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

Development Application for _____
Name of Applicant

Address of site 4 Elwyn Close, Mona Vale

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 26/7/22 certify that I am a geotechnical engineer or engineering geologist or coastal engineer as defined by the Geotechnical Risk Management Policy for Pittwater - 2009 and I am authorised by the above organisation/company to issue this document and to certify that the organisation/company has a current professional indemnity policy of at least $10million.

I:
Please mark appropriate box

☒ have prepared the detailed Geotechnical Report referenced below in accordance with the Australia Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

☒ am willing to technically verify that the detailed Geotechnical Report referenced below has been prepared in accordance with the Australian Geomechanics Society's Landslide Risk Management Guidelines (AGS 2007) and the Geotechnical Risk Management Policy for Pittwater - 2009

☐ have examined the site and the proposed development in detail and have carried out a risk assessment in accordance with Section 6.0 of the Geotechnical Risk Management Policy for Pittwater - 2009. I confirm that the results of the risk assessment for the proposed development are in compliance with the Geotechnical Risk Management Policy for Pittwater - 2009 and further detailed geotechnical reporting is not required for the subject site.

☐ have examined the site and the proposed development/alteration in detail and I am of the opinion that the Development Application only involves Minor Development/Alteration that does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.

☐ have examined the site and the proposed development/alteration is separate from and is not affected by a Geotechnical Hazard and does not require a Geotechnical Report or Risk Assessment and hence my Report is in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009 requirements.

☐ have provided the coastal process and coastal forces analysis for inclusion in the Geotechnical Report

Geotechnical Report Details:

Report Title: Geotechnical Report **4 Elwyn Close, Mona Vale**
Report Date: 25/7/22

Author: BEN WHITE

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

Documentation which relate to or are relied upon in report preparation:

Australian Geomechanics Society Landslide Risk Management March 2007.

White Geotechnical Group company archives.

I am aware that the above Geotechnical Report, prepared for the abovementioned site is to be submitted in support of a Development Application for this site and will be relied on by Pittwater Council as the basis for ensuring that the Geotechnical Risk Management aspects of the proposed development have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature _____

Name Ben White

Chartered Professional Status MScGEOLAusIMM CP GEOL

Membership No. 222757

Company White Geotechnical Group Pty Ltd

GEOTECHNICAL RISK MANAGEMENT POLICY FOR PITTWATER
FORM NO. 1(a) - Checklist of Requirements for Geotechnical Risk Management Report for Development Application

Development Application for _____
Name of Applicant

Address of site 4 Elwyn Close, Mona Vale

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 **4 Elwyn Close, Mona Vale**

Report Date: 25/7/22

Author: BEN WHITE

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

Please mark appropriate box

☒ Comprehensive site mapping conducted **15/7/22**
(date)

☒ Mapping details presented on contoured site plan with geomorphic mapping to a minimum scale of 1:200 (as appropriate)

☒ Subsurface investigation required
- ☐ No Justification _____
- ☒ Yes Date conducted **15/7/22**

☒ Geotechnical model developed and reported as an inferred subsurface type-section

☒ Geotechnical hazards identified
- ☐ Above the site
- ☒ On the site
- ☐ Below the site
- ☐ Beside the site

☒ Geotechnical hazards described and reported

☒ Risk assessment conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009
- ☒ Consequence analysis
- ☒ Frequency analysis

☒ Risk calculation

☒ Risk assessment for property conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009

☒ Risk assessment for loss of life conducted in accordance with the Geotechnical Risk Management Policy for Pittwater - 2009

☒ Assessed risks have been compared to "Acceptable Risk Management" criteria as defined in the Geotechnical Risk Management Policy for Pittwater - 2009

☒ Opinion has been provided that the design can achieve the "Acceptable Risk Management" criteria provided that the specified conditions are achieved.

☒ Design Life Adopted:
- ☒ 100 years
- ☐ Other _____
specify

☒ Geotechnical Conditions to be applied to all four phases as described in the Geotechnical Risk Management Policy for Pittwater - 2009 have been specified

☒ Additional action to remove risk where reasonable and practical have been identified and included in the report.

☐ Risk assessment within Bushfire Asset Protection Zone.

I am aware that Pittwater Council will rely on the Geotechnical Report, to which this checklist applies, as the basis for ensuring that the geotechnical risk management aspects of the proposal have been adequately addressed to achieve an "Acceptable Risk Management" level for the life of the structure, taken as at least 100 years unless otherwise stated, and justified in the Report and that reasonable and practical measures have been identified to remove foreseeable risk.

Signature _____

Name Ben White

Chartered Professional Status MScGEOLAusIMM CP GEOL

Membership No. 222757

Company White Geotechnical Group Pty Ltd

GEOTECHNICAL INVESTIGATION:

New Pool at **4 Elwyn Close, Mona Vale**

1. Proposed Development

1.1 Install a new pool on the uphill side of the property by excavating to a maximum depth of ~2.2m.

1.2 Construct a new covered terrace on the uphill side of the house by excavating to a maximum depth of ~1.2m.

1.3 Various other minor internal and external alterations.

1.4 Details of the proposed development are shown on 5 drawings prepared by Space Landscape Designs, Project number 211573, Revision B, drawing numbered DA-06 is dated 22/2/22, and drawings numbered DA-01 to DA-03 and DA-05 are dated 23/2/22.

1.5 Details of the proposed development are shown on 4 drawings prepared by Quattro Architecture, Project number 21-0667, drawings numbered DA-A-101 and DA-A-102 are Revision B and drawings numbered DA-A-080 and DA-A-100 are Revision D, all drawings are dated 1/4/22.

2. Site Description

2.1 The site was inspected on the 15th July, 2022.

2.2 This residential property is on the high side of the road and has a SE aspect. It is located on the gentle to moderately graded upper middle reaches of a hillslope. The natural slope rises across the property at an average angle of ~9°. The land surface above and below the property continues at gradually decreasing angles.

2.3 At the road frontage, a concrete driveway runs to a stable rendered masonry garage (Photo 1). Between the road frontage and the house is a gently sloping lawn

surrounded by garden beds (Photo 2). The part two-storey house is supported on rendered brick walls and brick piers (Photo 3). No significant signs of movement were observed in the supporting walls of the house and the visible supporting brick piers stand vertical. A timber deck extends off the uphill side of the house. The cut for the deck is supported by a rendered concrete block retaining wall ~1.0m high that will be demolished as part of the proposed works (Photo 4). The slope above the deck has been terraced with a timber retaining wall dressed in timber planks ~1.0m high that will also be demolished as part of the proposed works (Photo 5). The lawn-covered terraces extend to the upper common boundary. A fill on the upper neighbouring property is supported by a concrete block retaining wall reaching ~1.2m high (Photo 6). This wall was observed to be cracked and tilting downslope at a maximum angle of ~14°. The owner informed us that the upper neighbour is aware of the tilting wall and is gathering quotes to have it replaced. We recommend this wall be replaced within 1 year of the date of this report.

3. Geology

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

4. Subsurface Investigation

One hand Auger Hole (AH) was put down to identify the soil materials. 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 attached. It should be noted that a level of caution should be applied when interpreting DCP test results. The test will not pass through hard buried objects so in some instances it can be difficult to determine whether refusal has occurred on an obstruction in the profile or on the natural rock surface. This is not expected to be an issue for the testing on this site. However, excavation and foundation budgets should always allow for the possibility that the

interpreted ground conditions in this report vary from those encountered during excavations. See the appended "Important information about your report" for a more comprehensive explanation. The results are as follows:

AUGER HOLE 1 (~RL37.6) **–** AH1 (Photo 7)

Depth (m)	Material Encountered
0.0 to 0.9	**FILL**, disturbed topsoil, dark brown, very loose to medium dense, damp, fine to coarse grained with fine trace organic matter and rock fragments.
0.9 to 1.1	**SILTY SOIL**, dark brown, medium dense, damp, fine to medium grained with fine trace organic matter.
1.1 to 1.3	**CLAY**, brown, stiff to very stiff, dry, fine grained.
1.3 to 1.4	**CLAY**, derived from weathered shale, brown and mottled maroon, very stiff, dry, fine grained.

End of hole @ 1.4m in clay derived from weathered shale. No water table encountered.

DCP TEST RESULTS – Dynamic Cone Penetrometer			
Equipment: 9kg hammer, 510mm drop, conical tip.			Standard: AS1289.6.3.2 - 1997
Depth(m) Blows/0.3m	**DCP 1** (~RL37.8)	**DCP 2** (~RL37.6)	**DCP 3** (~RL36.6)
0.0 to 0.3	3	F	3
0.3 to 0.6	4	7	5
0.6 to 0.9	4	9	10
0.9 to 1.2	16	9	18
1.2 to 1.5	50	17	30
1.5 to 1.8	#	25	#
1.8 to 2.1		40	
2.1 to 2.4		#	
	End of Test @ 1.4m	End of Test @ 2.1m	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 @ 1.4m, DCP still very slowly going down, wet muddy tip, grey clay in collar above tip.

DCP2 – End of test @ 2.1m, DCP still very slowly going down, white shale fragments on wet muddy tip.

DCP3 – End of test @ 1.5m, DCP still very slowly going down, red shale fragments on wet muddy 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 silty soils over stiff to very stiff clays. Filling has been placed across the uphill side of the property for landscaping to a maximum depth of ~1.0m. The clays merge into the underlying weathered rock at depths of between 1.2 to 1.8m below the current surface, being deeper due to the presence of fill. The weathered zone is interpreted to be Extremely 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. 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 gentle to 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**).

Geotechnical Hazards and Risk Analysis - Risk Analysis Summary

HAZARDS	Hazard One	Hazard Two
TYPE	The gentle to moderate slope that rises across the site failing and impacting on the proposed works.	The excavations (up to a depth of ~2.2m) collapsing onto the work site before retaining structures are in place.
LIKELIHOOD	'Unlikely' (10^{-4})	'Possible' (10^{-3})
CONSEQUENCES TO PROPERTY	'Medium' (12%)	'Medium' (25%)
RISK TO PROPERTY	'Low' (2×10^{-5})	'Moderate' (2×10^{-4})
RISK TO LIFE	5.5×10^{-7}/annum	3.8×10^{-5}/annum
COMMENTS	This level of risk is 'ACCEPTABLE'.	UNACCEPTABLE' level of risk to life and property. 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 Elwyn Close. 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 install the pool. Another excavation to a maximum depth of ~1.2m is required to construct the covered terrace area on the uphill side of the house. The excavations are expected to be taken through a maximum of ~1.0m of fill over a thin silty soil and stiff to very stiff clay with Extremely Low Strength Shale expected at depths of between 1.2 to 1.8m below the current surface.

Excavations through fill, soil, clay, and Extremely Low Strength Shale can be carried out with an excavator and toothed bucket.

12. Vibrations

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

13. Excavation Support Requirements

Bulk Excavation for Proposed Pool

The excavation for the proposed pool will reach a maximum depth of ~2.2m and will be set back at least ~2.5m from the S common boundary. The S common boundary is at a lower elevation to the pool excavation. As such, no structures of boundaries will be within the zone of influence of the excavation.

The cut batters through fill soil clay, and Extremely Low Strength Shale are expected to stand at near-vertical angles for a very short period of time until the pool structure is installed provided the cut batters are kept from becoming saturated. If the cut batters remain unsupported for more than a day before the pool construction commences, they are to be supported with typical pool shoring such as sacrificial form ply, until the pool structure is in place.

Bulk Excavation for Proposed Covered Terrace

The proposed excavation will reach a maximum depth of ~1.2m and, allowing for back-wall drainage, will come close to flush with the N common boundary. No structures on the N neighbouring property will be within the zone of influence of the excavation. As such, only the N property boundary will fall within the zone of influence of the proposed excavation. In this instance, the zone of influence is the area above a theoretical 30° line through fill and soil, and a 45° line through clay and shale towards the surrounding structures and boundaries.

The N common boundary fence is to be braced before the excavation commences.

Where room permits, excavation batter angles are expected to stand temporarily at 30° (1.0 Vertical to 1.7 Horizontal). Where there is not room for these batters, such as along the N side of the excavation, 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.

Advice Applying to Both Excavations

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

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

14. Retaining Structures

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

Table 1 – Likely Earth Pressures for Retaining Structures

Unit	Earth Pressure Coefficients		
	Unit weight (kN/m^3)	'Active' K_a	'At Rest' K_0
Fill, Silty Soil, and Residual Clays	20	0.40	0.55
Extremely Low Strength Shale	22	0.25	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 and assume retaining structures are fully drained. Rock strength and relevant earth pressure coefficients are to be confirmed on site by the geotechnical consultant.

All retaining structures are to have sufficient back-wall drainage and be backfilled immediately behind the structure with free-draining material (such as gravel). This material is to be wrapped in a non-woven Geotextile fabric (i.e., Bidim A34 or similar), to prevent the drainage from becoming clogged with silt and clay. If no back-wall drainage is installed in retaining structures, the likely hydrostatic pressures are to be accounted for in the structural design.

15. Foundations

The proposed terrace area can be supported on a raft concrete slab and shallow piers taken to Extremely Low Strength Shale. This ground material is expected to be exposed across a

portion of the base of the excavations. Where the slope falls away on the downhill side, this material is expected at an average depth of ~1.2m below the current surface.

The proposed pool is expected to be seated in the Extremely Low Strength Shale. This is a suitable foundation material.

As the area around the pool will periodically become saturated with pool use, to prevent excessive settlement it is recommended any paving be laid on a concrete slab supported on piers taken to Extremely Low Strength Shale.

A maximum allowable bearing pressure of 600kPa can be assumed for footings on Extremely 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 Extremely Low Strength 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. 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 certification for the regulating authorities or the owner if the following inspections have not been carried out during the construction process.

- 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: 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

LEGEND

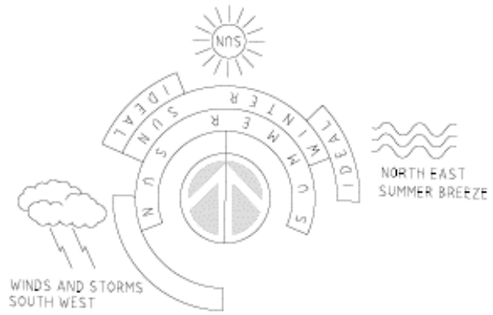
- BOUNDARY
- EASEMENT
- EXISTING CONTOURS
- EXISTING FENCE
- EXISTING PAVING
- EXISTING CONCRETE
- EXISTING TIMBER DECK
- ALUMINIUM EDGE
- PROPOSED PAVING
- PROPOSED POOL FENCE
- PROPOSED RETAINING WALL
- EXISTING TURF TO BE RETAINED
- PROPOSED TURF
- PROPOSED LEVELS
- EXISTING PLANTING TO BE RETAINED
- PROPOSED PLANTING
- EXISTING TREE TO BE RETAINED

SITE ANALYSIS LEGEND

- SITE VEHICLE ENTRY

NEW WORKS COLOURS

- TIMBER
- GLASS
- BRICK
- CONCRETE
- METAL



BASIX REQUIREMENTS

RAINWATER TANK
THE APPLICANT MUST INSTALL A RAINWATER TANK OF AT LEAST 1728 LITRES ON THE SITE. THIS RAINWATER TANK MUST MEET, AND BE INSTALLED IN ACCORDANCE WITH, THE REQUIREMENTS OF ALL APPLICABLE REGULATORY AUTHORITIES.
THE APPLICANT MUST CONFIGURE THE RAINWATER TANK TO COLLECT RAINWATER RUNOFF FROM AT LEAST 77 SQUARE METRES OF ROOF AREA.
THE APPLICANT MUST CONNECT THE RAINWATER TANK TO A TAP LOCATED WITHIN 10 METRES OF THE EDGE OF THE POOL.

OUTDOOR SWIMMING POOL
THE SWIMMING POOL MUST BE OUTDOORS.
THE SWIMMING POOL MUST NOT HAVE A CAPACITY GREATER THAN 32.4 KILOLITRES.
THE SWIMMING POOL MUST HAVE A POOL COVER.
THE APPLICANT MUST INSTALL A POOL PUMP TIMER FOR THE SWIMMING POOL.
THE APPLICANT MUST INSTALL THE FOLLOWING HEATING SYSTEM FOR THE SWIMMING POOL THAT IS PART OF THIS DEVELOPMENT: GAS

OUTDOOR SPA
THE SPA MUST NOT HAVE A CAPACITY GREATER THAN 2.5 KILOLITRES.
THE SPA MUST HAVE A SPA COVER.
THE APPLICANT MUST INSTALL A SPA PUMP TIMER.
THE APPLICANT MUST INSTALL THE FOLLOWING HEATING SYSTEM FOR THE OUTDOOR SPA THAT IS PART OF THIS DEVELOPMENT: GAS

FIXTURES AND SYSTEMS
LIGHTING -
THE APPLICANT MUST ENSURE A MINIMUM OF 40% OF NEW OR ALTERED LIGHT FIXTURES ARE FITTED WITH FLUORESCENT, COMPACT FLUORESCENT OR LIGHT-EMITTING-DIODE (LED) LAMPS.

CONSTRUCTION
INSULATION REQUIREMENTS -
THE APPLICANT MUST CONSTRUCT THE NEW OR ALTERED (FLOOR(S), WALLS AND CEILING/ROOF(S)) IN ACCORDANCE WITH THE SPECIFICATIONS LISTED IN THE TABLE BELOW, EXCEPT THAT A) ADDITIONAL INSULATION IS NOT REQUIRED WHERE THE AREA OF NEW CONSTRUCTION IS LESS THAN 2M², B) INSULATION SPECIFIED IS NOT REQUIRED FOR PARTS OF ALTERED CONSTRUCTION WHERE INSULATION ALREADY EXISTS.

CONSTRUCTION - RAKED CEILING, PITCHED/SKILLION ROOF: FRAMED
ADDITIONAL INSULATION REQUIRED - CEILING: R2.50 (UP), ROOF: NONE
OTHER SPECIFICATIONS - LIGHT (SOLAR ABSORPTANCE <0.475)

GLAZING REQUIREMENTS
WINDOWS & GLAZED DOORS

THE APPLICANT MUST INSTALL THE WINDOWS, GLAZED DOORS AND SHADING DEVICES, IN ACCORDANCE WITH THE SPECIFICATIONS LISTED IN THE TABLE BELOW. RELEVENT OVERSHADOWING SPECIFICATIONS MUST BE SATISFIED FOR EACH WINDOW AND GLAZED DOOR.

THE FOLLOWING REQUIREMENTS MUST ALSO BE SATISFIED IN RELATION TO EACH WINDOW AND GLAZED DOOR:

EACH WINDOW OR GLAZED DOOR WITH STANDARD ALUMINIUM OR TIMBER FRAMES AND SINGLE CLEAR OR TONED GLASS MAY EITHER MATCH THE DESCRIPTION, OR, HAVE A U-VALUE AND A SOLAR HEAT GAIN COEFFICIENT (SHGC) NO GREATER THAN THAT LISTED IN THE TABLE BELOW. TOTAL SYSTEM U-VALUES AND SHGCS MUST BE CALCULATED IN ACCORDANCE WITH NATIONAL FENESTRATION RATING COUNCIL (NFRC) CONDITIONS.

FOR PROJECTIONS DESCRIBED IN MILLIMETRES, THE LEADING EDGE OF EACH EAVE, PERGOLA, VERANDAH, BALCONY OR AWNING MUST BE NO MORE THAN 500mm ABOVE THE HEAD OF THE WINDOW OR GLAZED DOOR AND NO MORE THAN 2400mm ABOVE THE SILL.

PERGOLAS WITH POLYCARBONATE ROOF OR SIMILAR TRANSLUCENT MATERIAL MUST HAVE A SHADING COEFFICIENT OF LESS THAN 0.35.

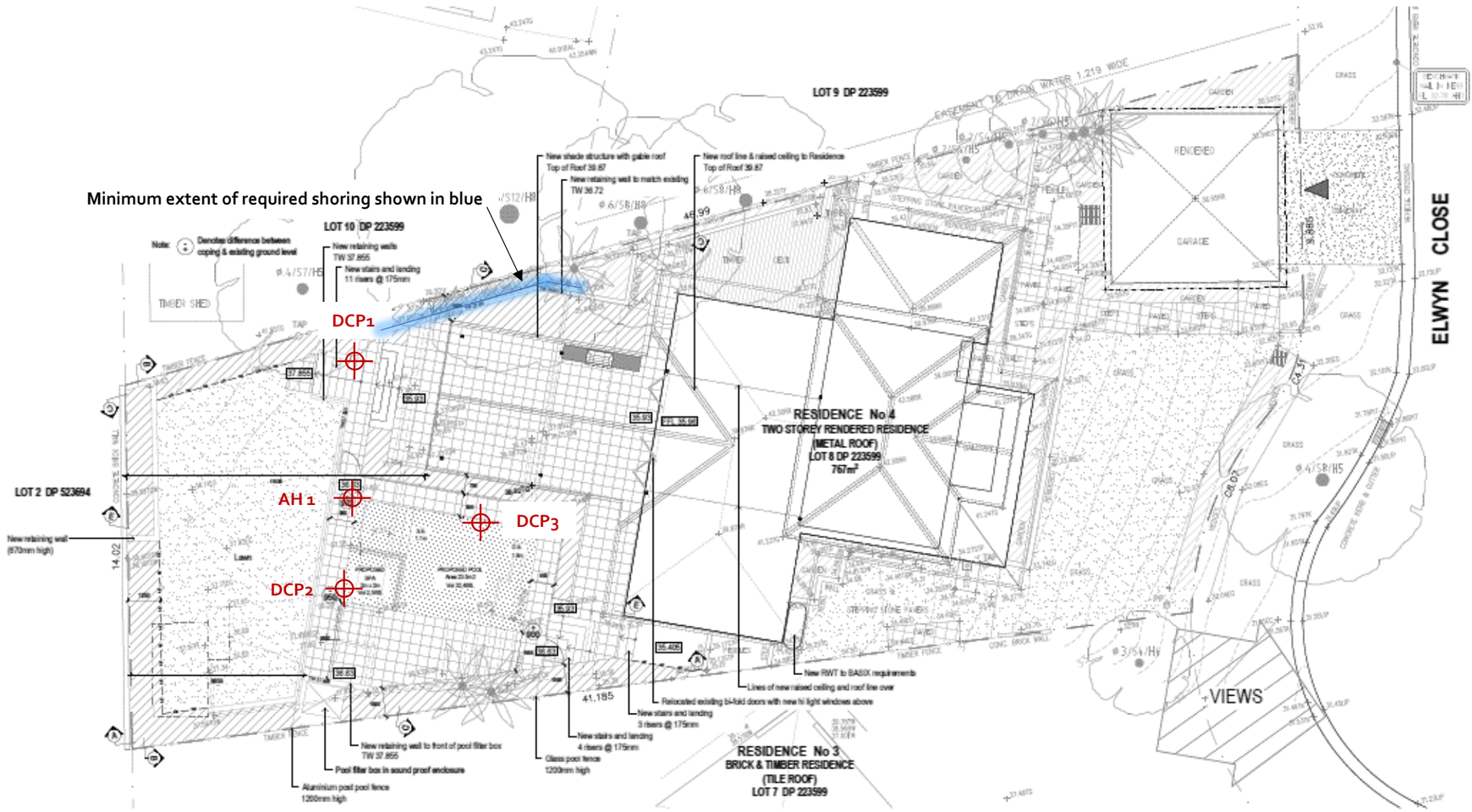
PERGOLAS WITH FIXED BATTENS MUST HAVE BATTENS PARALLEL TO THE WINDOW OR GLAZED DOOR ABOVE WHICH THEY ARE SITUATED, UNLESS THE PERGOLA ALSO SHADES A PERPENDICULAR WINDOW. THE SPACING BETWEEN BATTENS MUST NOT BE MORE THAN 50mm.

PERGOLAS WITH ADJUSTABLE SHADING MAY HAVE ADJUSTABLE BLADES OR REMOVABLE SHADE CLOTH (NOT LESS THAN 80% SHADING RATIO). ADJUSTABLE BLADES MUST OVERLAP IN PLAN VIEW.

OVERSHADOWING BUILDINGS OR VEGETATION MUST BE OF THE HEIGHT & DISTANCE FROM THE CENTRE AND THE BASE OF THE WINDOW AND GLAZED DOORS, AS SPECIFIED IN THE 'OVERSHADOWING' COLUMN IN THE TABLE BELOW.

WINDOW AND GLAZED DOORS GLAZING REQUIREMENTS

Window / door no.	Orientation	Area of glass inc frame (m²)	Overshadowing Height (m)	Distance (m)	Shading device	Frame and glass type
W1	W	2.64	3.94	8.4	eave/verandah/pergola/ Balcony >=900mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)
D1	W	9.45	3.94	8.4	eave/verandah/pergola/ Balcony >=900mm	standard aluminium, single clear, (or U-value: 7.63, SHGC: 0.75)



POOL NOTES:
1/ Refer to Pool Fencing Code per AS 1926.1 - 2012 for compliance of the safety barriers for swimming pools.
2/ Overflow of pool is to be connected to sewer according to Sydney Water specifications.
3/ Pool pavement pattern and setout shown is indicative only. No allowance has been made for coping overhang, mortar gaps and joints.
4/ Pool fence shown is the approximate position of proposed 1200mm(h) minimum childproof safety barrier with self/ gate in accordance with AS1926.1-2012. The proposed pool enclosure has been designed to comply with the Australian Standard, the Swimming Pools Act and Swimming Pool Regulations.
5/ The boundary fence inside the pool zone must be a minimum height of 1800mm with a non climbable zone of 900mm on the inside of the fencing. Any shrubs or plants located adjacent to the inside of the boundary fence must be maintained for the lifetime of the development at a height that does not interfere with the 900mm non climbable zone.

NOTES:

Rev.	Date	Issue	Checked
A	01/02/22	Preliminary Issue	AR
B	09/02/22	DA Issue	AR

SPACE LANDSCAPE DESIGNS

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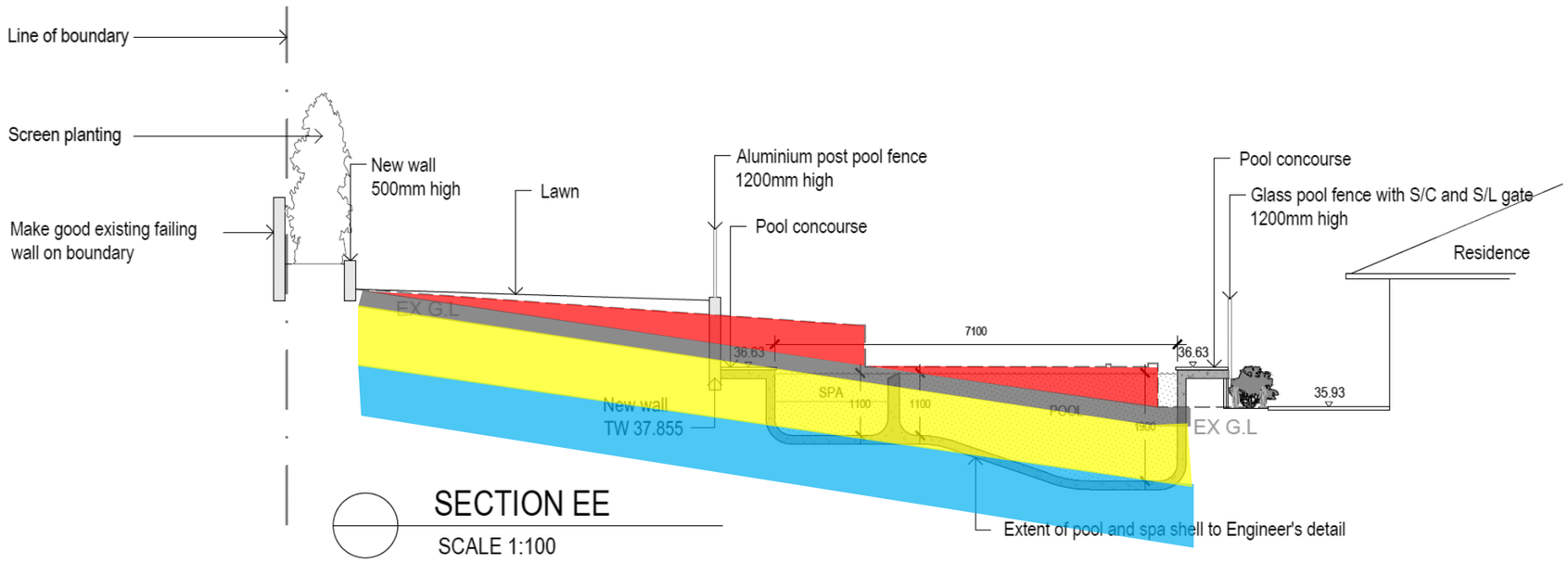
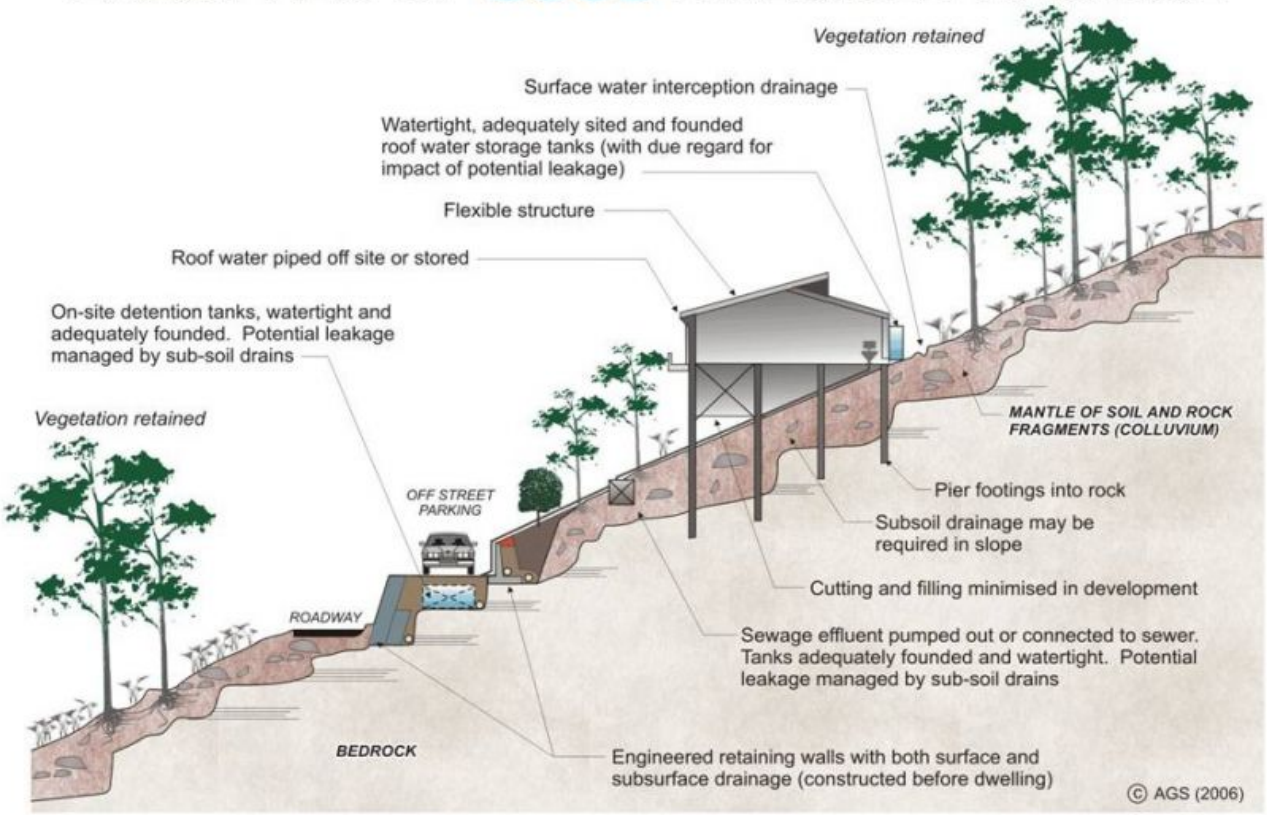
PROJECT: New Pool, Spa & landscaping
SITE ADDRESS: 4 Elwyn Close, MONA VALE 2103
CLIENT: McGuinness
DRN: C.Wallace (B.LAnd)
SCALE: 1:100@A1
PROJECT NO: 211573
DRAWING TITLE: SITE PLAN / SITE ANALYSIS
DRAWING No: DA-01
Rev: B

TYPE SECTION – Diagrammatical Interpretation of expected Ground Materials

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



EXAMPLES OF **GOOD** HILLSIDE PRACTICE



EXAMPLES OF **POOR** HILLSIDE PRACTICE