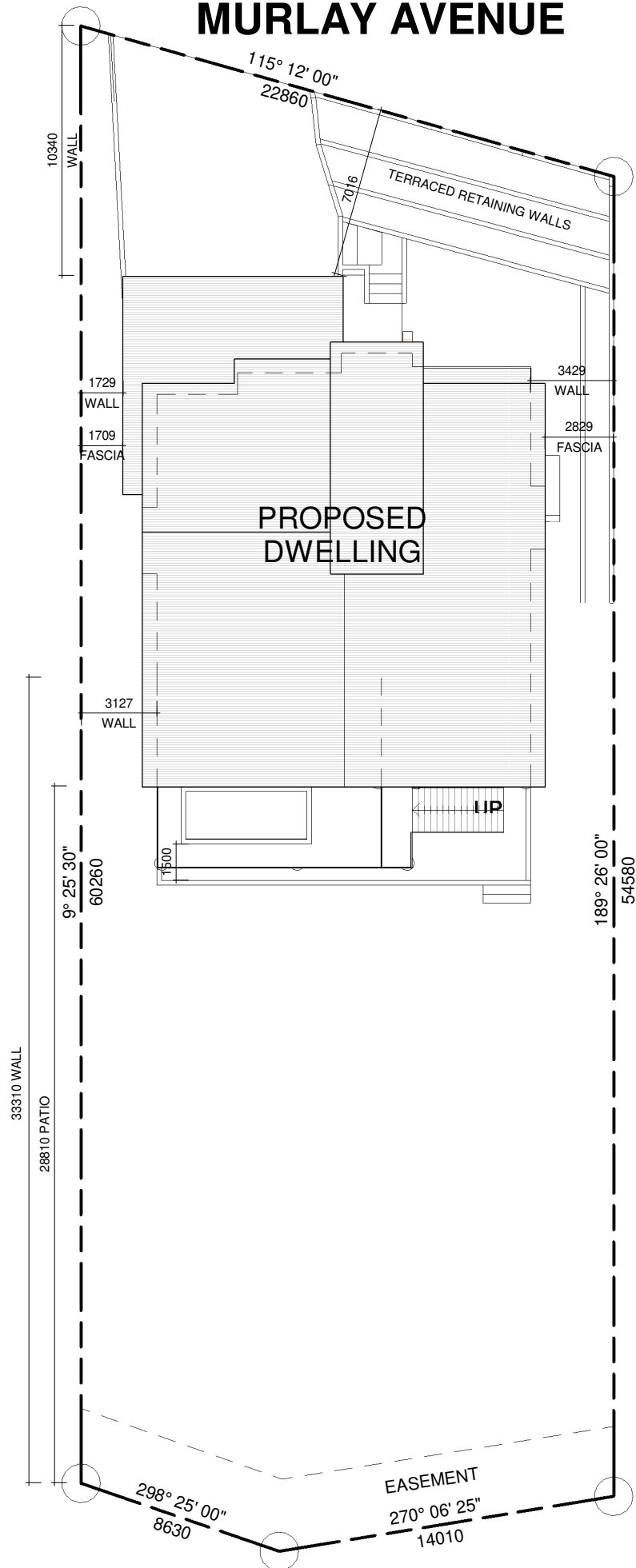


RP DATA

Lot Number : 101
 RP/SP Number : RP886084
 Parish : ARCHER
 County : LIVINGSTONE
 Area : 1291m²
 Site Cover: 25%

MURLAY AVENUE



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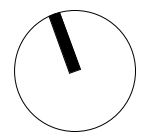
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SUFF	REVISION	DATE	INIT
A	SITE	05/05/23	AKM
B	CONCEPT	01/06/23	AKM
C	DA SUBMISSION	30/10/23	DEL
D	AMENDED	2/2/24	DEL



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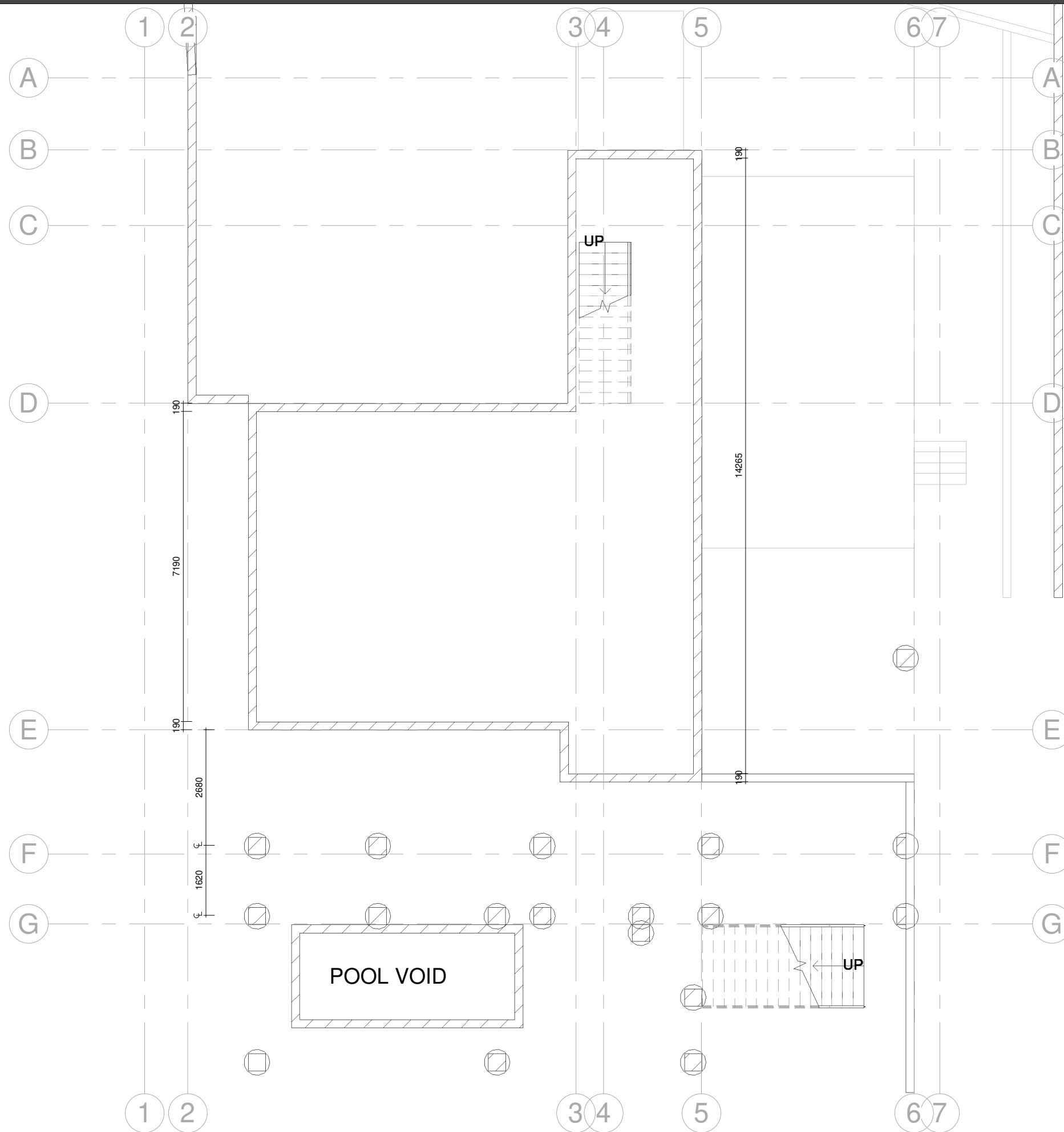
ADDRESS
 24 MURLAY AVENUE, FRENCHVILLE

DRAWING
 SITE PLAN

DRAWN BY:	CHECKED BY:	DATE:
AKM	DEL	05/05/23

SCALE: PROJECT STATUS:
 As indicated At DA SUBMISSION

DRAWING No.	SHEET No.	REVISION
23-039-R	003	D



AREA SCHEDULE	
NAME	AREA
LEVEL 1 DECK	49.10 m ²
LEVEL 1 AREA	245.75 m ²
LEVEL 2 AREA	212.88 m ²
BED 1 DECK	14.40 m ²
MEDIA DECK	20.05 m ²
POOL DECK	33.91 m ²
GROUND LEVEL	101.70 m ²
TOTAL	677.77 m²

COLUMN SCHEDULE			
MARK	SIZE	TYPE	COUNT
	400x400	Block Pier	23

2 GROUND LEVEL
SCALE: 1 : 100

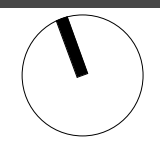
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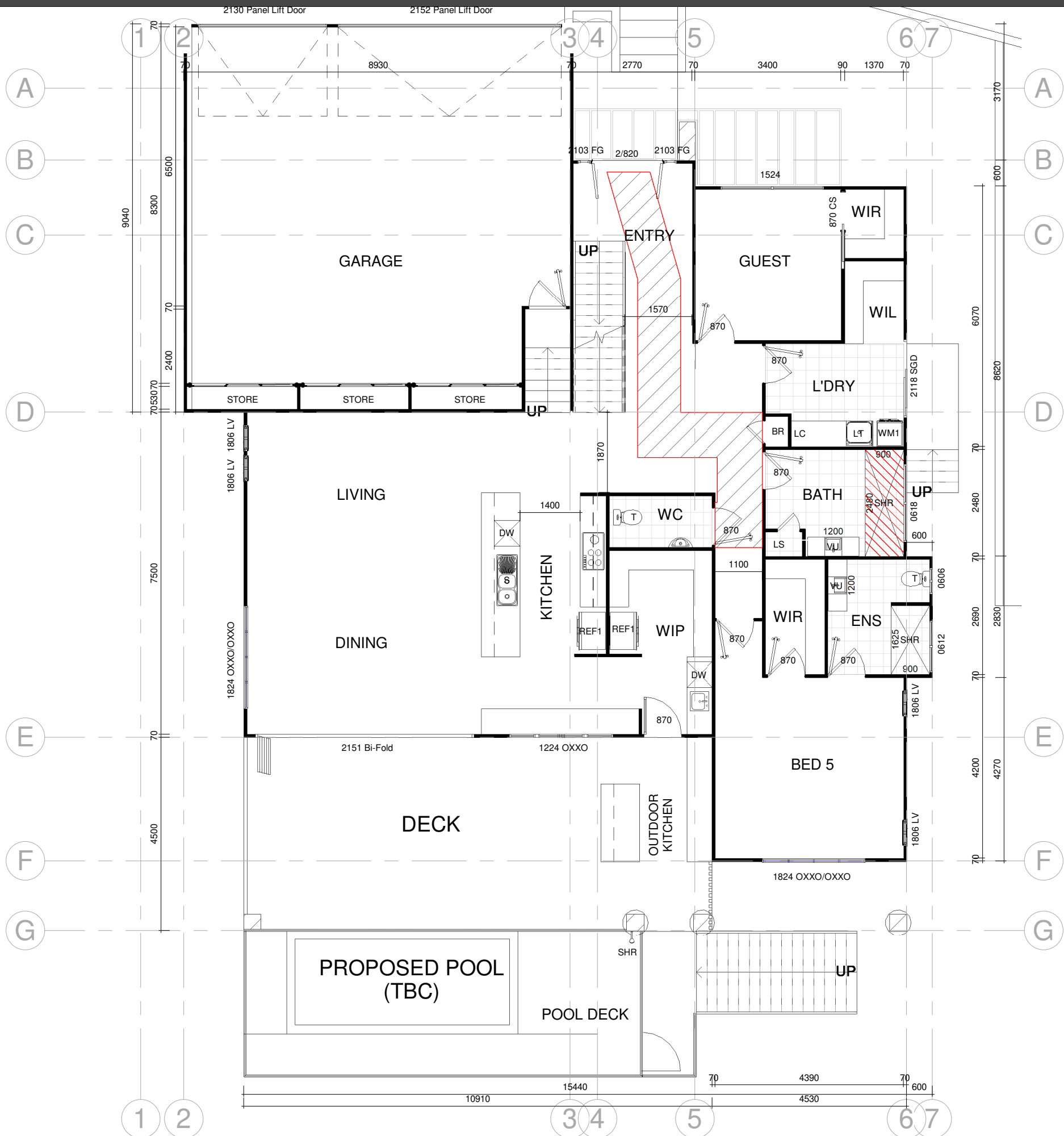
SUFFIX	REVISIONS	DATE	INITIALS
A	CONCEPT	01/06/23	AKM
B	DA SUBMISSION	30/10/23	DEL
C	AMENDED	2/2/24	DEL

PROPOSED	DRAWN BY:	CHECKED BY:	DATE:
NEW DWELLING FOR D & E SKILLING	AKM	DEL	01/06/23
ADDRESS	SCALE:	PROJECT STATUS:	
24 MURLAY AVENUE, FRENCHVILLE	1 : 100 <small>AT A3</small>	DA SUBMISSION	
DRAWING	DRAWING No.	SHEET No.	REVISION
GROUND FLOOR PLAN	23-039-R	100	C

SHR - THIS SHOWER TO COMPLY WITH NEW NCC LIVEABLE STANDARD REGULATIONS

HT - DWELLING ENTRANCE/ACCESS AND TRAVEL AREA TO COMPLY WITH NEW NCC LIVEABLE STANDARD REGULATIONS

T - 1200mm x 900mm CLEAR AREA FOR WC NCC LIVEABLE STANDARD REGULATIONS



AREA SCHEDULE	
NAME	AREA
LEVEL 1 DECK	49.10 m ²
LEVEL 1 AREA	245.75 m ²
LEVEL 2 AREA	212.88 m ²
BED 1 DECK	14.40 m ²
MEDIA DECK	20.05 m ²
POOL DECK	33.91 m ²
GROUND LEVEL	101.70 m ²
TOTAL	677.77 m²

COLUMN SCHEDULE			
MARK	SIZE	TYPE	COUNT
	400x400	Block Pier	23

KEYNOTE LEGEND	
KEY VALUE	KEYNOTE TEXT
DW	DISHWASHER - REFER TO SPECIFICATION
LT	LAUNDRY TUB - REFER TO SPECIFICATION
REF1	REFRIGERATOR - REFER TO SPECIFICATION
S	KITCHEN SINK - REFER TO SPECIFICATIONS
SHR	SHOWER - REFER TO SPECIFICATION
T	TOILET - REFER TO SPECIFICATION
VU	SINGLE VANITY UNIT - REFER TO SPECIFICATION
WM1	WASHING MACHINE - REFER TO SPECIFICATION

1 LEVEL 1
SCALE: 1 : 100

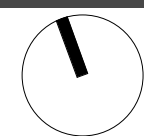
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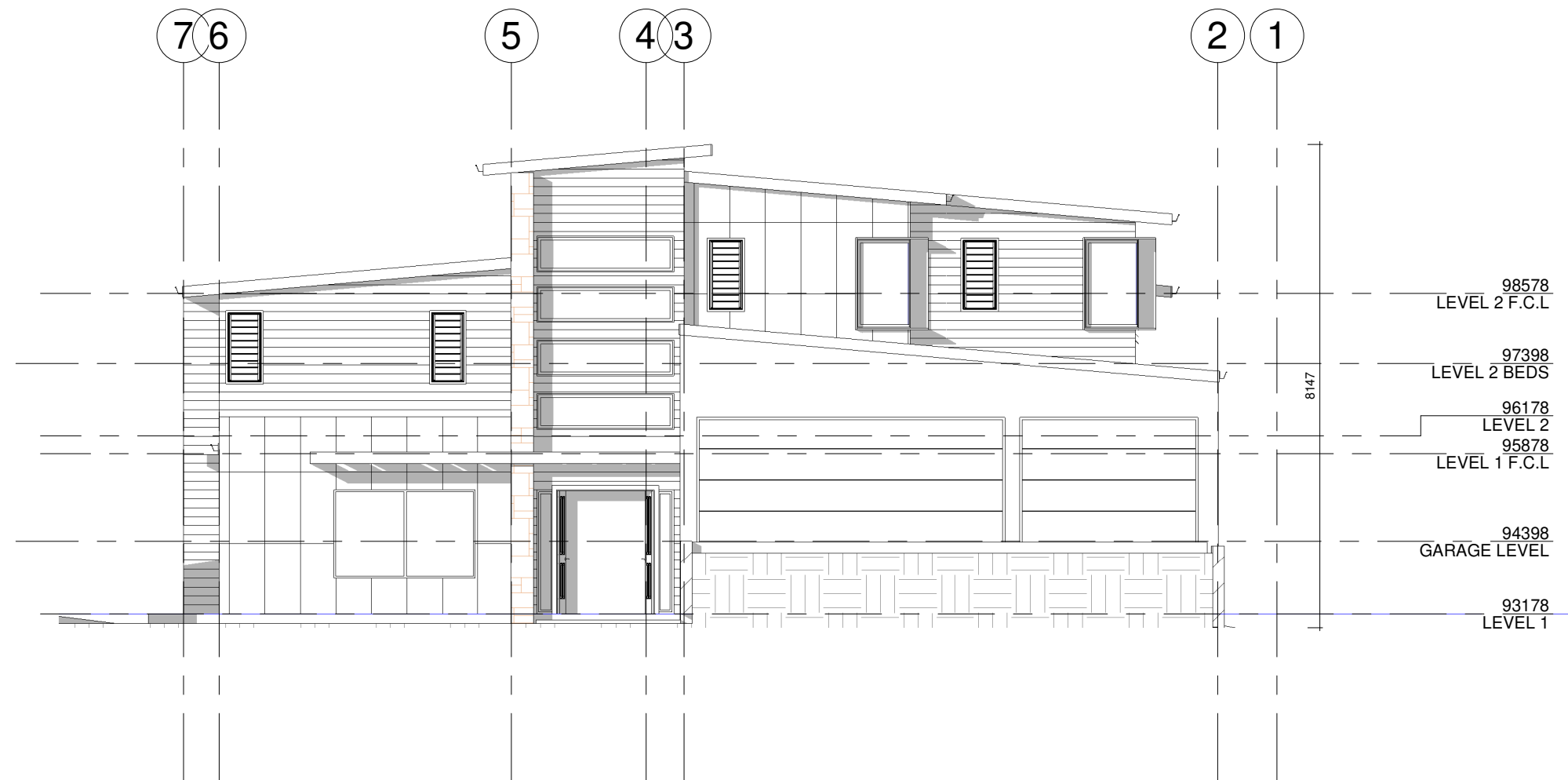
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A	CONCEPT	01/06/23	AKM	NEW DWELLING FOR D & E SKILLING	AKM	DEL	01/06/23
B	DA SUBMISSION	30/10/23	DEL	ADDRESS	SCALE:	PROJECT STATUS:	
C	AMENDED	2/2/24	DEL	24 MURLAY AVENUE, FRENCHVILLE	1 : 100	DA SUBMISSION	
				DRAWING	DRAWING No.	SHEET No.	REVISION
				LEVEL 1 FLOOR PLAN	23-039-R	101	C



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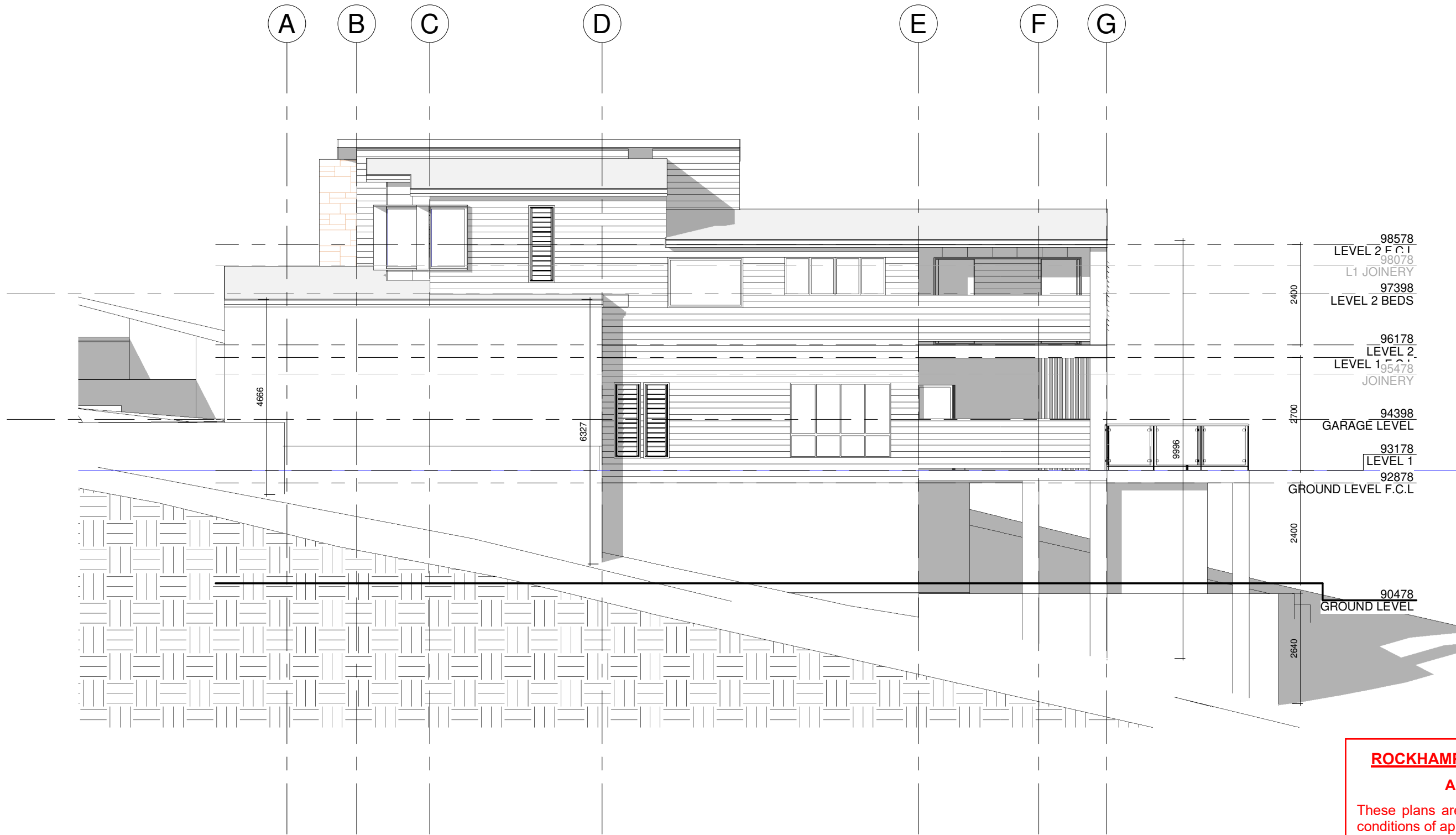
1 ELEVATION 1
SCALE: 1 : 100

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A	CONCEPT	01/06/23	AKM	NEW DWELLING FOR D & E SKILLING	DEL	DEL	01/06/23
B	DA SUBMISSION	30/10/23	DEL	ADDRESS	SCALE:	PROJECT STATUS:	
				24 MURLAY AVENUE, FRENCHVILLE	1 : 100	DA SUBMISSION	
				DRAWING	DRAWING No.	SHEET No.	REVISION
				ELEVATIONS	23-039-R	200	B

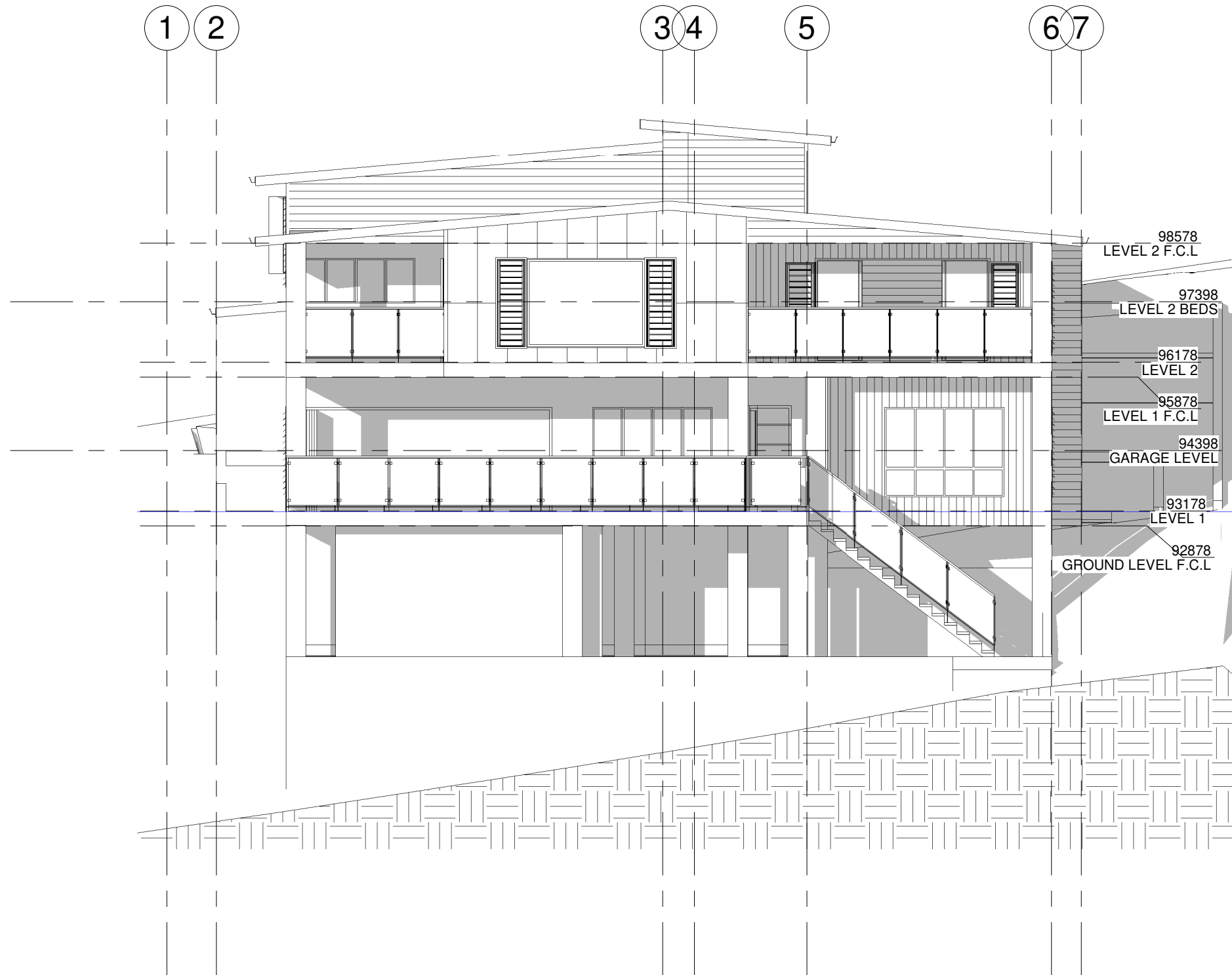


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1 ELEVATION 2
 SCALE: 1 : 100

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		ADDRESS 24 MURLAY AVENUE, FRENCHVILLE								SCALE: 1 : 100 AT A3			PROJECT STATUS: DA SUBMISSION	
		DRAWING ELEVATIONS								DRAWING No. 23-039-R	SHEET No. 201	REVISION A		

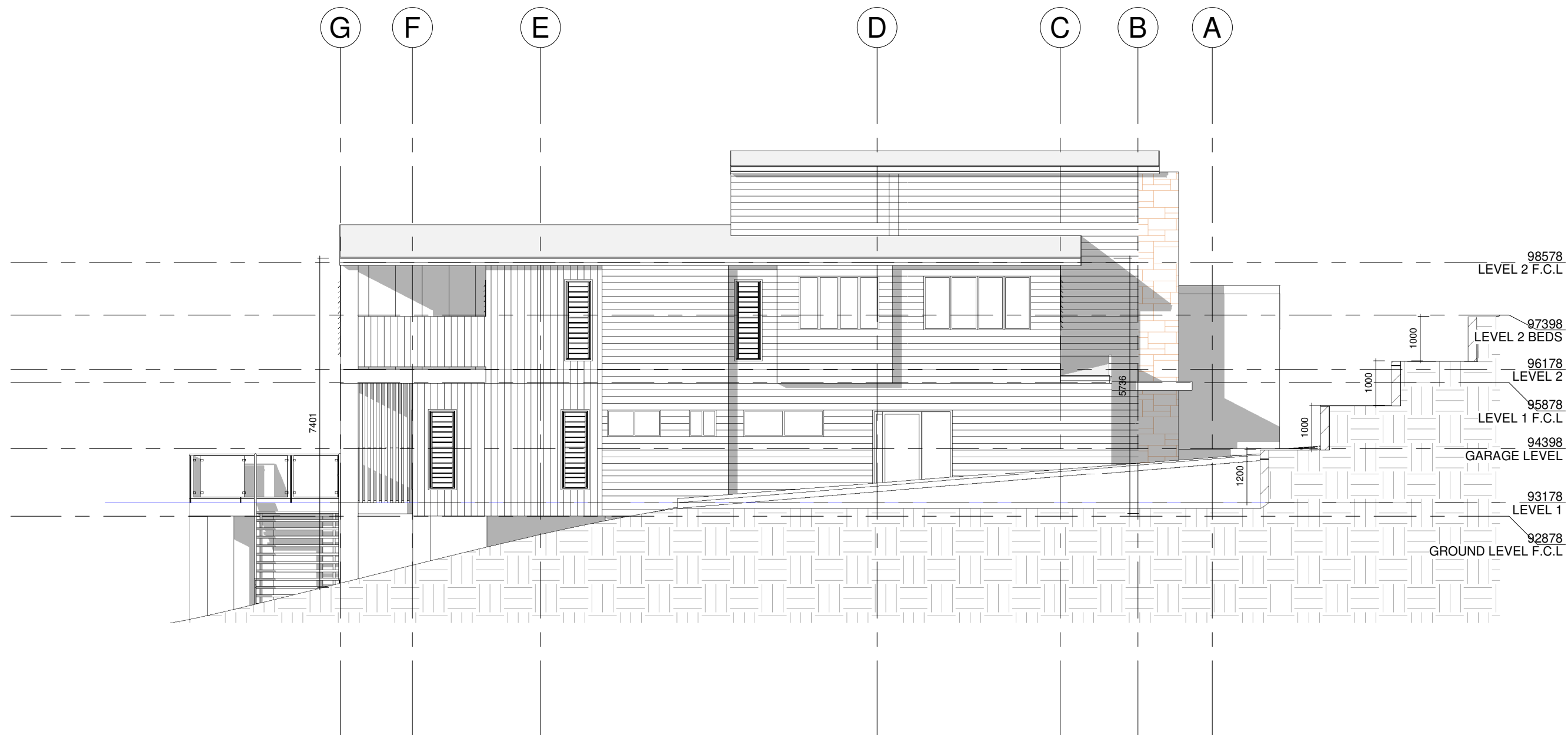


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1 ELEVATION 3
 SCALE: 1 : 100

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			(07) 4925 0772	AKM		DEL	01/06/23	
			INFO@CEADS.COM.AU	SCALE:		PROJECT STATUS:		
			27 CHARLES STREET, YEPPOON	1 : 100		DA SUBMISSION		
QBCC 1126594	AT AS	DRAWING No.	SHEET No.	REVISION				
QBCC 1126593		23-039-R	203					



4 ELEVATION 4
SCALE: 1 : 100

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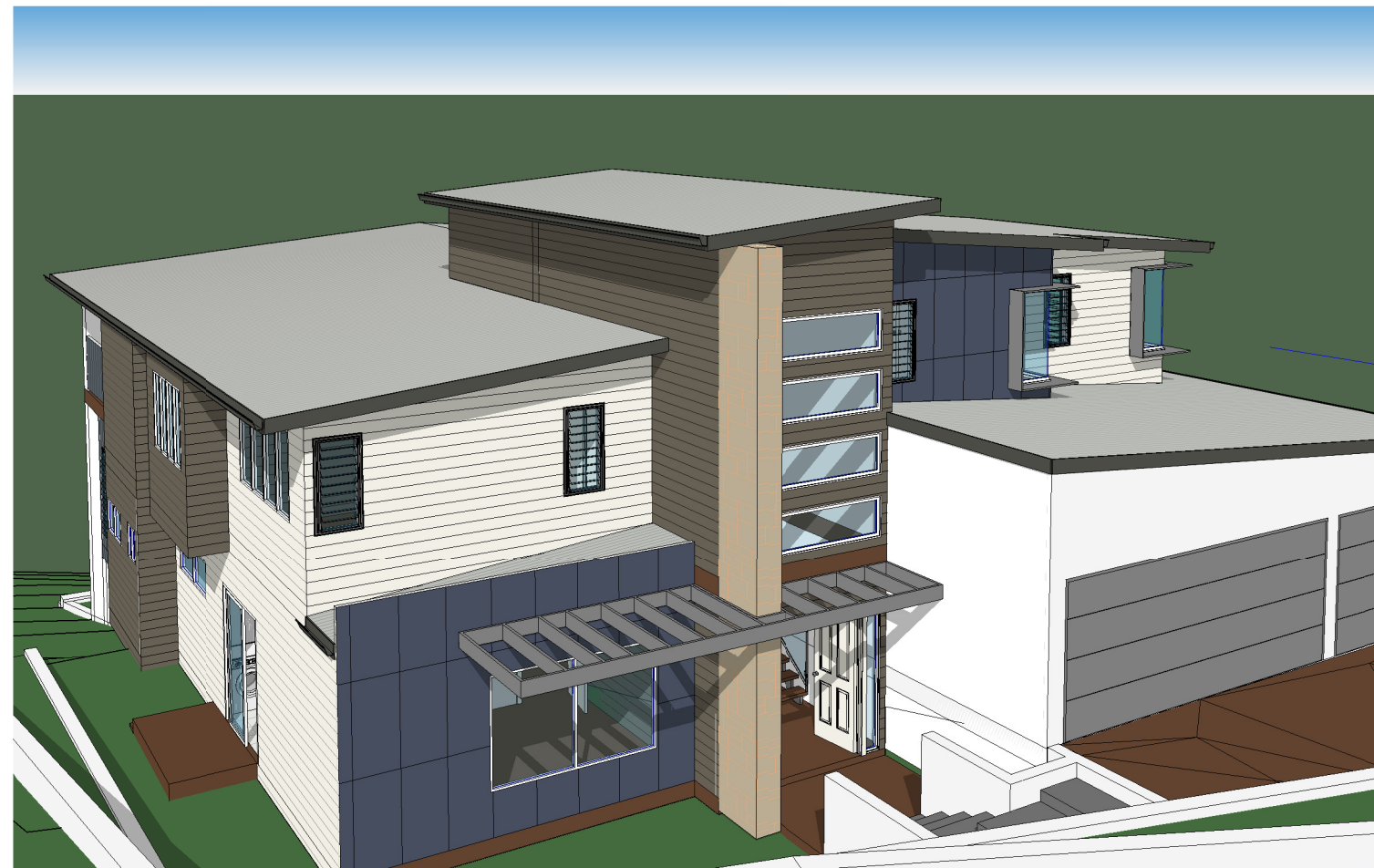
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A	DA SUBMISSION	30/10/23	DEL	NEW DWELLING FOR D & E SKILLING	AKM	DEL	01/06/23
ADDRESS					SCALE:		
24 MURLAY AVENUE, FRENCHVILLE					1 : 100 AT A3		
DRAWING					PROJECT STATUS:		
ELEVATIONS					DA SUBMISSION		
					DRAWING No. SHEET No. REVISION		
					23-039-R 204 A		



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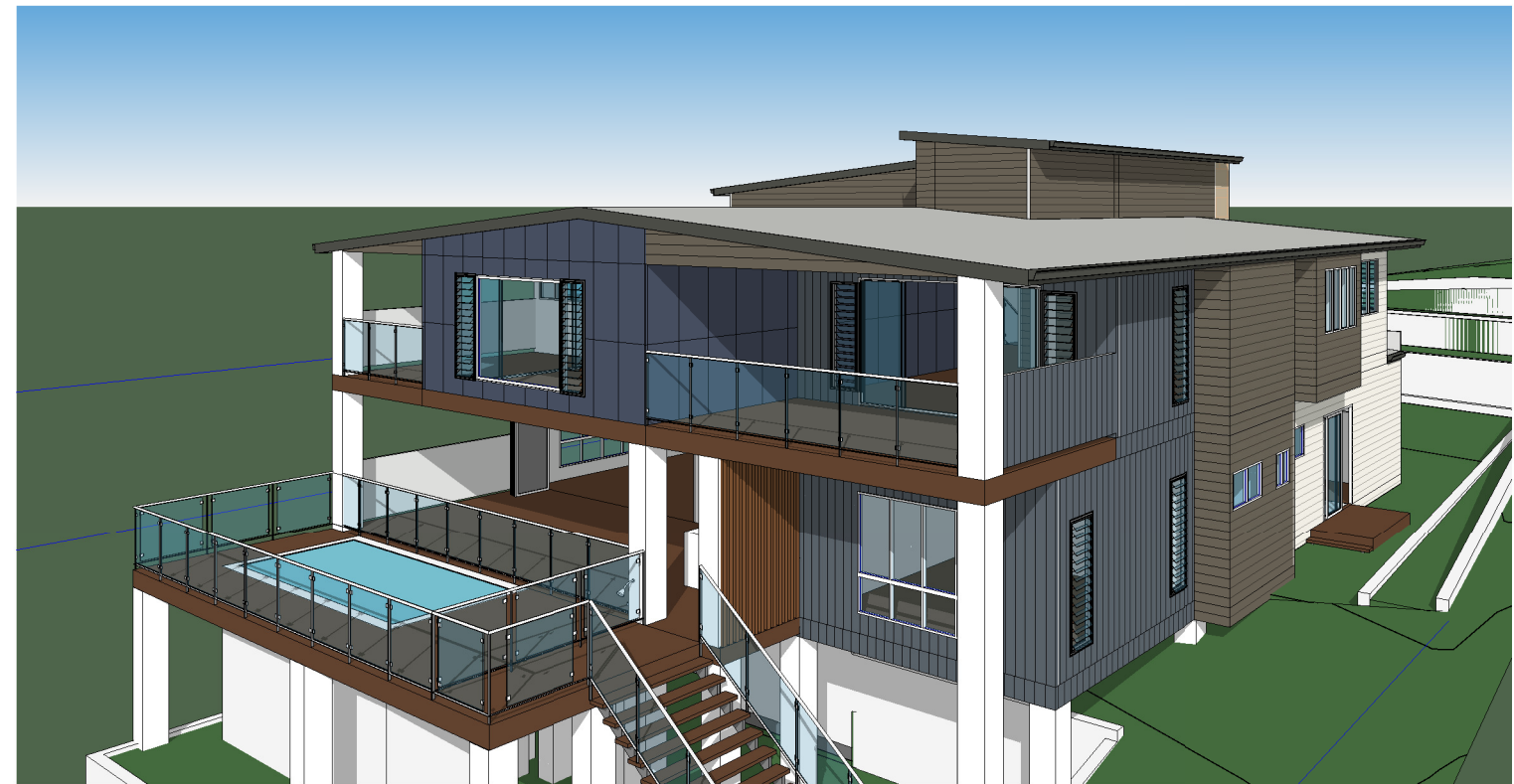
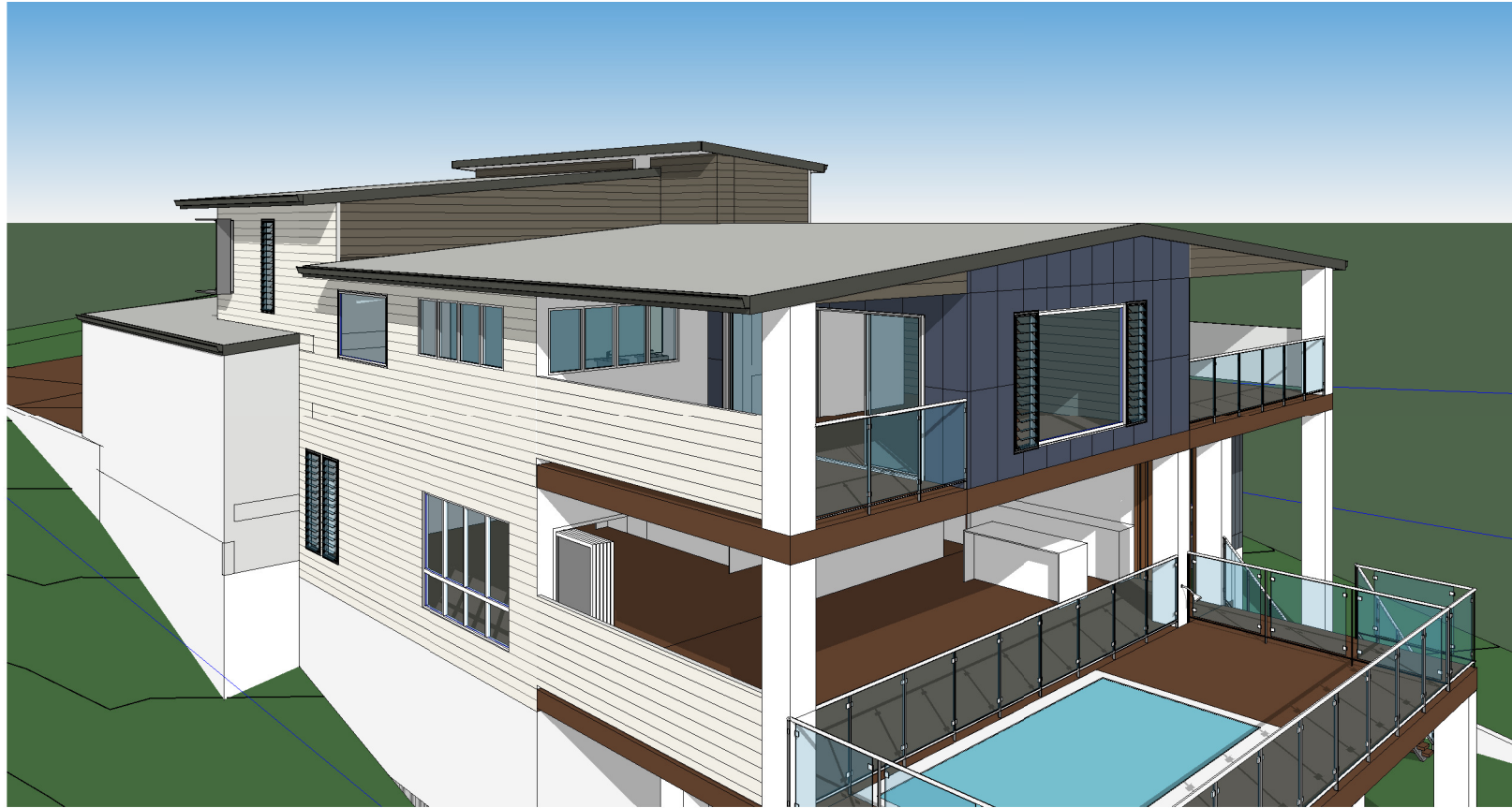
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A	DA SUBMISSION	30/10/23	DEL	NEW DWELLING FOR D & E SKILLING	AKM	DEL	01/06/23
ADDRESS					SCALE:		
24 MURLAY AVENUE, FRENCHVILLE					PROJECT STATUS:		
DRAWING					DA SUBMISSION		
3D VIEWS					DRAWING No.	SHEET No.	REVISION
					23-039-R	400	A



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A	DA SUBMISSION	30/10/23	DEL	NEW DWELLING FOR D & E SKILLING	AKM	DEL	01/06/23
				ADDRESS	SCALE:	PROJECT STATUS:	
				24 MURLAY AVENUE, FRENCHVILLE	AT A3	DA SUBMISSION	
				DRAWING	DRAWING No.	SHEET No.	REVISION
				3D VIEWS	23-039-R	401	A



Landslide Risk Assessment Slope Stability Analysis and AS2870 Site Classification

SITE ADDRESS: Lot 101 (RP886084)
24 Murlay Avenue, Frenchville

Prepared for: E Skilling

Job Number: CQ22418

Issue Date: 15/02/2023

ROCKHAMPTON REGIONAL COUNCIL

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OHS
ISO 45001

SAI GLOBAL



Environment
ISO 14001

SAI GLOBAL



Quality
ISO 9001

SAI GLOBAL

Client & Document Information

Client: E Skilling
Project: Lot 101 (RP886084)
24 Murlay Avenue, Frenchville

Investigation Type: **Slope Stability, Site Classification**
Job Number: CQ22418
Date of Issue: 15/02/2023

Contact Information

CQ SOIL TESTING
ABN 87 656 845 448

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Email: info@cqsoiltesting.com.au

Document Control

Version	Date	Author	Design Drawings	Reviewer	Reviewer Initials
A	15/02/2023	J Druery	NA	Scott Walton	SWW
		A Dos Santos			

QBCC Subsidence Policy

In accordance with the QBCC “Queensland Building and Construction Commission” the contractor must supply the site classifier with the information in Table 1. The contractor, or the contractor representative (CR), may require the site classifier (SC) gather all or part of this information and the SC must satisfy themselves that all of the “relevant” information has been considered.

If all of the information listed below is not supplied by the contractor or the contractor does not wish the SC to recover said information (at cost) the contractor may be in breach of the no fault provisions of the QBCC’s Policy for Rectification of Building Work and may be held responsible for subsidence or settlement of a building.

Table 1

Element	Supplied/Considered	Remarks
Property description and site address	✓	Supplied by CR
Plan and/or survey	✗	Nil Supplied
Contour of the site	✓	Supplied by CR
Location of trees, vegetation etc identified	✓	Identified by SC
Location and identification of potential overland flow	✓	Identified by SC
The footprint of proposed building and platform levels	✗	Nil Supplied
Location of proposed or existing cut and fill	✗	Nil Supplied
Appropriate land searches	✗	Nil Supplied

The following (Table 2) is a summary of the information required under the QBCC relating specifically to the SC. Information supplied in this summary is to be read in conjunction with the entire report attached. All relevant data used to ascertain the classification is documented in the report.

Table 2

Element	Remarks
Total number of excavations	3
Minimum of two excavations in building footprint	✓
Soil samples recovered	Undisturbed
Laboratory test performed	Shrink/Swell
Predicted Surface Movement	21 – 30 mm
Expected movement potential for “P” sites in the absence of uncontrolled fill	NA

1.0 INTRODUCTION

CQ Soil Testing Pty Ltd (CQST) was commissioned to undertake a geotechnical investigation for the Proposed Residential Dwelling located at 24 Murlay Avenue, Frenchville.

This report outlines the results of the investigation, laboratory testing, analysis and interpretive reporting on the following items:

- All factual information resulting from the investigation (investigation methodologies, detailed desktop review, test location plans, bore logs).
- Summary of subsurface conditions and adopted subsurface conditions including groundwater.
- Stability assessment in accordance with AGS guidelines.
- Earthworks and site preparation comments.
- Site movements.
- Foundation recommendations and allowable bearing pressures.
- Hillside construction comments.

This report must be kept in entirety. This report relates exclusively to the proposed new dwelling at the address stated on page one of this report and has been prepared for the express purpose stated above. This document does not cover any other elements related to construction on the site.

2.0 SITE DETAILS

2.1. Detailed Site Description

The site can be described as typical for a residential allotment that has triggered slope stability requirements. The site is located on the site slope of a spur. Topographically, the site has varying grades falling away predominantly to the southwest at moderate to steep grades.

It is envisioned that earthworks will be required at this site which will involve the use of retaining structures to ensure cuts and fill are retained adequately.

2.2. Geology

Referencing available geology datasets available from QLD Globe, the site is in an area underlain by the early Permian aged Lakes Creek Formation which typically comprises "*siltstone and lithic sandstone*". The encountered subsurface conditions broadly agree with the expected geology.

2.3. Groundwater

During the walkover assessment, no groundwater was observed across the entire site. It must be noted that groundwater is transient and seasonal in nature. Given this, the time at which the walkover assessment was undertaken may not indicate worst case conditions.

2.4. Vegetation

During the walkover assessment, it was noted that there were a number of small to medium sized trees at the perimeters of the allotment, predominantly in neighbouring allotments. These trees did not exhibit misshapen or curved trunks. Misshapen or curved trunks are usually good indicators for previous slope instability.

2.5. Structures

During the walkover assessment, there was no existing building located on the allotment to observe for structure competency. The structures on both adjoining sides to the property appeared to be “plumb” and true and behaving within an expected range of movement.

2.6. Fieldwork & Results

The fieldwork was undertaken on 13th February, 2023 and included 3 boreholes at a maximum depth of 1.3 m using rotary auger drilling rig. Any exposed faces were also inspected to inform the results of the investigation. The subsurface conditions were logged through tactile and visual assessment of returned spoil by an experienced geotechnician.

The encountered subsurface conditions are described in detail on the attached bore logs; however, in summary comprise medium dense to dense clayey sand overlying very stiff sandy clay and weathered rock inferred to be from the published geological unit,

Groundwater measurements or the lack of groundwater are made within the bore logs attached; however, it must be noted that groundwater is transient and will fluctuate with seasons and time.

It is possible that the soil profile may vary across the site from those shown in the bore logs which were used for this site classification. CQ Soil Testing are required to be notified if different conditions are encountered during construction. No allowance has been made for any substantial earthworks on the site or importing building platform material.

The classification provided is based on the borehole, which has the highest characteristic surface movement.

3.0 SITE CLASSIFICATION AND TARGET STRATA

Based on the findings of the site investigation and subsequent laboratory testing, the predicted surface movement for this site is between 21 - 30 mm:

CLASS “M” (Moderately Reactive)

in accordance with Australian Standard 2870, Residential Slabs and Footings. The above classification has not allowed for the possibility of differential surface movement as a result of differing soil types throughout the site or as a result of construction activities. It is the responsibility of the engineer to allow for this possibility in the footing design.

Any fill placed over the existing ground shall be pierced through into the existing suitable material. Further note that the placement of reactive material as fill or cutting of the site may change the site’s classification.

Where trees exist/ed CQ Soil Testing recommends an experienced arborist be commissioned to quantify the existing size, location, predicted maximum height and type of all relevant trees to aid in the design process. It is the responsibility of the designing engineer to apply the principals of AS2870-2011 Appendix H “Guide to Design of Footings for Trees”. The classification herein excludes the effect of trees on the site.

It is noteworthy that soil samples recovered from this site may be tested further to aid in the preparation of a database of Central Queensland soils currently being compiled by CQ Soil Testing. The aim of this database is to further understand the types of soils in the region and their mechanical properties.

4.0 LAND STABILITY

4.1 Explanatory Notes

Local authorities prepare mapping tools to aid in assessing potential slope stability requirements. It is important to note that where a site-specific investigation and slope stability assessment are undertaken, they take precedence.

Landslides are caused where a soil or rock mass has a decrease in strength, usually attributed to groundwater, resulting in the material not being able to maintain its own self-weight resulting in a slope failure.

The Australian Geomechanics Society (AGS) developed a set of tools and procedures for assessing the stability of a slope. The tools and procedures presented with the AGS documentation form the basis of the assessment undertaken herein and their documentation is attached for reference.

The guidelines also identify that the regulator typically sets the standard for levels of tolerable risk. AGS defines tolerable risk as *“risks within a range that society can live with so as to secure certain benefits. It is a range of risk regarded as non-negligible and needing to be kept under review and reduced further if practicable”*.

The guides suggest that areas of moderate or greater risk should not be developed unless a rigorous remediation plan be implemented to reduce the area to a level of *Acceptable Risk*. AGS defines acceptable risk as *“risk which everyone affected is prepared to accept. Action to further reduce such risk is usually not required unless reasonably practicable measures are available at low cost in terms of money, time and effort.”*

AGS and regulators generally accept risk levels of “low” or lower as a level of acceptable risk.

Broadly speaking, a level of risk that equates to “low” or lower would generally indicate a factor of safety against global instability equal to or greater than 1.5.

4.2 Quantitative Landslide Stability Analysis

AGS prepared a quantitative assessment tool for determining the level of risk for a site. The tool separates the potential hazards for a site, from a stability context, and rates them with a level of risk frequency. The multiplication of these individual risk frequency summates as the risk frequency rating which is then measured against the levels of risk nominated by AGS.

The results of this analysis are shown in Table 3: Results of AGS Qualitative Risk Assessment

Table 3: Results of AGS Qualitative Risk Assessment

Hazard	Likelihood	Consequence	Risk Level
Global Failure	Barely Credible	Catastrophic	Low
Shallow slumping of surface soils	Unlikely	Minor	Low

5.0 GOOD HILLSIDE CONSTRUCTION

The following precautionary works should be implemented in addition to other items highlighted within this document. These points are considered to be typical good hillside construction practice as explained in attached documentation:

- All footings should be founded into weathered rock.
- Any new fill should be no deeper than 1 m with batters less than 3H:1V unless specific analysis has been undertaken and preferably nearer to 3.5H:1V to allow for access for maintenance.
- All footings should found below an imaginary line drawn at a 45° angle from the toe of the prepared batter toe or a minimum 0.3 m into the recommended founding material nominated. Alternatively, if a perimeter retaining structure has been designed and incorporated that retains the building platform and accommodates the appropriate shear resistance to resist any mobilising forces associated with sliding masses, footings can found at any depth with review by this office to confirm assumptions.
- Drainage systems will need to be subjected to regular inspections to ensure no adverse moisture conditioning of the subsurface conditions which can trigger instability.
- Overland flow paths will need to be carefully directed to minimise erosion possibility to approved outlet points.
- The design and integrity of retaining structures will need to be confirmed to adhere to good hillside construction methodologies including being globally stable and designed to accommodate potential lateral movements associated with minor and major events.

If the above recommendations are undertaken and confirmed, the risk category detailed within this report can be reclassified as Low (L) if it was identified as greater than this level.

6.0 GEOTECHNICAL COMMENTS

Geotechnical comments are based on the factual findings of the investigation, best practice, local experience, published correlations; however, are fundamentally founded in opinion and this should be considered.

6.1 Earthworks and Site Preparations

The following comments are provided in relation to site preparation for earthworks.

- The area should be stripped of uncontrolled fill, soft, overly wet, foreign, or otherwise deemed unsuitable material (material that is potentially compressible) down to a relatively stiff dry base ensuring no organics material is present.
- Stripped areas must be inspected by the geotechnical testing authority (GTA) to ensure no soft spots or loose zones are present. This should be done with the use of a loaded body truck or 12 tonne roller as a minimum. Areas showing signs of movement under the action of the testing equipment should be either over excavated and replaced with select fill or conditioned onsite through tyning, blending or other suitable methods.
- Although no standard exists for the moisture content of soils, it is recommended that the site soils be placed at or near optimum moisture content (OMC) for general earthworks operations. This increases efficiency during earthworks operations. A range of +/- 2% of OMC is recommended for general earthworks.
- Where site soils are proposed for use as fill in other areas, won material will need to have a maximum particle size of 75 mm or be observed to break down under the energy of compactive equipment.
- Fill will need to be step keyed into the existing slope.
- Fill materials should be placed in relatively horizontal layers with a maximum placement thickness of 200 mm. The materials should be compacted to a minimum dry density ratio of 95% relative to Standard compactive effort.
- Highly plastic clays at this site will be very sensitive to the presence or lack of moisture and therefore care should be used to place the material within the range nominated and to a maximum dry density of 102% relative to Standard compactive effort. Where this does not happen, the material could readily swell, soften, or be subject to significant trafficability issues.
- Fill material will be subject to potential settlement post placement. Well compacted fill placed in accordance with AS3798 and otherwise, good earthworks procedure should typically be subject to settlement in the order of 0.5% to 1.0% of the fill thickness over a log cycle of time.

6.2 Retaining Structures

Retaining walls must be designed by a suitably qualified and experienced engineer and preferably in accordance with AS 4678. The geotechnical parameters for use in design of either flexible or rigid wall systems are presented in Table 4: Retaining Wall Parameters (unfactored).

Passive forces should be ignored in areas where disturbance may occur (ie. future trenching or earthworks processes).

Compaction for retaining wall backfill should be undertaken with due care. Layers should be placed thinner than for normal earthworks processes (say a maximum layer thickness of 100 mm) and compacted using light weight equipment such as hand controlled compactive equipment to minimise the stresses on the wall. If hand-controlled equipment is not practical, temporary wall propping will be required.

Walls will need to incorporate full height drainage in accordance with good design practice to minimise hydrostatic pressure. The below parameters do not include surcharge loadings.

Table 4: Retaining Wall Parameters (unfactored)

Material	Unit Weight (kN/m ³)	Friction Angle (Ø)	Drained Cohesion (c')
Stiff or stronger controlled fill*	19	24	2
Medium dense (or better) clayey sand	19	32	0

Notes: * - Compacted under Level 1 conditions and behaves as clayey material

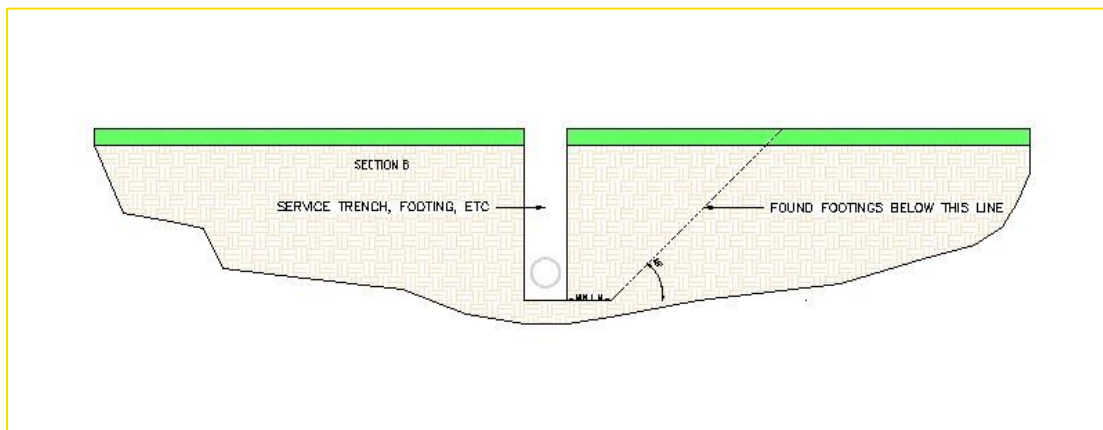
6.3 Foundations

In accordance with industry standards, a geotechnical engineer from CQ Soil Testing should undertake the testing within the footings to confirm that the encountered material is in alignment with the adopted parameters and assumptions provided within this report. Where this does not occur, CQ Soil Testing cannot be held liable for any of the information presented within this report.

All footings will need to be designed to accommodate potential ground surface movement, settlement values and any additional settlement values associated with the placement of new fill.

Settlement for suitably sized and designed high level footings should be in the order of 1-2% of the width of the footing.

If footings are located adjacent to an underground service or other obstruction that is not homogenous with the founding strata, the footing should be extended a minimum 0.3 m below an imaginary line projected at a 45° angle from the lowest point of the service/obstruction. This is depicted graphically for reference:



Where footings found into weathered rock, they may be dimensioned for a maximum allowable bearing pressure of 250 kPa.

The ultimate geotechnical end bearing and shaft adhesion parameter are presented in Table 5: Deep Level Footings – Ultimate Geotechnical Parameters (Long Pile). The values given will need to be reduced by applying a suitable geotechnical strength reduction factor (Φ_g) for limit state or divided by a suitable factor of safety for working stress methods. The Φ_g should be selected by the designer.

Table 5: Deep Level Footings – Ultimate Geotechnical Parameters (Long Pile)

Material	Fb (kPa)	Fs (kPa)
Weathered rock	1800	60

Notes: * - Fb = Ultimate End Bearing Pressure (unfactored) for long piles, Fs = Ultimate Shaft Adhesion (unfactored).

The upper 1.2 m of soil profile should be ignored in shaft calculations to allow for shrinkage cracks. The values presented in Table 5: Deep Level Footings – Ultimate Geotechnical Parameters (Long Pile) assume that the material equal to four pile diameters below the base of any footings is as strong or stronger.

Settlement values are subjected to a variety of factors; however, a properly designed and constructed pile should have a serviceability settlement between 1% and 2% of its' diameter.

If you should have any queries regarding this report, please do not hesitate to contact the undersigned at your convenience.

Yours faithfully



ANDRE DOS SANTOS
Senior Geotechnical Engineer – RPEQ, CPEng, NER,
MEIAust



SCOTT WALTON
Laboratory Manager

Site/Soil Characteristics and Classification

A. Classification by characteristic surface movement as per AS2780-2011

Site Classification Symbols	Y's Range Value	Generalised Description (Guide Only)
'S'	0 – 20 mm	Slightly reactive clay sites which may experience only slight ground movement due to moisture changes
'M'	21 – 40 mm	Moderately reactive clay or silt sites which may experience moderate ground movement due to moisture changes
'H1'	41 – 60 mm	Highly reactive clay sites which may experience high ground movement due to moisture changes
'H2'	61 – 75 mm	Highly reactive clay sites which may experience very high ground movement due to moisture changes
'E'	>75 mm	Extremely reactive clay sites which may experience extreme ground movement due to moisture changes
'P'	N/A	Problem sites which generally have soils associated with uncontrolled fill, abnormal moisture conditions (trees), soft or collapsing soils, landslip etc...

B. Laboratory Test Results

Borehole Location	3	Borehole Location	Borehole Location
Depth Range of Sample (m)	0.5-0.8	Depth Range of Sample (m)	Depth Range of Sample (m)
Natural MC %	17	Natural MC %	Natural MC %
% Passing 75 um Sieve	ND	% Passing 75 um Sieve	% Passing 75 um Sieve
Liquid Limit %	ND	Liquid Limit %	Liquid Limit %
Plastic Index %	ND	Plastic Index %	Plastic Index %
Linear Shrinkage %	ND	Linear Shrinkage %	Linear Shrinkage %
Shrink Swell Index	1.9	Shrink Swell Index	Shrink Swell Index
Pocket Penetrometer kPa	ND	Pocket Penetrometer kPa	Pocket Penetrometer kPa

C. Permeability Test Results AS1547-2000

Test Hole Number	Depth Of Test Hole	Range Tested	Permeability M/Day
NA	500 mm	250 – 500 mm	NA

Site Photographs



Image 1: Proposed Construction Site



Image 2: Proposed Construction Site

Site Photographs

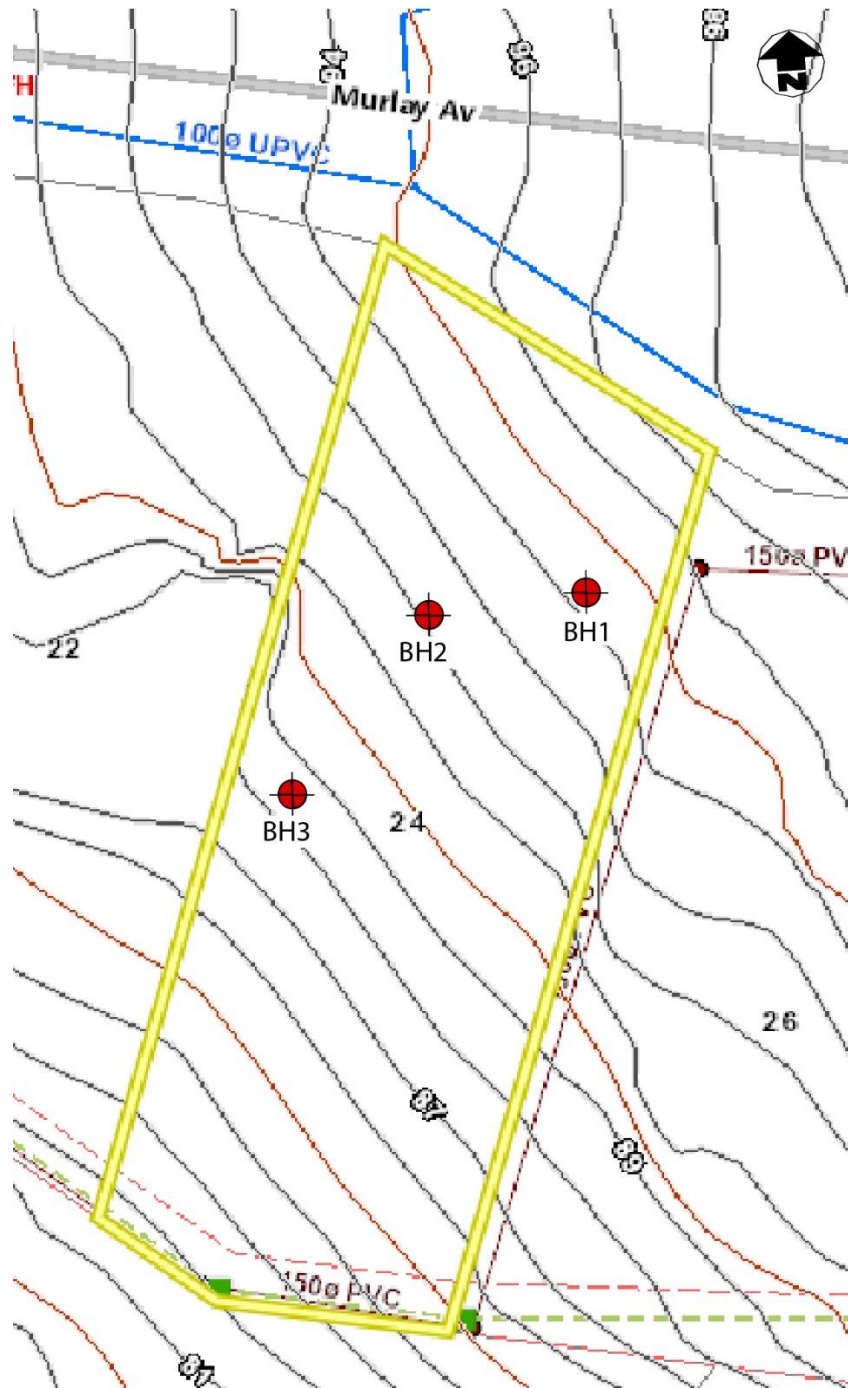


Image 3: Proposed Construction Site



Image 4: Proposed Construction Site

Site Plan



- Not to scale
- All measurements are to be used as a guide only



CLIENT: E Skilling
PROJECT: Slope Stability
ADDRESS: Lot 101 Murlay Avenue, Frenchville
DRILL RIG: GT10

PROJECT #: CQ22418
LOGGED: S Walton
EASTING:
NORTHING:

BORE HOLE 1

TEST DATE: 13/02/2023

RL (m)	Depth (m)	Graphic Log	Water	Material Description	Sampling & Testing		DCP Results (blows per 100 mm)
					Type	Results & Comments	
				CLAYEY SAND (SC): fine to coarse grained, low plasticity fines, dark grey, moist, medium dense.			4 8 12 16
	0.2			CLAYEY SAND (SC): fine to coarse grained, low plasticity fines, with fine to coarse gravel, brown, dry, dense.			
	1.0			WEATHERED ROCK			
	1.1			Bore Terminated at 1.1 m.			

DRILLING METHOD: Solid Flight Auger

CASING:

GROUNDWATER: No groundwater seepage observed at time of drilling.

REMARKS: Tungsten carbide drill bit refusal at 1.3 m

LEGEND:		
D - Disturbed Sample from Auger	SPT - Standard Penetration Test	▶ - Groundwater Seepage Level
B - Bulk Sample from Auger	IS ₅₀ - Point Load Result (MPa)	▼ - Standing Groundwater Level
C - Rock Core	PP - Pocket Penetrometer (kPa)	◄ - Partial Groundwater Loss
U ₅₀ - Undisturbed Sample (mm)		◄ - Perched Groundwater Level



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DRILL RIG: GT10

PROJECT #: CQ22418
LOGGED: S Walton
EASTING:
NORTHING:

BORE HOLE 2

TEST DATE: 13/02/2023

RL (m)	Depth (m)	Graphic Log	Water	Material Description	Sampling & Testing		DCP Results (blows per 100 mm)
					Type	Results & Comments	
				CLAYEY SAND (SC): fine to coarse grained, low plasticity fines, dark grey, moist, medium dense.			4 8 12 16
	0.2			CLAYEY SAND (SC): fine to coarse grained, low plasticity fines, with fine to coarse gravel, brown, dry, dense.			
	1.1			WEATHERED ROCK			
	1.3			Bore Terminated at 1.3 m.			

DRILLING METHOD: Solid Flight Auger

CASING:

GROUNDWATER: No groundwater seepage observed at time of drilling.

REMARKS: Tungsten carbide drill bit refusal at 1.1 m

LEGEND:		
D - Disturbed Sample from Auger	SPT - Standard Penetration Test	▶ - Groundwater Seepage Level
B - Bulk Sample from Auger	IS ₅₀ - Point Load Result (MPa)	▼ - Standing Groundwater Level
C - Rock Core	PP - Pocket Penetrometer (kPa)	⚡ - Partial Groundwater Loss
U ₅₀ - Undisturbed Sample (mm)		⚡ - Perched Groundwater Level



CLIENT: E Skilling
PROJECT: Slope Stability
ADDRESS: Lot 101 Murlay Avenue, Frenchville
DRILL RIG: GT10

PROJECT #: CQ22418
LOGGED: S Walton
EASTING:
NORTHING:

BORE HOLE 3

TEST DATE: 13/02/2023

RL (m)	Depth (m)	Graphic Log	Water	Material Description	Sampling & Testing		DCP Results (blows per 100 mm)
					Type	Results & Comments	
				CLAYEY SAND (SC): fine to coarse grained, low plasticity fines, dark grey, moist, medium dense.			4 8 12 16
	0.2			SANDY CLAY (CI): medium plasticity, fine to coarse grained, grey and brown mottled, moist, very stiff.			
	0.5				U50		
	0.8						
	1.2			WEATHERED ROCK			
	1.3			Bore Terminated at 1.3 m.			

DRILLING METHOD: Solid Flight Auger

CASING:

GROUNDWATER: No groundwater seepage observed at time of drilling.

REMARKS: Tungsten carbide drill bit refusal at 1.3 m

LEGEND:		
D - Disturbed Sample from Auger	SPT - Standard Penetration Test	▶ - Groundwater Seepage Level
B - Bulk Sample from Auger	IS ₅₀ - Point Load Result (MPa)	▼ - Standing Groundwater Level
C - Rock Core	PP - Pocket Penetrometer (kPa)	◄ - Partial Groundwater Loss
U ₅₀ - Undisturbed Sample (mm)		◄ - Perched Groundwater Level

Limitations

1. Recommendations given in this report are based on the information supplied by the client regarding the proposed building construction in conjunction with the findings of the investigation. Any change in construction type, building location or omission in the client supplied information, may require additional testing and/or make the recommendations invalid.
2. The recommendations herein may identify a target soil stratum into which the footings should be founded. The target stratum has been located by the depth in mm of the target stratum's upper horizon boundary below the existing ground surface level at the time of the site investigation. Any cutting or filling works and any surface erosion or deposits subsequent to the site investigation, will alter the measured location of the stratum relative to the surface. Where required, the author should be notified in such cases to confirm the location of the target stratum.
3. The description of the soil given in Section 3.0 of this report is intended as a brief overview of the soil's primary constituents. For a detailed classification of the soil, the reader should refer to the Soil Profile Reports and/or Borehole Reports.
4. Every reasonable effort has been made to locate the test sites so that the borehole profiles are representative of the soil conditions within the area investigated. The client should be made aware however, that exploration is limited by time available and economic restraints. In some cases soil conditions can change dramatically over short distances, therefore, even careful exploration programs may not locate all the variations.
5. If soil conditions different from those shown in this report are encountered or are inferred from other sources, then the author must be notified immediately.
6. This report may not be reproduced except in full, and only then with the permission of the entity trading as CQ Soil Testing. The information and site sketch shall only be used and will only be applicable for the development shown on the client-supplied information provided for this site.
7. All information contained within this report is the intellectual property of the entity trading as CQ Soil Testing. All information contained with can only be used for the express purposes of the commissioned scope of works.
8. Any dimensions, contours, slope directions and magnitudes shown on the site sketch plan shall not be used for any building construction or costing calculations. The purpose of the plan is to show approximate location of field tests only.
9. Any changes made to these recommendations by persons unauthorized by the author will legally be interpreted at that person assuming the responsibility for the long-term performance of the footing system.
10. The recommendations contained in this report have not taken into consideration the long term effects of any previous, current or potential subsurface work by mining companies or potential slope instability problems. At the time of writing this report neither our client (nor his agent) nor the local authority had made the author aware that these problems may be affecting this allotment. If a mining subsidence or slope stability assessment is required for this allotment, the recommendations of a suitably qualified geotechnical engineer should be sought.
11. Removal of trees from a site before an investigation can cause significant swelling of the soil over large areas. The removal of large trees from a construction site during development is rarely picked up during the investigation phase and is generally outside the scope of AS2870. Sites affected by large trees are often classified "P". If, during the footing excavation, it is noticed that there are soils with varying moisture contents or evidence of large trees having been removed CQ Soil Testing should be notified immediately.
12. The following documents are available from the CSIRO and QBCC and shall be read and adhered to in relation to this site:
 - Builder's Guide to Preventing Damage to Dwellings- Part 1 Site Investigation and Preparation
<http://www.publish.csiro.au/nid/22/pid/3621.htm>
 - Builder's Guide to Preventing Damage to Dwellings- Part 2 Sound Construction Methods
<http://www.publish.csiro.au/nid/22/pid/3661.htm>
 - QBCC Subsidence Fact Sheet
<https://www.qbcc.qld.gov.au/sites/default/files/Homeowner%27s%20Guide%20to%20Subsidence.pdf>