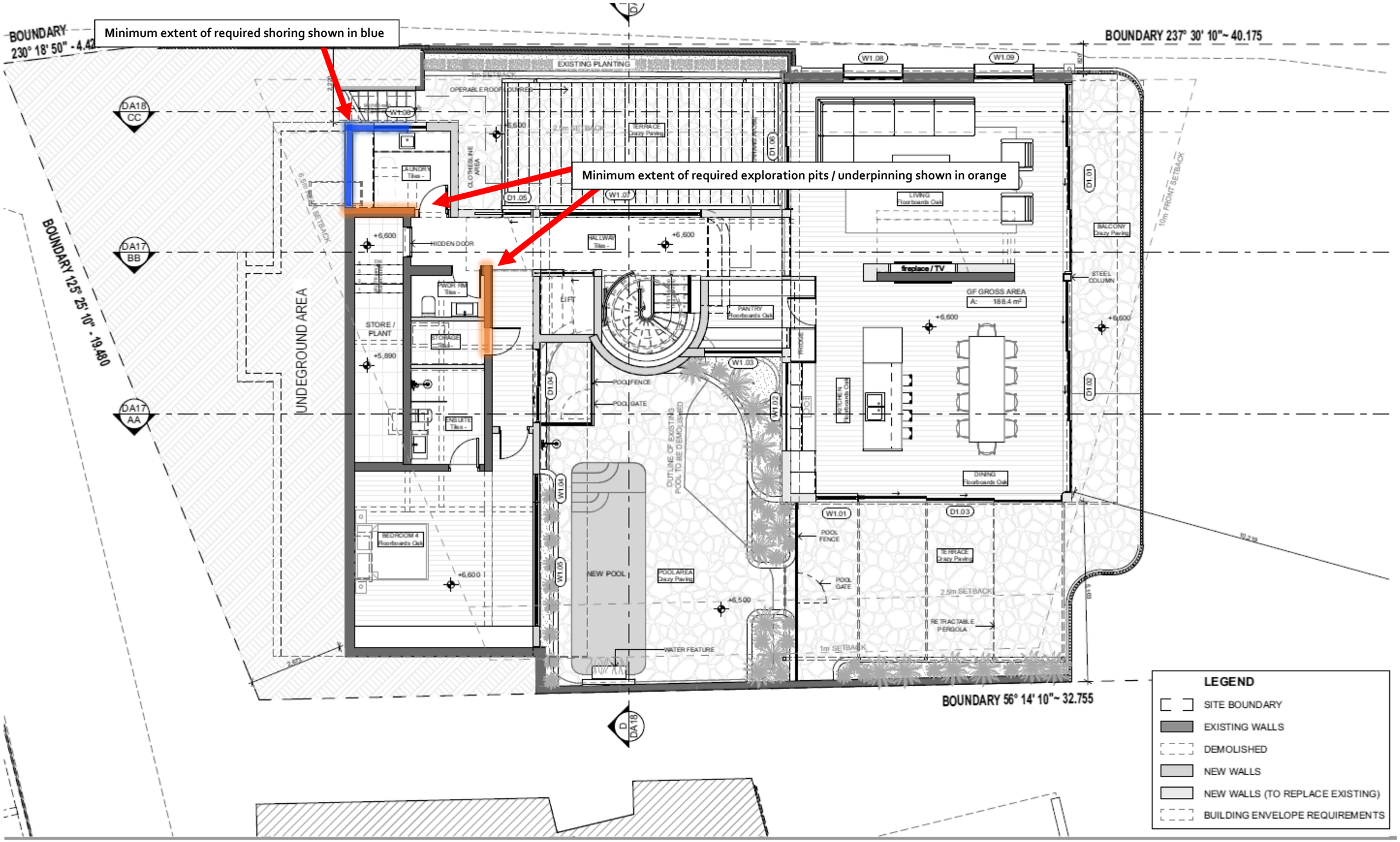
PROJECT NAME :
2131 Pittwater Road, Church Point

REVISION NO.
01

DRAWING NO.
DA11

SCALE:
1:100 @ A3

GROUND FLOOR PLAN – showing minimum extent of required shoring / exploration pits / underpinning



LEGEND

- SITE BOUNDARY
- EXISTING WALLS
- DEMOLISHED
- NEW WALLS
- NEW WALLS (TO REPLACE EXISTING)
- BUILDING ENVELOPE REQUIREMENTS

ARCHITECT

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Project: 2251

DRAWING TITLE :
PROPOSED GROUND FLOOR PLAN

PROJECT NAME :
2131 Pittwater Road, Church Point

REVISION NO.
01

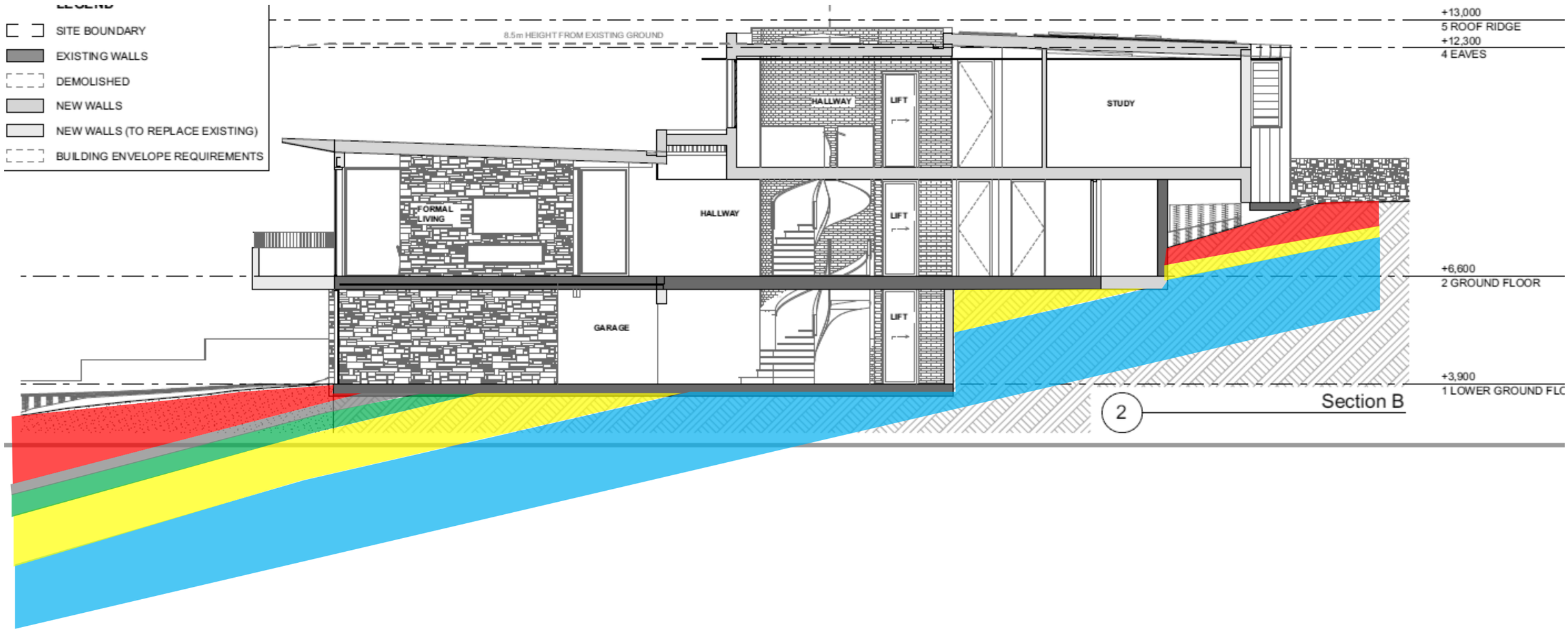
DRAWING NO.
DA12

SCALE:
1:100 @ A3

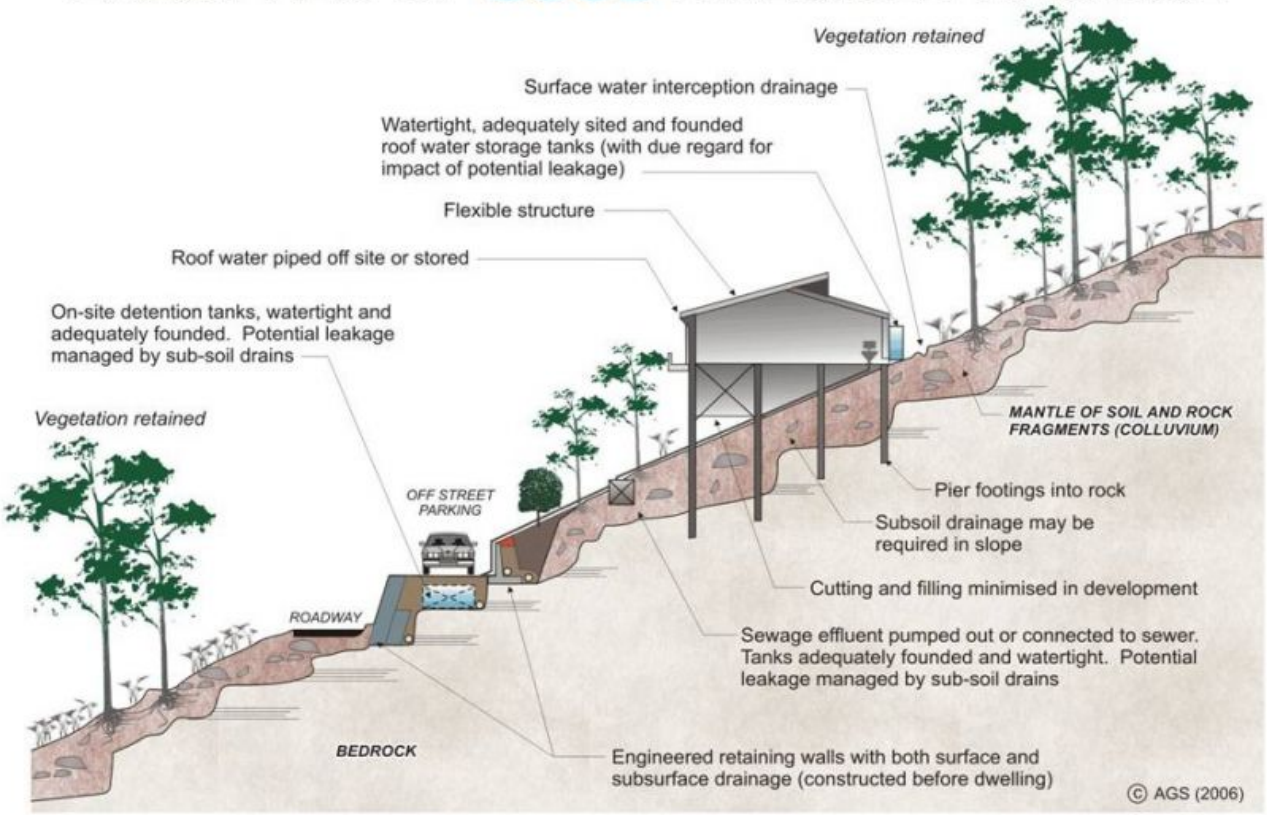
TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials

Expected Ground Materials

- Fill
- Clayey Sandy Soil
- Clayey Sand
- Clay
- Narrabeen Group Rocks – Extremely Low to Very Low Strength Shale



EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE