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PO Box 1487
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Arlberg Ski Club Limited
Charlotte Pass NSW
PO Box 645
Annerley QLD 4103
Attention: Peter Brooks

Email: peter@brooksprojects.com.au

Project 215619.00
15 September 2022
R.001.Rev0
MJJ

Preliminary Geotechnical Assessment
Proposed Additions
Arlberg Ski Lodge, Charlotte Pass Village

As requested, a review of architectural plans and site photographs provided by the client has been undertaken for the above site for the purposes of assessing the geotechnical implications (if any) of the proposed site development. It is understood that a two level, 10 m by 5 m extension to the front (downslope) side of the existing building is proposed. It is further understood that an existing balcony off the 3rd level (First Floor) will be retained, and the extension constructed under.

Site works as detailed in Drawings SK1a – SK7a dated 1 January 2021 (see attached drawings) indicate that a maximum depth of cut of 0.7 m and a maximum depth of fill of 0.9 m will be required to facilitate construction levels.

From the site photographs, the existing building in the vicinity of the proposed extension was in good condition, and no signs of global slope instability were observed within or adjacent to the development area. A limited number of small trees were observed to be adjacent to the extension area, one with a downward lean, possibly indicating near-surface creep and/or wind-blown lean.

Based on the information provided, it is highly likely that the proposed development will have minimal geotechnical impact on site conditions from a stability perspective. A site inspection and geotechnical investigation must be completed prior to finalisation of designs to provide further definitive comment. Based on our experience in alpine resort areas, the below recommendations must be incorporated into the design:

- All loads from the new structure including the lower ground floor slab are to be transferred through the overburden soils (possibly prone to soil creep) to within the weathered rock. A minimum socket of 0.5 m into weathered rock (minimum extremely low strength) is recommended with an allowable end bearing pressure of 300 kPa.
- All new footings must found below the zone of influence of any adjacent/existing footings or backfill trenches from buried services or underground storage tanks.
- Where required, fill must be compacted to at least 95% standard dry density ratio within 2 percentage points of optimum moisture content.

- The edges of any site excavation and/or fill required to establish the lower floor area must be supported by engineer designed retaining walls.
- All footing excavations must be viewed by a Geotechnical Engineer to confirm suitability of the founding stratum.
- Site surface drainage or and existing subsurface drainage systems must not be compromised by the proposed works.
- All stormwater and/or sewage that is generated by the new development must be disposed offsite in a controlled manner such that it does not impact the performance of the structure and/or surrounding ground.

This letter must be read in conjunction with the attached notes “About This Report”.

At this stage, documentation required by the Geotechnical Policy for Kosciuszko Alpine Resorts (Form 1 or Form 4) cannot be provided until a site inspection and field investigation is undertaken, however this letter report could be used by The NSW Department of Planning and Environment for conditional approval of the Development Application from a geotechnical perspective (subject to the completion of the aforementioned future geotechnical assessment/investigation).

We trust the above is in accordance with your present requirements. Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

Michael Jones
Principal

Reviewed by

Colin Reid
Senior Associate

Attachments: About this Report
Development Plans (7 pages)

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

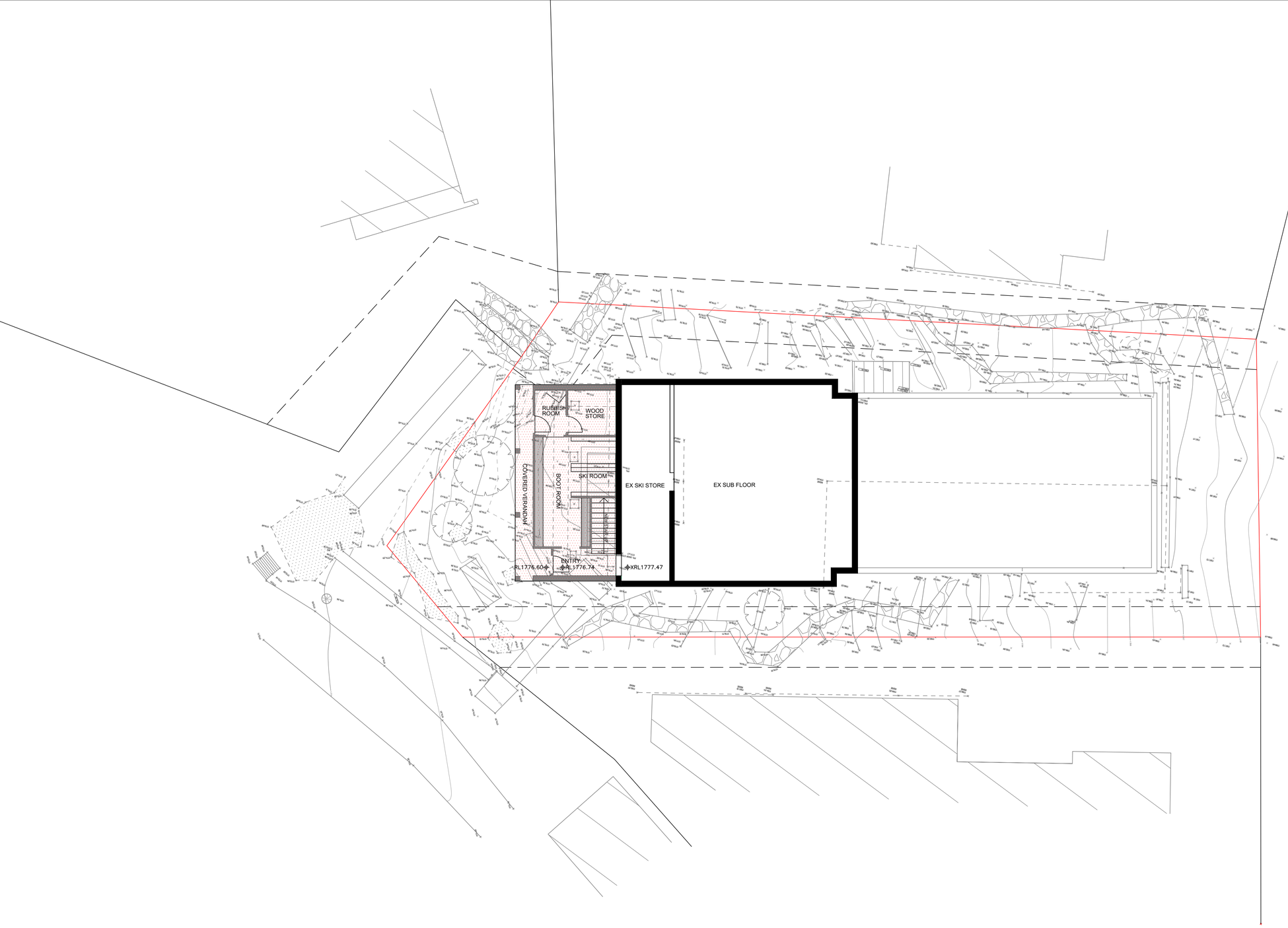
In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.



RENOVATION TO EXISTING

NEW ADDITION

ISSUE	DATE	AMENDMENT
A	14.03.22	PRELIMINARY DA ISSUE

TN

PROJECT
ALTERATIONS + ADDITIONS
ARLBERG SKI LODGE
LOT 103 DP 1242013
CHARLOTTE PASS NSW 2624

CLIENT
ARLBERG SKI CLUB LIMITED

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A.B.N. 36 001 720 707

TITLE
FLOOR PLAN
ENTRY LEVEL

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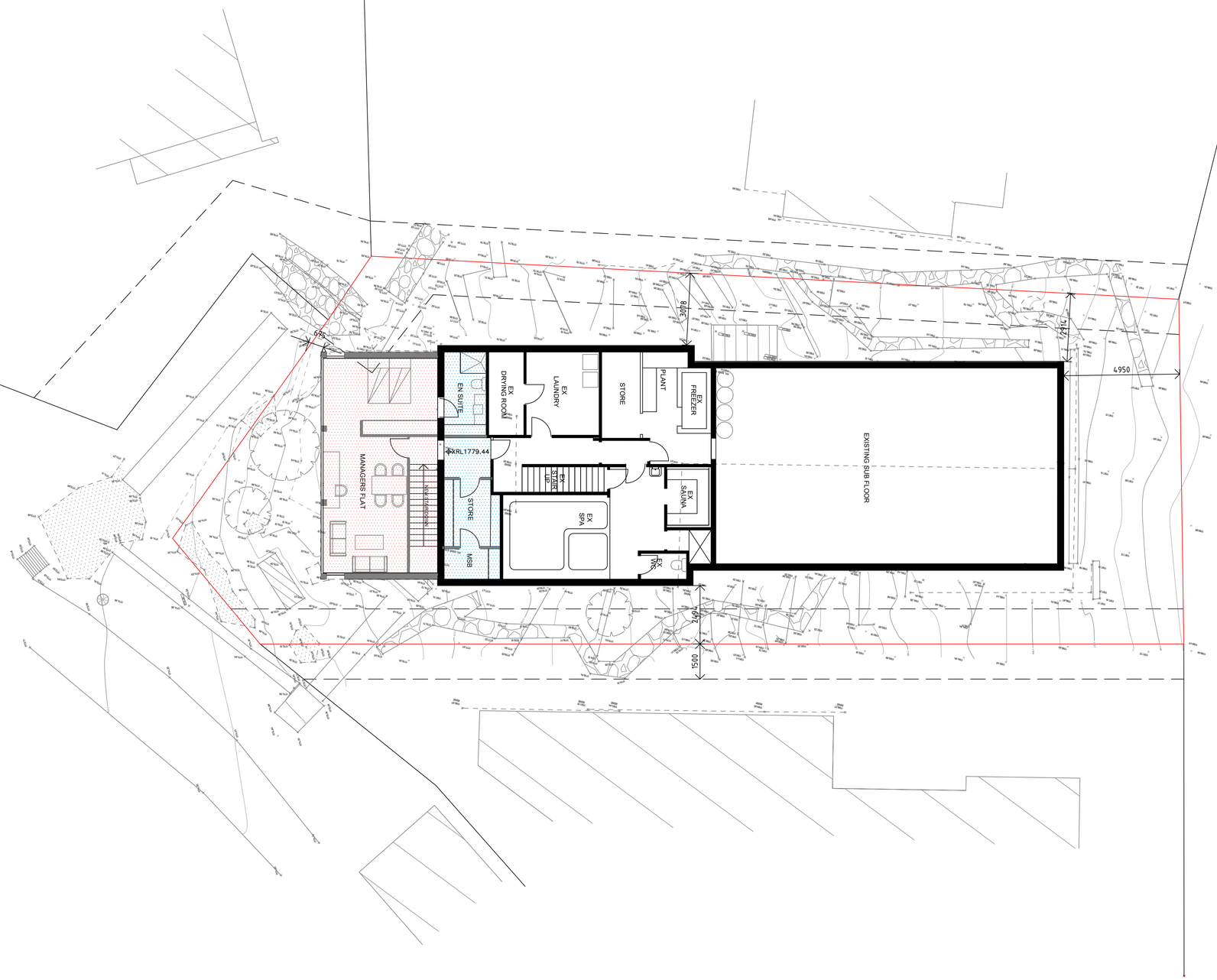
DATE: 01.01.21
REF : BPAARLBERG

Sk1a



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TITLE
FLOOR PLAN
GROUND FLOOR

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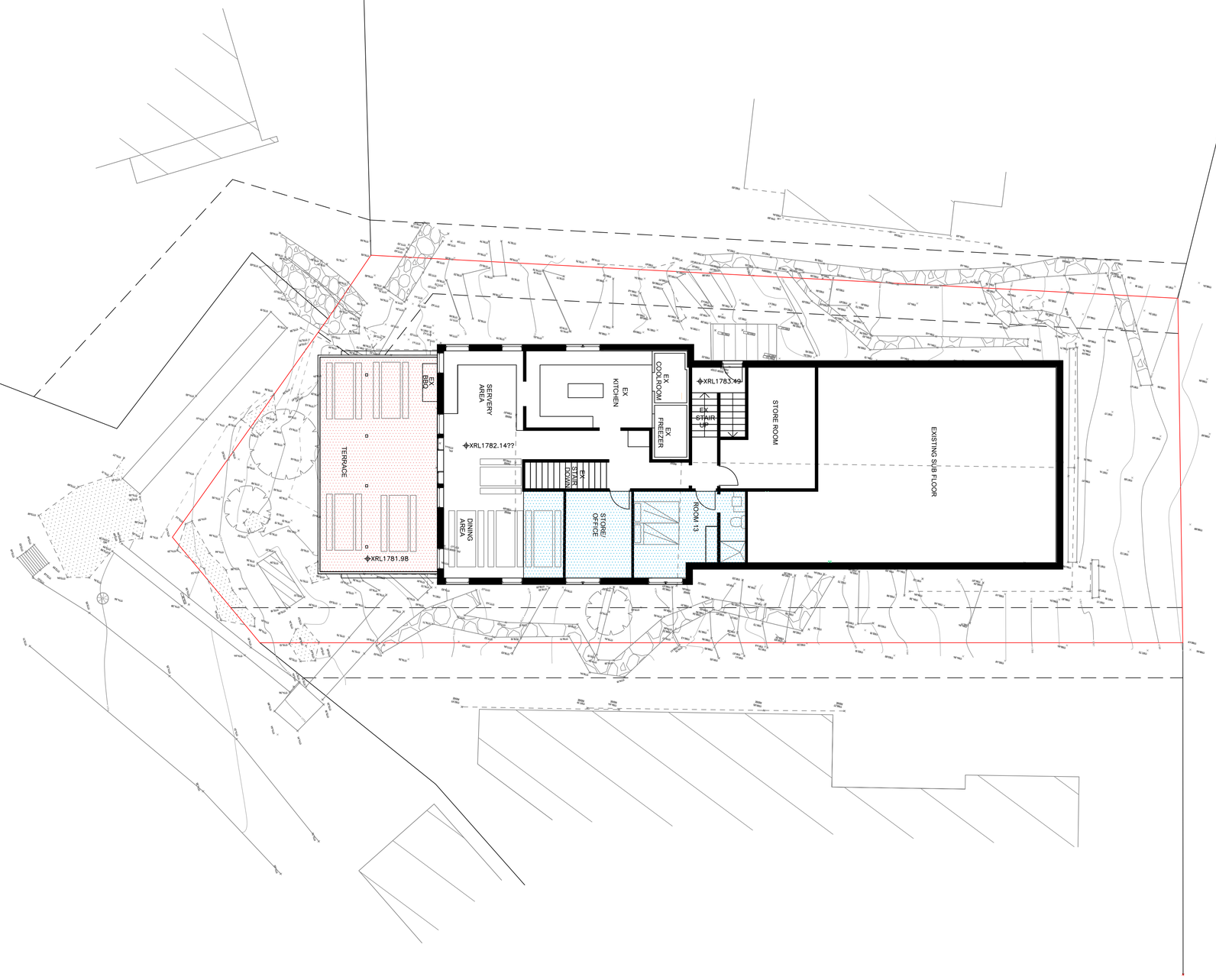
DATE: 01.01.21
REF : BPAARLBERG

Sk2a



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FLOOR PLAN
FIRST FLOOR

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DATE: 01.01.21
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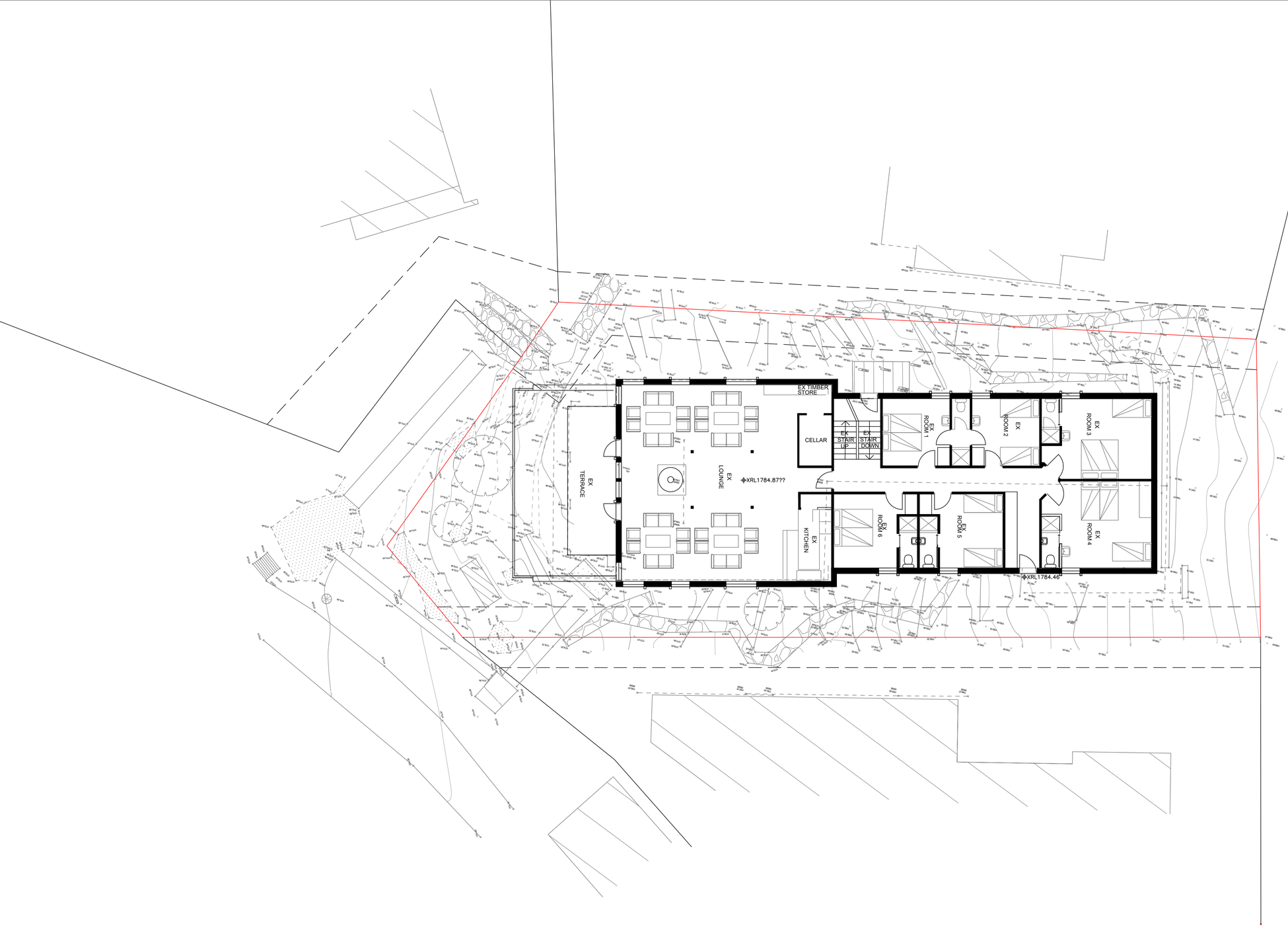
Sk3a



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TITLE
FLOOR PLAN
SECOND FLOOR

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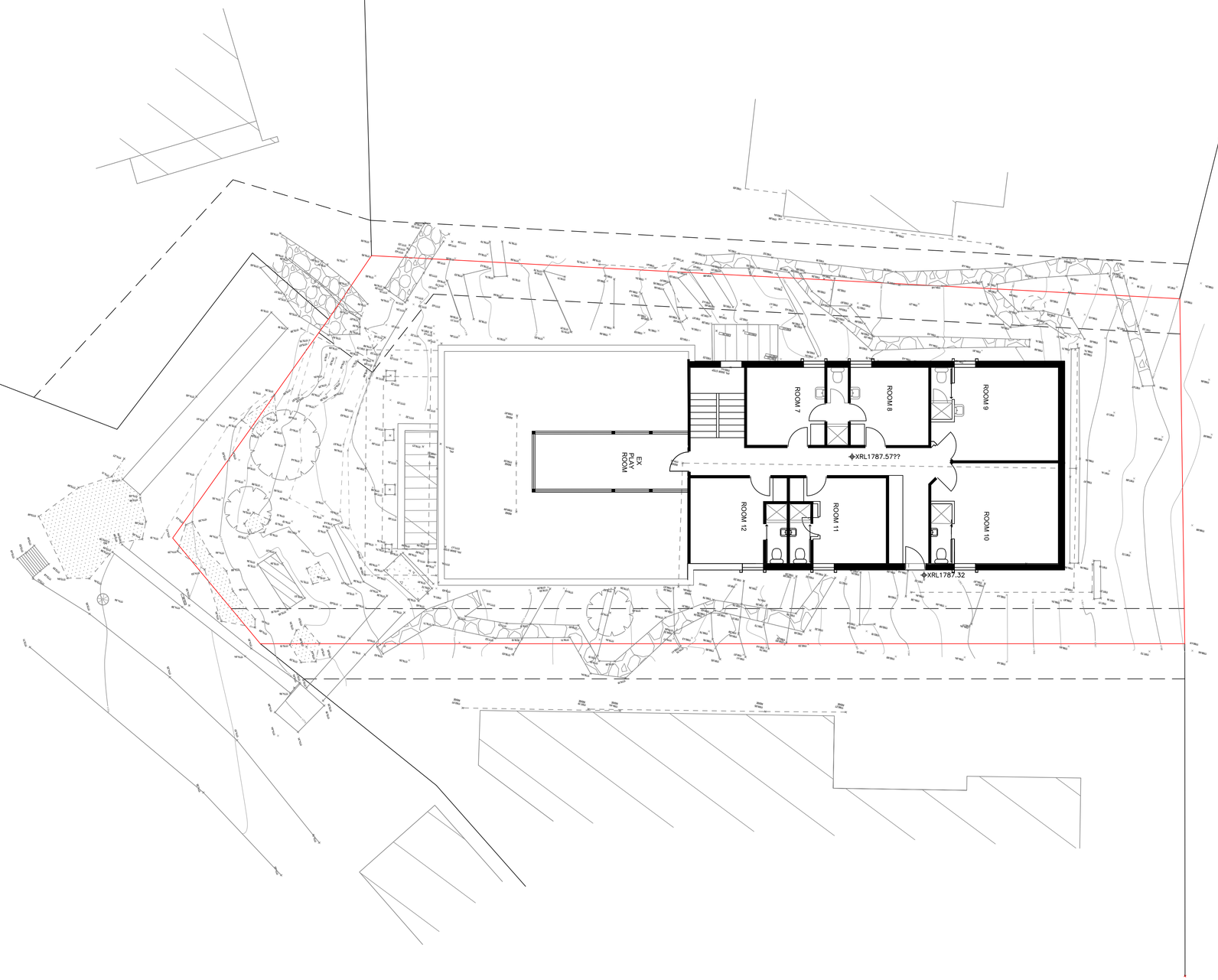
Sk4a



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TITLE
FLOOR PLAN
THIRD FLOOR

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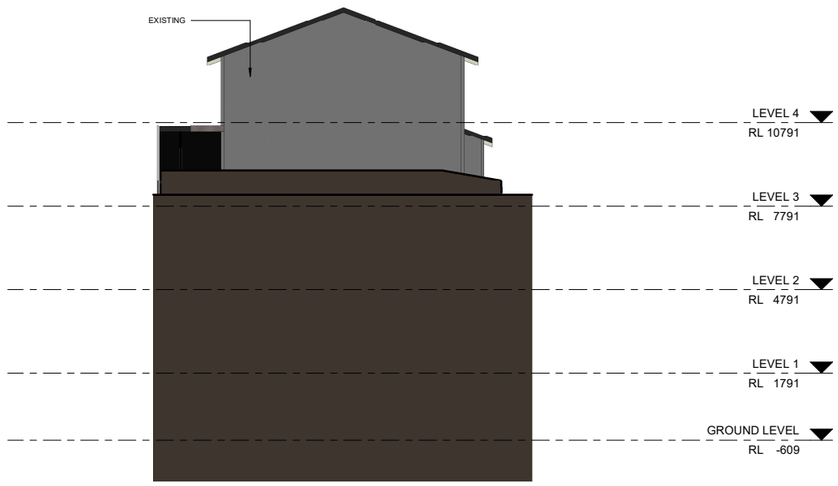
Sk5a



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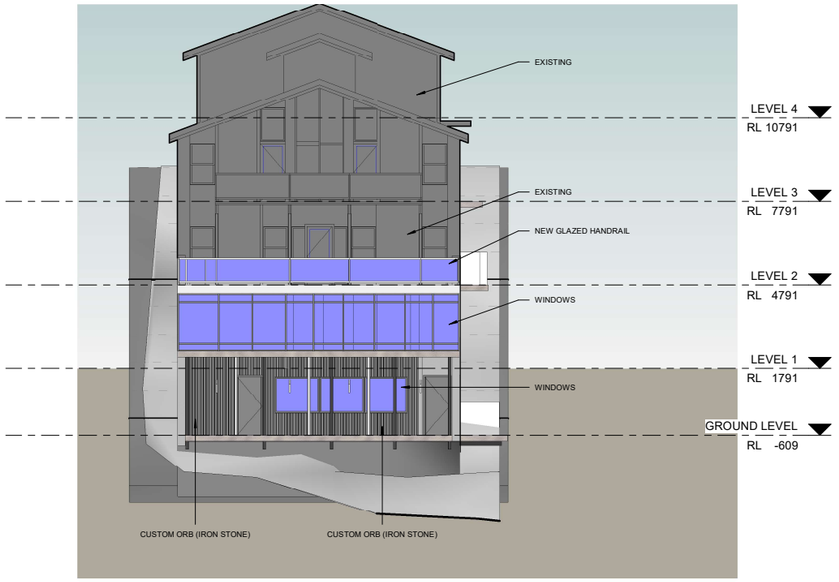
2 East
1 : 100



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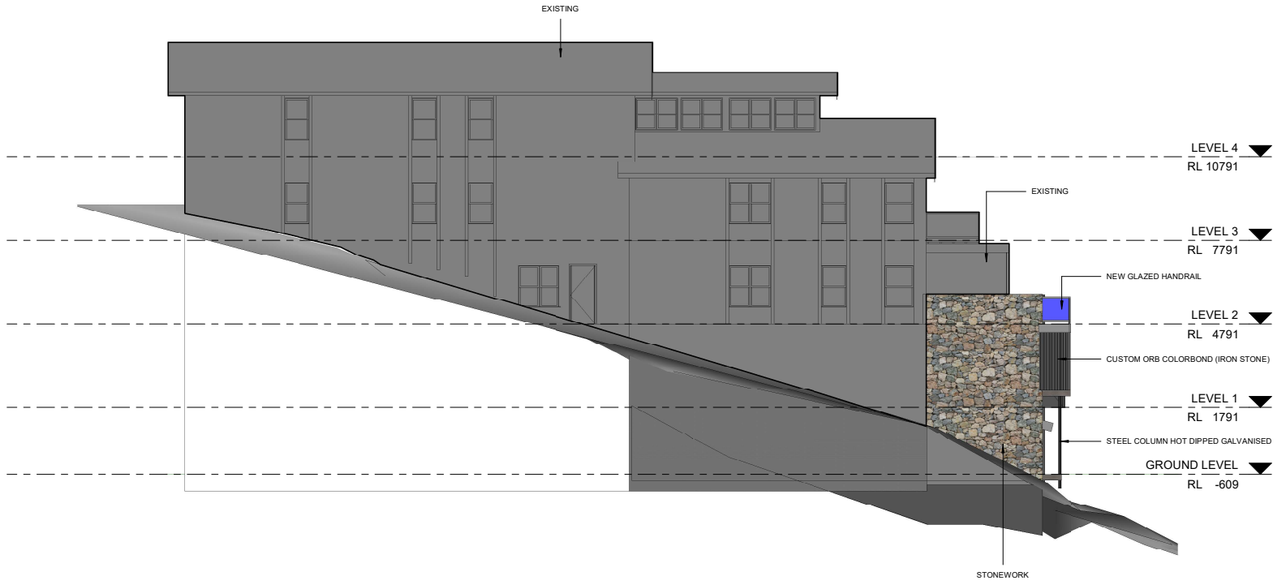

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TITLE
ELEVATION

SCALE: 1:100(A1)
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Sk6a

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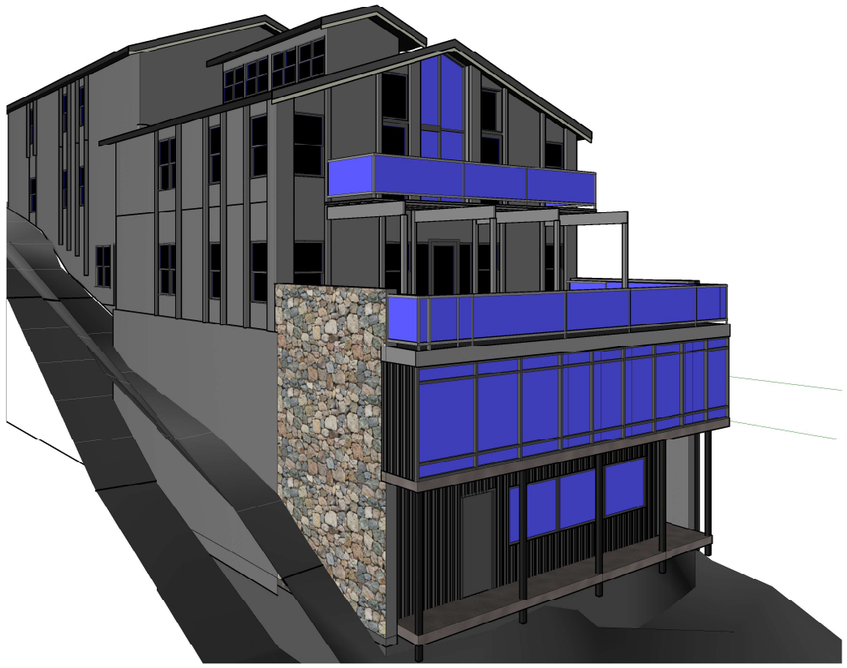

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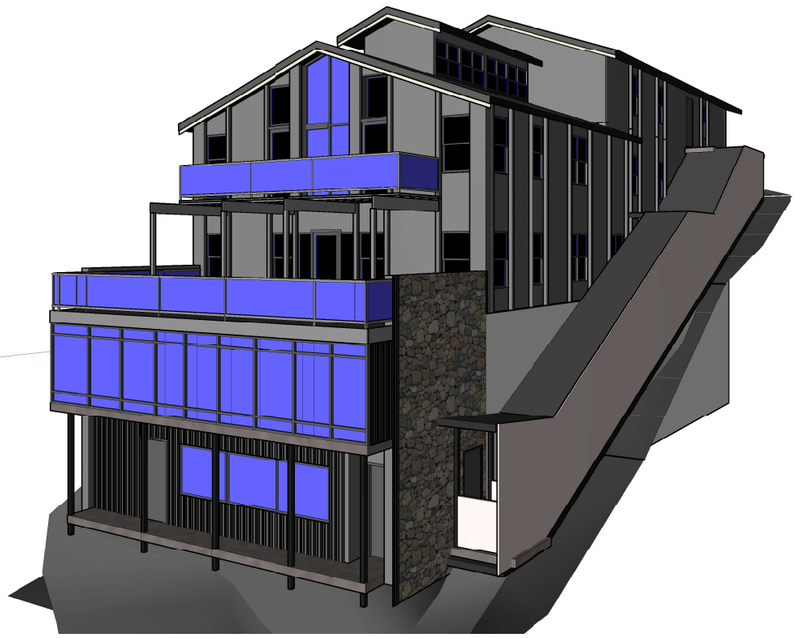

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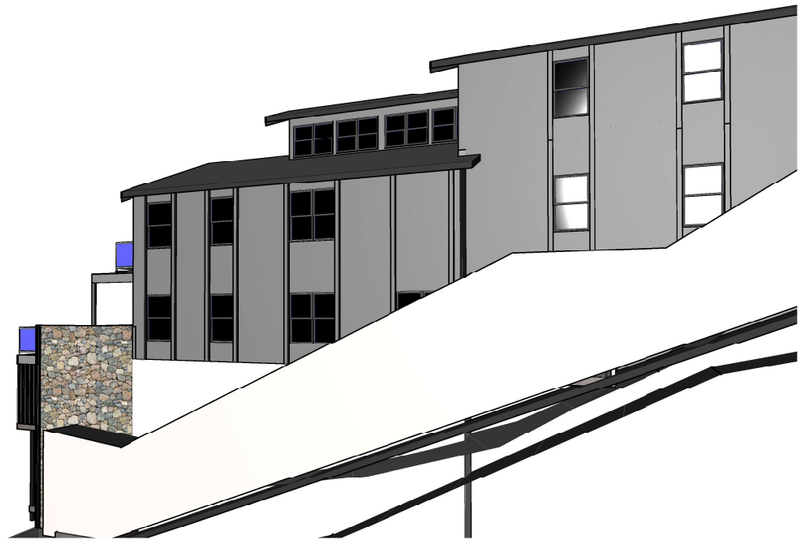

4 3D View 4

A 14.03.22 PRELIMINARY DA ISSUE

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3D VIEWS

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REF :BPAARLBERG

Sk7a