

PRELIMINARY SITE INVESTIGATION (PSI) WITH TARGETED SAMPLING

Proposed School
Lot 1 Magpie Hollow Road, South Bowenfels NSW 2790

4 November 2024

Prepared for Dezin

EXECUTIVE SUMMARY

Australian Ground Sciences was commissioned by 'the client' to undertake a Preliminary Site Investigation (PSI) with targeted soil sampling. The PSI was prepared to be submitted for a development application for the proposed school, at Lot 1 Magpie Hollow Rd, South Bowenfels. The scope of this report was prepared by consideration of the recommendations of a previously completed PSI by AIRSAFE (ref. 73912.09.24.Stage1PSI), which has been attached to the appendix of this report. Our scope included the following:

- Excavation of test pits/boreholes at the location of the backfilled dam and laboratory testing of select samples from those boreholes
- Excavation of test pits along western boundary to investigate undetermined objects along western boundary. Laboratory testing to then be carried out on select samples
- Carry out drilling, sampling and laboratory testing from three locations adjacent to the eastern boundary

This PSI found that some asbestos contamination was present in BH4 in the vicinity of the buried dam, and so remediation will be required during the early stages of earthworks. Based on our findings in the context of land contamination, we are of the opinion that the subject site can likely be made suitable for the proposed development from a land contamination perspective, provided that the site is appropriately remediated and our recommendations are followed in full, which include, but are not limited to:

- Implementing a remediation action plan (RAP), and then undertaking a validation assessment
- Undertaking a waste classification assessment for the off-site disposal of the material that is to be excavated
- Prepare an Unexpected Finds Protocol
- Carry out validation testing and prepare a site validation report

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ABBREVIATIONS

Asbestos Containing Material ACM
Area of Environmental Concern AEC
Australian Height Datum AHD
Acid Sulfate Soil ASS
Above Ground Storage Tank AST
Below Ground Level BGL
Bureau of Meteorology BOM
Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene BTEXN
Cation Exchange Capacity CEC
Contaminated Land Management CLM
Conceptual Site Model CSM
Environmental Protection Agency EPA
Environmental Site Assessment ESA
International Organisation of Standardisation ISO
Light Non-Aqueous Phase Liquid LNAPL
Local Government Authority LGA
Map Grid of Australia MGA
National Association of Testing Authorities NATA
National Environmental Protection Measure NEPM
Organochlorine Pesticides OCP
Organophosphate Pesticides OPP
Polycyclic Aromatic Hydrocarbons PAH
Potential Contaminants of Concern PCC
Remediation Action Plan RAP
Sampling, Analysis and Quality Plan SAQP
Site Audit Statement SAS
Site Audit Report SAR
Semi-Volatile Organic Compounds sVOC
Standard Water Level SWL
Total Recoverable Hydrocarbons TRH
United States Environmental Protection Agency USEPA
Underground Storage Tank UST
Volatile Organic Compounds VOC
Volatile Organic Chlorinated Compound VOCC
Workplace, Health and Safety WHS

1. INTRODUCTION

1.1. Background

Australian Ground Sciences was commissioned by Design to carry out this Preliminary Site Investigation (PSI) in accordance with proposal reference 24203P2, dated 23 September 2024, as authorised by the client through email correspondence. Details on the proposed development and site location are presented in Table 1.1 and Figure 1.1.

The proposed development on Lot 1 Magpie Hollow Road, South Bowenfels, is intended for the construction of a school facility on a currently vacant, slightly sloping site of approximately 11,720 square metres. This development will repurpose the open land, which presently lacks any buildings and features minimal vegetation. The site lies within the jurisdiction of Lithgow City Council jurisdiction, with residential properties bordering it to the north and west and limited commercial activity, including a service station and car wash, along its eastern boundary.

Previously a desktop PSI was prepared by AIRSAFE (Ref.73912.07.24.Stage1PSI), which has been attached in the appendix of this report and this report has been prepared as an extension to the findings of that report.

The school's construction will likely involve foundational preparation and site modifications adapted to the sloped topography and surrounding land uses. This additional PSI was conducted to confirm site suitability for the school development through targeted soil sampling, waste classification requirements, and adherence to environmental standards, in line with guidelines set forth by the NSW EPA and relevant environmental frameworks. This assessment aims to ensure that foundational work and site modifications are consistent with both environmental integrity and the specific requirements of the proposed educational facility.

Table 1-1 Subject Site Details

Item	Detail
Site Address	Lot 1 Magpie Hollow Road
Lot and DP	Lot 1 DP527491
Current Land Use	Vacant block
Proposed Land Use	School
Surrounding Land Uses	• North: Adjacent residential. • East: Service station & car wash. • West: Adjacent residential. • South: Magpie Hollow Road, farmland.
Trigger for Assessment	To inform a development application
Local Government Authority (LGA)	Lithgow City Council
Current Zoning	R2 - Low density Residential
Site Area	Approx. 11,720 m ²
Site Coordinates	-33.5055, 150.1227



Figure 1.1: Site Location

1.2. Objectives

The objectives of this investigation are to evaluate soil contamination levels, determine any associated risks to receptors on or near the site, and recommend any necessary remediation measures to ensure the site's suitability for development as a school facility. These objectives are based on the recommendations set out by AIRSAFE in their desktop PSI. The primary objectives of the PSI include:

1. **Assess Soil Conditions:** Implement a targeted soil sampling and analysis program to accurately characterise the contamination profile of the site. This involves sampling specific areas identified as potentially contaminated, particularly those near the eastern boundary adjacent to commercial properties and other areas with historical land use concerns.
2. **Review and Amend the Conceptual Site Model (CSM):** Conduct a critical review of the existing CSM developed by AIRSAFE, updating or refining it where needed. This ensures that all potential contaminant pathways and receptors are accurately represented, providing a comprehensive view of the site's environmental conditions and refining any assumptions in light of the new sampling data.
3. **Evaluate Site Suitability for Proposed Development:** Assess whether the site, from a contamination and environmental health perspective, can be made suitable for the proposed school development. This will involve reviewing contaminant concentrations relative to regulatory guidelines and considering both direct and indirect exposure risks for site users, construction workers, and surrounding ecological receptors.
4. **Determine the Need for a Remediation Action Plan (RAP) and Further Actions:** Identify whether remediation is required based on contamination levels and associated risks. If necessary, outline the framework for a RAP to address contamination, including specifying soil handling, disposal requirements, and monitoring measures. Additionally, recommend any further assessments or actions, such as groundwater testing or air quality monitoring, to comprehensively address all potential environmental risks.

1.3. Investigation Scope

The scope of this investigation follows the issued proposal and comprises:

- **Review Development Details and the Existing PSI:** Conduct a thorough review of the proposed development information and the preliminary site investigation report provided by Airsafe, to understand baseline site conditions and previously identified concerns.
- **Conduct an Additional Preliminary Site Investigation:** Prepare and execute an additional PSI aimed at identifying potential contaminants from historical site use, with a focus on areas potentially impacted by adjacent commercial activities or prior fill materials.
- **Review and Amend the Conceptual Site Model (CSM):** Examine the provided CSM from Airsafe, making amendments or adding comments as necessary to ensure the model accurately reflects current site conditions, contaminant pathways, and potential receptors.
- **Interpret Analytical Results Using Site Assessment Criteria (SAC):** Compare analytical results from soil sampling and other investigations against the adopted SAC to determine the contamination status relative to regulatory standards and guidelines.
- **Conduct a Data Quality Assessment (DQA):** Perform a DQA to ensure that collected data is reliable, accurate, and meets the investigation's quality standards, facilitating informed decision-making for potential remediation.
- **Provide Recommendations for Further Reporting or Work:** Offer guidance on any additional assessments or actions required, including further sampling, remedial action planning, or reporting, to support the site's readiness for development as a school facility.

2. REVIEW OF PRELIMINARY SITE INVESTIGATION BY AIRSAFE

The Stage 1 Preliminary Site Investigation (PSI) for Lot 1 Magpie Hollow Road, South Bowenfels by AIRSAFE (Ref.73912.07.24.Stage1PSI), assessed the suitability of the site for a proposed school development from a contamination perspective. Minor concerns were noted in the report, including an old backfilled dam and the possibility of soil contamination along the eastern boundary near a neighbouring service station. A slight gradient from this station suggests a potential for fuel spill migration onto the site, though no visible staining or odours were observed.

The PSI recommended limited soil sampling at key locations to clarify uncertainties, including the backfilled dam, an unidentified object along the western boundary, and potential contamination from surface fuel spillage. If contaminated material is discovered during excavation, protocols for unexpected finds and waste classification will apply. Additionally, any imported soil must meet virgin excavated natural material (VENM) standards. The report concludes that, conditional upon the further investigation, the site appears suitable for the intended school development. The findings of the above report can be further summarised in the table below.

Table 2.1: Document Review

Item	Detail
Stage 1 Preliminary Site Investigation [Ref.73912.07.24 Stage1PSI]	
Document Information	Stage 1 PSI 10 July 2024
Prepared by	Airsafe
Prepared for	Dezign
Purpose	To establish whether activities have occurred on site which may have resulted in contamination of the land.
Findings	Airsafe did not identify significant on-site present or historical industrial or agricultural contaminating activities.
Conclusions and Recommendations	Airsafe concluded that the site could become suitable for the proposed development of a school although further investigation will be required to discern potential areas of environmental concern.

3. SITE INFORMATION

This section has been prepared using the information provided to us by the client, observations of the subject site and information gathered from our own research of the subject site and its surroundings.

3.1. Proposed Development

The development will involve foundational excavations for the primary school buildings, along with utility trenches for essential services such as water, sewer, and drainage systems. Additional grading may be required in areas like the former dam site to ensure stability. Landscaped areas are anticipated to include playgrounds and outdoor learning spaces with levelled surfaces, as well as green spaces such as gardens or shaded picnic areas. Car parks for staff and visitors are expected near the main entrance, alongside designated zones for bus and drop-off access, with landscaping buffers and stormwater management integrated into these areas. These elements will support the school's functional and aesthetic needs, tailored to the natural slope of the site.

3.2. Section 10.7 Planning Certificate

From our review of the planning certificate, we understand the following:

- The land does not comprise critical habitat under the listed environmental plans or planning proposals.
- The land is not an item of environmental heritage under the listed environmental plans or planning proposals.
- The land is not in a conservation area under the listed environmental plans or planning proposals.
- Council has not been notified by NSW fair trading that the land includes any residential premises that are listed on the loose-fill asbestos insulation register.
- The land is not proclaimed to be in a mine subsidence affected area.
- The land is not within a land slip affected area described and may be subject to slip.
- The land is not within a flood planning area and is subject to flood related controls.
- The land is not within an acid sulphate soil affected area.
- The land is not proclaimed to be a land contaminated area.
- The land is not proclaimed to be a biodiversity proclaimed area.
- No other items of significant environmental concerns relating to the site were identified.

3.3. Site Inspection

The following observations are based on the initial site inspection carried out by the field scientist on 25 September 2024, our review of the AIRSAFE report and observations of aerial photographs during our desktop review of the site. The site is located within undulating topography, near the base of an western facing mountain. The subject site was vacant at the time of the investigation. The site was covered by a grassed lawn with no structures of significance.

The northern neighbouring properties were various low density residential dwellings. The western neighbouring property appeared to be a rural property with no structures of significance in the vicinity of the common boundary. The eastern neighbouring property comprised a service station with a car wash.

No evidence of storage of industrial chemicals or waste was observed within the site. No visible or olfactory indicators of contamination, such as tanks, fill points or suspected asbestos containing material (ACM) were immediately obvious during our initial site inspection. There are no affected building notices or building rectification orders regarding this property.

3.4. Environmental Context

The following subsections describe the site's environmental context.

Topography

The subject site has an average elevation of 947mAHD, is undulating, while regional topography becomes mountainous towards the east and the west.

Geology

The site is underlain by Berry Siltstone, characterised by mid to dark grey siltstone, very fine grained sandstone, is highly fossiliferous, and contains sporadic dropped pebbles.

Hydrology

Based on our review of the surrounding topography, we consider that the groundwater flow in the vicinity of the site is sloped towards the southwest into the adjacent valley watercourse.

A search of NSW Office of Water groundwater databases indicated that numbers of groundwater bores are located throughout the area within 105m Northwest of the site.

Groundwater Dependent Ecosystems

No groundwater dependent ecosystems were identified onsite.

Groundwater Embargoes

The site is not affected by groundwater extraction or use restrictions.

Acid Sulphate Soils

No data presently available for ASS plan class for this site.

Sensitive Environments

Sensitive environments and major areas of natural vegetation were not identified on the site.

4. SITE HISTORY

4.1. Site History Summary

The site at Lot 1 Magpie Hollow Road, South Bowenfels, is a vacant parcel of approximately 11,720 square meters with a slight slope to the west. Historically, the site has remained largely undeveloped, with no significant industrial or agricultural activities recorded. Since 1950, aerial photographs show minimal alteration, except for the construction of a small dam between 1979 and 1984, which was later backfilled before 1999. No buildings or notable infrastructure have occupied the site, and minimal vegetation, mainly grassy patches, currently covers the area. The land is zoned for low-density residential use, surrounded by residential properties to the north and west, with a service station and car wash bordering the eastern side. This historical context suggests limited potential for contamination, though the proximity to the service station introduces a minor risk for surface fuel run-off along the eastern boundary.

4.2. Public Database Searches

Publicly accessible databases were used to obtain information about the site, such as whether it has been notified as contaminated, whether it has been a historical landfill, if it has been situated near businesses that may cause contamination, etc. The results are shown in Table 4.1.

Table 4.1: Public Database Search Results

Database	Information
Sites Notified as Contaminated to the EPA	The site was not listed in the NSW EPA Contaminated Land list
NSW EPA Licences	None identified on site.
NSW EPA Clean UP and Penalty Notices	None identified on site. None identified within 1km of the site.
Defence, Military Sites and UXO Areas	None identified on site. None identified within 2km of site.
Former Gasworks Sites	None identified on site. None identified within 2km of site.
PFAS Sites	The site was not located within the PFAS Investigation Zone
National Pollutant Inventory	None identified on site. None identified within 500m of the site.
Contaminated Legacy Areas	None identified on site. None identified within 2km of site.
Derelict Mines and Quarries	None identified on site. None identified within 500m of the site.
Historical Landfills	It is suspected that the dam has been filled in using on-site soil material
Businesses/activities that may cause contamination	The service station is located on the eastern end of the neighbouring block

4.3. NSW EPA Records

NSW EPA databases were reviewed as part of the preparation of this report. The sources information includes:

- Records maintained for contaminated land under Section 58 of the CLM Act 1997
- Licenced activities under the Protection of the Environment Operations Act (1997)
- Sites being investigated under the NSW EPA per-and polyfluoroalkyl substances (PFAS) investigation program

Our review of the site's immediate surroundings indicated the following:

- No records under Section 58 of the CLM Act 1997 were identified for the subject site
- The site has not been listed as notified as per the Guidelines on the Duty to Report Contamination (Section 60 of the CLM Act 1997)
- Licenced activity records were not found at the site under the POEO Act 1997
- Some current and historical notices/licences were identified for properties within the lotsearch report buffer, though it was deemed that their distance from the site made them unlikely to pose a contamination risk to the subject site.

Upon searching the NSW Environment Protection Authority (EPA) database, we have concluded that the site is not subject to any notices pertaining to the Contaminated Land Management Act (1997) or the Environmentally Hazardous Chemical Act (1985).

4.4. Integrity of Site History Information

Most information pertaining to the site's history was obtained from government organisations and sources. The accuracy and reliability of the sources is considered to be high, and these are widely accepted for contamination reporting. We note, though, that some information loss can be expected, considering a lack of specific land use details along with missing dates, as the information in our possession does not cover the entire history of the site.

5. CONCEPTUAL SITE MODEL (CSM)

A CSM is a representation of site related information regarding contamination sources, receptors and exposure pathways between those sources and receptors, as defined by NEPM (2013). Table 5.1 summarises the CSM, listing potential areas of environmental concern (AEC) and related contaminants of potential concern (CoPC). This has been summarised from the findings of the previous PSI by AIRSAFE.

Area of Environmental Concern	Potential Source	Contaminants of Potential Concern	Media of Concern	Rationale
Backfilled Dam Area	Historical fill material	Heavy Metals, Asbestos, PAHs, OCPs, OPPs, TRH, BTEX	Surface and Sub-surface Soil	Backfilled area with potential use of imported or unknown fill materials.
Western Boundary (Undetermined Object)	Possible historical land use	Heavy Metals, Asbestos, PAHs, OCPs, OPPs	Surface and Sub-surface Soil	Presence of an object in 1979 aerial imagery; potential for contaminant leaching.
Eastern Boundary (Near Service Station)	Adjacent service station	BTEX, PAHs, TRH, Heavy Metals	Surface Soil	Potential surface fuel run-off from service station with slight gradient towards site.
General Site Area	Unknown historical use	Lead, Asbestos	Surface Soil	Possible minor contamination from environmental fallout; no visible evidence of contamination.

6. SAMPLING, ANALYSIS AND QUALITY PLAN (SAQP)

6.1. Data Quality Objectives

Data Quality Objectives (DQOs) have been developed to define the quality and type of data required to achieve the project objectives. These DQOs have been prepared with reference to NEPM (2013) and the Guidelines for the NSW Site Auditor Scheme (2017). A seven step DQO approach has been adopted for this project, as detailed below.

Step 1: State the Problem

The CSM has identified potential sources of contamination that may pose human health and/or environmental risks. Fieldwork data will need to be obtained to assess the contamination status of the site, assess any risks relating to contamination in the content of the proposed development and assess whether remediation is required.

Step 2: Identify the Decisions of the Study

The objectives of this investigation require decisions in respect to the following questions:

1. Did the site inspection, or does the historical information identify potential contamination sources/AEC at the site?
2. Are any results above the SAC?
3. Are there any potential risks associated with contamination?
4. Is remediation required?
5. Is the site characterisation sufficient to provide adequate confidence in the above decisions?
6. Is the site suitable for the proposed development, or can the site be made suitable subject to further characterisation and/or remediation?

Step 3: Identify Information Inputs

Information inputs are required to address the decisions that need to be made in step 2. These inputs include the following:

1. Existing relevant environmental data from previous reports
2. Site observations and site history documentation
3. Sampling and laboratory analysis of soils
4. Subsurface observations and their variables
5. Field and laboratory QA/QC data

Step 4: Define the Study Boundary

Soil sampling was limited to within the site boundaries, specially the location of the former dam and the western boundary.

Step 5: Develop an Analytical Approach (or Decision Rule)

The data obtained from laboratory results will be assessed against relevant Tier 1 screening criteria (SAC). For this investigation, the results will be assessed as either above or below the SAC. When results exceed the SAC, this does not necessarily trigger the need for remediation or presents a risk to human health and the environment. Exceedances must be considered within the context of the CSM and valid SPR-linkages.

For this project, field QA/QC included analysis of intra-laboratory duplicates, a trip blank sample, a trip spike sample, and two field duplicates. The laboratory data is assessed against the laboratory quality criteria which is included with the laboratory results.

Step 6: Specify Limits on Decision Errors

Australian Ground Sciences has adopted quality assurance processes to reduce the chance of decision errors and the potential for false positives and false negatives.

A null hypothesis has been adopted for this project, that is, an assumption is made to be true in the absence of contrary evidence. The null hypothesis for this project is the following:

There is a complete SPR linkage between the identified CoPC in the CSM unless this linkage can be shown that it does not exist (or unlikely to exist).

Step 7 - Optimise the Design for Obtaining Data

It is impractical, difficult and unnecessary to test for every known soil contaminant. Therefore a resource effective design will be used in an optimum manner to achieve the objectives of our investigation. The design of the investigation can be adjusted after consultation or feedback from project stakeholders and is often an iterative process. To design the most effective and efficient investigation, consideration had to be made to various pieces of evidence used to select sample locations, the media being sampled and in which way they are collected and stored.

6.2. Soil Sampling Plan

Table 6.1 below outlines the soil sampling plan that we had adopted for this investigation.

Table 6.1: Soil Sampling Plan

Aspect	Input
<u>Sampling Location Plan</u>	The sampling locations were placed on a judgemental sampling plan and were broadly positioned for site coverage as well as targeted sampling.
<u>Set-out and Sampling Equipment</u>	One sampling location was drilled to 7m using a drilling rig, while the rest were hand augered to their respective termination or refusal depths.
<u>Sample Collection and Field QA/QC</u>	Soil samples were obtained from the fill and natural profiles in accordance with our standard field procedures. Samples were taken and selected on a judgemental basis from field observations. The sample depths are marked on the sample bags/jars and recorded on the borehole logs. Sample bags/jars are filled up to a level to minimise headspace. Samples for asbestos analysis were placed in marked zip-lock plastic bags. During sampling, soil at selected depths and locations was split into primary and duplicate samples for field QA/QC analysis. The primary and duplicate samples are split.
<u>Field Screening</u>	A portable Photoionisation Detector (PID) was used to screen samples for volatile organic compounds (VOCs). PID screening for VOCs was undertaken on soil samples using the soil sample headspace method. The fill profiles were visually inspected for fibre cement fragments. At least three shovels full of fill are placed in a sieve in order to identify fragments.
<u>De-contamination and Sample Preservation</u>	Sampling personnel used disposable nitrile gloves during sampling activities. Re-usable sampling equipment such as the shovel and hand auger were decontaminated using Decon 90 and potable water. Soil samples were preserved by immediate storage in an insulated

Aspect	Input
	sample container with ice or ice bricks. On completion of the fieldwork, the samples were stored temporarily in fridges being delivered in the insulated sample container to a NATA registered laboratory for analysis under standard chain of custody (CoC) procedures

The sampling locations (BH1 through BH12), which were carried out as part of our PSI fieldwork investigation are shown in Figure 6.1 below.

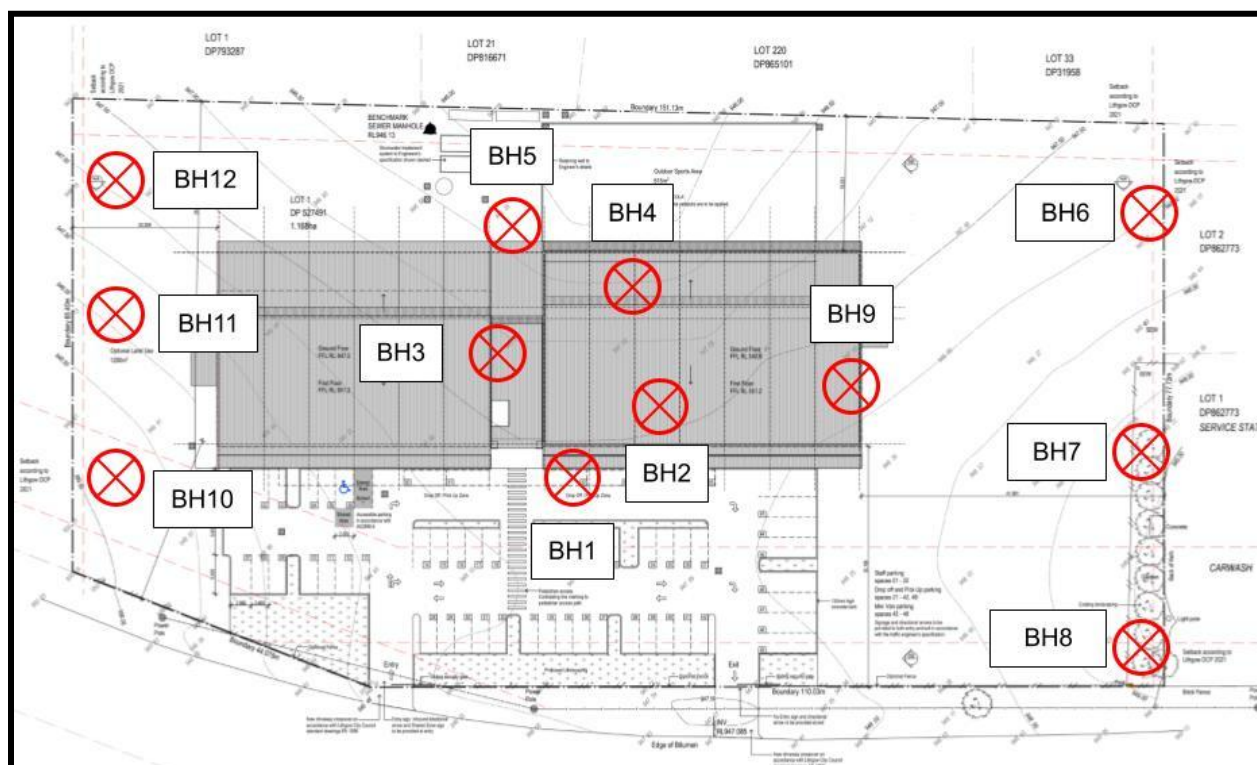


Figure 6.1: Testing Location Plan

6.3. Fieldwork and Laboratory Analysis

Our fieldwork was carried out on 25 September, 2024 and comprised the following:

- Conduct a site walkover and record observations.
- Utilise 12 boreholes to collect environmental soil samples.
- Collection of soil samples from the boreholes at broadly regular intervals and based on potential indicators of contamination, such as staining or olfactory signs;
- Despatch of selected soil samples to a NATA accredited laboratory for analysis of the following contaminants of concern (CoC)
 - Heavy metals - As, Cd, Cr, Cu, Pb, Hg, Ni, Zn
 - Total recoverable hydrocarbons (TRH)
 - Monocyclic aromatic hydrocarbons (benzene, toluene, ethylbenzene and xylene – BTEX)
 - Polycyclic aromatic hydrocarbons (PAH)
 - Organochlorine pesticides (OCP)
 - Polychlorinated biphenyls (PCB)
 - Total Phenols
 - Asbestos
 - PFAS Suite

Samples were sent to be analysed by a NATA accredited laboratory (ALS) using the analytical methods detailed in Schedule B(3) of NEPM 2013. A secondary ALS laboratory was used to complete additional duplicate testing. Refer to the laboratory results shown in the appendices.

Table 6.2: Laboratory Analysis Summary

Samples	Laboratory	Reference
All primary samples and most field QA/QC samples including (intra-laboratory duplicates, trip blanks, trip spikes and field rinsate samples)	ALS	

From our review and comparison of our sampling methods and QA/QC laboratory results (including inter-laboratory and intra-laboratory duplicates, trip blanks, and trip spikes), we consider that the data is considered suitable for the purposes of this investigation.

6.4. Quality Assurance and Control

- Details of Sampling Team

Soil sampling was completed by Larry Do, a suitability trained team member with sound training experience in the collection of environmental samples. Upon inspection of the site, the sampling locations were refined to capture potential contamination sources such as from underneath the overlain construction material, and adjacent to the dwelling itself.

- Decontamination Procedures

At each borehole location, the fill was excavated with a shovel whilst the residual clays were drilled with a hand auger. Between each borehole location, the shovel and hand auger were cleaned with DECON90 and a wire brush to reduce the chance of cross contamination between samples.

- Chain of Custody Details

The soil samples obtained from site were transported to the laboratory with a chain of custody (CoC) form which included the details of the sampler, sample identifiers, collection date, tests (or combination of tests) to be performed, sample preservation method, sample relinquish date and sample receive date. The CoC of the laboratory used (ALS) is attached in Appendix A with its respective laboratory results.

Logging

Borehole logs were prepared for each sampling location and indicated the sample collected, the date, site address, sampler, and duplicate samples. Chemical analyses and site/weather observations were completed in a separate form, which have been kept in their records.

Trip Blanks

One trip blank was prepared by ALS prior to the completion of our fieldwork. This sample was taken to site and stored in the sample 'esky' as the site samples. The trip blank was tested and was found to be within an acceptable range.

Field Instrument Calibrations

Prior to its use for volatile organic compounds, the PID was calibrated by Kennards Hire.

Sample Holding Times

All holding times were reported and were all within the required ranges.

Laboratory Accreditation and Analytical Methods Used

ALS was used as our laboratory, which is NATA accredited to ISO17025 (ALS accreditation number 825). Laboratory QA/QC is provided on the laboratory reports in the appendix.

Assessment of QA/QC Compared to Data Quality Objectives

The following summarises our assessment of the project's QA/QC:

- Well trained and briefed staff were used for sampling
- All borehole logs, CoC forms and calibration were appropriately completed and reviewed
- All samples were sent to and received by the laboratories in an appropriate method
- Laboratory analytical results include laboratory QA/QC and the limits of reporting were appropriate and consistent between laboratories
- Australian standards and industry best practices were followed during sampling, transportation and laboratory testing
- All steps were taken to reduce the chance of cross contamination between samples
- The frequency of laboratory trip spikes, trip blanks and duplicate (intra and inter laboratory) samples were appropriate

7. SITE ASSESSMENT CRITERIA (SAC)

7.1. Human Health

The HIL-A NEPM health investigation level was selected for the proposed development, that is, 'Residential with minimal opportunities for soil access, including dwellings with fully and permanently paved yard space such as high-rise buildings and flats.' Health Screening levels (HSLs) for 'residential with accessible soils' exposure scenario (HIL-A) were calculated based on conservative assumptions including a 'sand' type and depth interval of 0 m to 1m.

Asbestos was assessed against the HSL-A criteria. Asbestos field screening was undertaken. The SAC was based on the analysis of 45g asbestos identification analysis samples by the laboratory.

7.2. Environment and Ecology

Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) were selected to assess the risk of particular organic material and heavy metals to ecosystems. We have assumed cation exchange capacity (CEC) and pH values for clay soils typical of the site's location. Ecological screening levels (ESL) guidelines for fine grained soils were selected to evaluate the risk of previous site activities to nearby ecosystems within the top 2m of soil. This method is considered to be adequate for Tier 1 screening for the proposed project. The adopted EILs were adopted using conservative values for typical CEC and pH for silty clays.

7.3. Petroleum Hydrocarbon Management Limits

Management limits for petroleum hydrocarbons (Schedule B1 of NEPM 2013) were considered applicable to the project.

8. RESULTS

8.1. Tier One Risk Assessment and CSM Review

For a contaminant to be a risk to a receptor, the following three conditions must be present:

1. Source: A contaminant needs to be present
2. Pathway: A mechanism where a receptor can be exposed to a particular contaminant
3. Receptor: A human or ecological unit that may be impacted following exposure

All the conditions must be met. If one or more of the above components, the potential for adverse risks is low.

8.2. Human Health and Environmental (Ecological) Assessment

Table 8.1 summarises the soil laboratory results compared to the relevant SAC in the attached report tables.

Table 8.1: Summary of Soil Laboratory Results – Human Health and Environmental (Ecological)

Analyte	Results Compared to SAC
Heavy Metals	All Heavy Metals were below the SAC
TRH	All TRH results were below the SAC.
BTEX	All BTEX results were below the SAC.
PAHs	All PAH results were below the SAC.
OCPs and OPPs	All OCP and OPP results were below the SAC.
PCBs	All PCB results were below the SAC.
Asbestos	Sample BH4 (0-0.1m) exceeded the adopted SAC for asbestos.
PFAS	All PFAS and PFOS results were below the SAC

9. DISCUSSION

9.1. Soil Investigation

The investigation focused on sampling surficial fill and natural soils across 12 boreholes throughout the site. Laboratory analysis indicated that all tested contaminants in the fill material were below the Site Assessment Criteria (SACs), with the exception of asbestos detected in the fill at borehole BH4. Despite this finding, the risk to human health is considered low given the context of the proposed land use and site plans.

The asbestos detection appears to be localised at a single borehole location, suggesting limited distribution rather than widespread contamination. Based on the boreholes from the geotechnical report carried out by AGS (ref. 24524GE), the site appears to comprise natural top fill overlying residual soils and so the risk of contaminated imported fill is considered low. Moreover, the majority of the site's soils, including the fill material with asbestos, will need to be removed and validated appropriately as part of the remediation process.

Given that most tested contaminants were within safe limits across the site, and considering the planned soil removal and encapsulation as part of construction, any potential risk associated with asbestos contamination in the identified AEC will be mitigated.

9.2. Refined Conceptual Site Model (CSM)

Table 9.1 below summarises our refined conceptual site model which shows how the identified areas of environmental concern have been addressed with results to date.

Table 9.1: Refined Conceptual Site Model

Area of Environmental Concern	Potential Source	Contaminants of Potential Concern	Media of Concern	Rationale	Comments by AGS
Backfilled Dam Area	Historical fill material	Heavy Metals, Asbestos, PAHs, OCPs, OPPs, TRH, BTEX	Surface and Sub-surface Soil	Backfilled area with potential use of imported or unknown fill materials.	Asbestos identified in BH4 (0-0.1m). Remediation Action Plan and remediation during construction is required.
Western Boundary (Undetermined Object)	Possible historical land use	Heavy Metals, Asbestos, PAHs, OCPs, OPPs	Surface and Sub-surface Soil	Presence of an object in 1979 aerial imagery; potential for contaminant leaching.	No samples exceed the SAC. Residual risk is low.
Eastern Boundary (Near Service Station)	Adjacent service station	BTEX, PAHs, TRH, Heavy Metals	Surface Soil	Potential surface fuel run-off from service station with slight gradient towards site.	No samples exceed the SAC. Residual risk is low.
General Site Area	Unknown historical use	Lead, Asbestos	Surface Soil	Possible minor contamination from environmental fallout; no visible evidence of contamination.	Remains low based on review of boreholes from geotechnical report, which shows that upper soil layers comprise of natural topfill. Unexpected Finds Protocol to be carried out to manage potential risk of unexpected contamination.

10. CONCLUSIONS AND RECOMMENDATIONS

The review of both the AIRSAFE Preliminary Site Investigation (PSI) and our own findings highlighted potential contamination sources, such as hazardous materials potentially introduced through imported fill, and possible contaminants from adjacent properties.

Our investigation determined that the site could be made suitable for the proposed school development if a series of remediation and monitoring actions are implemented. The primary recommendation is to carry out a Remediation Action Plan (RAP) specifically addressing the asbestos identified in borehole BH4. This plan should outline steps for safe asbestos removal and appropriate handling and containment to prevent exposure risks during and after construction activities. Given the likelihood of encountering additional unexpected materials during excavation, an Unexpected Finds Protocol (UFP) should be established to guide contractors and environmental consultants in identifying and managing unforeseen contamination, including asbestos, heavy metals, and other hazardous materials. This protocol will ensure that unexpected finds are managed in a safe, compliant manner, minimising potential risks to workers, future users, and the environment.

To manage excavated soils, waste classification assessments should be assigned to all soil removed from the site to facilitate proper handling, transport, and disposal in accordance with NSW environmental regulations. Soil classification and handling processes will be essential in maintaining environmental compliance and ensuring that no contaminated materials are inappropriately reused or stored. All future reports, including results from soil classification and any ongoing waste assessments, should be submitted to Australian Ground Sciences for review.

If all these recommendations are carefully followed, the site can meet suitability standards for development as a school. However, the possibility of encountering unexpected finds remains, and any such occurrences must be handled according to a UFP's guidelines to maintain compliance with environmental and safety standards throughout the project lifecycle. It is most appropriate that a UFP is carried out immediately prior to excavation commencement once the principal contractor has been engaged to carry out the works.

11. LIMITATIONS

Australian Ground Sciences accepts no responsibility for any unidentified contamination issues at the site. If there are any unexpected finds, problems or subsurface features during development work, this must be inspected by an environmental consultant as soon as possible.

Unrecorded excavation and burial may have previously occurred on the site in the past. These may be discovered in discrete locations across the site during excavation works.

The conclusions presented in this report are based on investigation of conditions at specific locations, chosen to be as representative as possible under the given circumstances, visual observations of the site and immediate surroundings and documents reviewed as described in the report.

Subsurface soil and rock conditions encountered between investigation locations may be found to be different from those expected. Groundwater conditions may also vary, especially after climatic changes.

The investigation and preparation of this report have been undertaken in accordance with accepted practice for environmental consultants, with reference to applicable environmental regulatory authority and industry standards, guidelines and the assessment criteria outlined in the report.

Where information has been provided by third parties, Australian Ground Sciences has not undertaken any verification process, except where specifically stated in the report.

We accept no responsibility for potentially asbestos containing materials that may exist at the site. These materials may be associated with demolition of pre-1990 constructed buildings or fill material at the site.

This report has been prepared for the outlined specific project in the specific location under specific circumstances. The report becomes invalid if any of these vary.

12. APPENDICES



FOLIO: 1/527491

SEARCH DATE	TIME	EDITION NO	DATE
4/10/2022	2:36 PM	3	20/12/2016

LAND

LOT 1 IN DEPOSITED PLAN 527491
AT SOUTH BOWENFELS
LOCAL GOVERNMENT AREA LITHGOW CITY
PARISH OF LETT COUNTY OF COOK
TITLE DIAGRAM DP527491

FIRST SCHEDULE

ROSATON PTY LIMITED (T AM15782)

SECOND SCHEDULE (1 NOTIFICATION)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

Steele & Co Law & Conveyancing
PO Box 1504
BATHURST NSW 2795



PLANNING CERTIFICATE UNDER SECTION 10.7, ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

CERTIFICATE NO: PLANC2-22-0152

YOUR REF: 192290
RECEIPT NO: 354625

PROPERTY NO: 78230
ISSUE DATE: 29/09/2022

PROPERTY ADDRESS: Great Western Highway BOWENFELS NSW 2790
OWNER: Rosaton Pty Ltd

LAND PARCEL DESCRIPTIONS: Lot 1 DP 527491

IN ACCORDANCE WITH SECTION 10.7(2) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979, IT IS CERTIFIED THAT AT THE DATE OF THIS CERTIFICATE THE FOLLOWING PRESCRIBED MATTERS RELATE TO THE LAND:

1. Names of relevant planning instruments and development control plans

(1) The name of each planning instrument and development control plan that applies to the carrying out of development on the land:

Lithgow Local Environment Plan 2014

Lithgow Development Control Plan 2021

Further, the following State Environmental Planning Policies apply to the land:

State Environmental Planning Policy (Housing) 2021

State Environmental Planning Policy (Planning Systems) 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021

State Environment Planning Policy (Resilience and Hazards) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Industry and Employment) 2021

State Environmental Planning Policy (Resource and Energy) 2021

State Environmental Planning Policy (Primary Production) 2021

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development

A copy of the SEPPs are available on the NSW Legislation website- www.legislation.nsw.gov.au

(2) The name of each proposed environmental planning instrument and draft development control plan which is or has been subject to community consultation or public exhibition under the Act, that will apply to the carrying out of development on land:

The following draft State Environmental Planning Policies apply to the land:

- Draft Environment SEPP
- Draft Remediation of Land SEPP

A copy of the draft SEPPs are available on the NSW Planning Portal website at <https://www.planningportal.nsw.gov.au/draftplans>

- Employment Zone Reform
Public exhibition of the translation of existing Business and Industrial zones into the new Employment zones will be on exhibition until **12 July 2022**. To view the exhibition platform please visit the NSW Department of Planning & Environments at: <https://www.planning.nsw.gov.au/employment-zones-reform>

2. Zoning and land use under relevant planning instruments

(a) Identify the zone:

R2 LOW DENSITY RESIDENTIAL

(b) The purposes for which development in the zone:

(i) May be carried out without development consent:

Home occupations; roads;

(ii) May not be carried out except with development consent:

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Emergency services facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Health services facilities; Home-based child care; Home businesses; Kiosks; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Pond-based aquaculture; Recreation areas; Respite day care centres; Seniors housing; Shop top housing; Tank-based aquaculture; Water recycling facilities; Water supply systems

(iii) Is prohibited:

Any development not specified in item (i) or (ii).

(c) whether additional permitted uses apply to the land:

Nil.

(d) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling- house on the land and, if so, the fixed minimum land dimensions:

800m² as per the Lot Size Map for Lithgow Local Environmental Plan 2014.

- Note:**
1. For zones R1 General Residential and R2 Low Density Residential, no minimum land size applies for a 'dwelling-house' and the above land size applies to the minimum lot size for the purpose of a Torrens Title subdivision or additional dwellings in relation to Clause 4.1A of LEP2014.
 2. A 'dwelling-house' may be permissible if it does not meet the minimum lot size for zones RU1, RU2, E3, E4, RU5 and R5 if it can comply with Clause 4.2A or 4.2B of LEP2014. A search in this regard may be sought separately from Council.
 3. The above minimum land size is as per the 'Lot Size Map' for the purpose of a subdivision (Clause 4.1 of LEP2014) and does not necessarily state that a 'dwelling-house' is permissible in that particular zoning.

(e) Whether the land is in an area of outstanding biodiversity value under the *Biodiversity Conservation Act 2016*:

No.

(f) Whether the land is in a conservation area (however described):

No.

(g) Whether an item of environmental heritage (however described) is located on the land:

No.

3. Contributions Plans

The name of each contributions plan under the Act, Division 7.1 applying to the land, including draft contribution plans applying to the land:

Lithgow Section 94A (Section 7.12) Development Contributions Plan 2015 applies to this land.

4. Complying Development

- (1) If the land is land on which complying development may be carried out under each of the complying development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that policy, clause 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) or 1.19:**

YES - Some developments on this land may constitute Complying Development provided it comply with the provisions of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

- (2) If complying development may not be carried out on that land because of one of the clause 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy, the reasons why it may not be carried out under the clause:**

N/A.

Note: The above responses apply only to the land exemptions for Exempt and Complying Development set out in clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*. Other clauses within the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* may prohibit complying development from occurring on the subject land.

5. Exempt development

- (1) If the land is land on which exempt development may be carried out under each of the exempt development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that policy, clause 1.16 (1) (b1) to (d), or 1.16A:**

Yes. Some developments on this land may constitute Exempt Development provided it comply with the provisions of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

- (2) If exempt development may not be carried out on the land because of clause 1.16(1)(b1) to (d) or 1.16A, the reasons why it may not be carried out under the clause:**

N/A.

6. Affected Building notices and building product rectification orders

If Council is aware of any affected building notice, building product rectification order or notice of intention to make a building product rectification order that is in force in relations to the land is outstanding, as per the *Building Products (Safety) Act 2017*?

No.

7. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Section 1 makes provisions in relation to the acquisition of the land by a public authority of the State, as referred to in the Act Section 3.15:

No.

8. Road widening and road realignment

Whether the land is affected by any road widening or road realignment under:

- a) the *Roads Act 1993*, Part 3, Division 2, or**
- b) an environmental planning instrument, or**
- c) a resolution of the council**

The property fronts a Council managed road. No widening or realignment is proposed by Council for this road as at the date of this certificate.

9. Flood related development controls

(1) If the land or part of the land is within the flood planning area and subject to flood related development controls.

No - The land or part of the land is not within the Interim Flood Planning Area (IFPA) identified in the Lithgow Flood Study 2017 or the land is outside the Lithgow Flood Study area. If the land is outside the Lithgow Flood Study area, flood related assessment requirements may still apply to the land.

(2) If the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.

No.

10. Council and other public authority policies on hazard risk restrictions

Whether land is affected by an adopted that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils, contamination, aircraft noise, salinity, coastal hazards, sea level rise or another risk, other than flooding:

No.

11. Bush Fire Prone Land

If any of the land is bush fire prone land, designated by the commissioner of the NSW Rural Fire Service under the Act, section 10.3, a statement that all or some of the land is bush fire prone land:

Yes - The land is partially bushfire prone as identified on Council's adopted bushfire mapping.

12. Loose- fill asbestos insulation

If the land includes residential premises, within the meaning of the *Home Building Act 1989*, Part 8, Division 1A, that are listed on the Register kept under that Division?

No.

13. Mine Subsidence

Whether the land is declared to be a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017*.

No.

14. Paper subdivision information

The name of a development plan adopted by a relevant authority that applies to the land or is proposed to be subject to a ballot:

NA.

15. Property Vegetation Plans

If the land is land in relation to which a property vegetation plan is approved and in force under the *Native Vegetation Act 2003*, Part 4, a statement to that effect, but only if council has been notified of the existence of the plan by the person or body that approved the plan under that Act.

No.

16. Biodiversity stewardship sites

If the land is a biodiversity stewardship site under a biodiversity stewardship agreement under the *Biodiversity Conservation Act 2016*, Part 5 (but only if the Council has been notified of the existence of the agreement by the Chief Executive of the office of Environment & Heritage). Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that is taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*:

No.

17. Biodiversity Certified Land

If the land is biodiversity certified land under *Biodiversity Conservation Act 2016*) Part 8? Note: Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*:

No.

18. Orders under *Trees (Disputes Between Neighbours) Act 2006*

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the Council has been notified of the order):

No.

19. Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works.

NA.

20. State Environmental Planning Policy (Western Sydney Aerotropolis) 2020

NA.

21. Development consent conditions for seniors housing

If *State Environmental Planning policy (Housing) 2021*, Chapter 3, Part 5 applies to the land, any conditions of a development consent granted after 11 October 2007 in relation to the land that are of the kind set out in that Policy, clause 88(2):

No.

22. Site compatibility certificates and development consent conditions for affordable rental housing:

- (1) Whether there is a current site compatibility certificate under *State Environmental Planning Policy (Housing) 2021*, or a former site compatibility certificate, of which council is aware, in relation to proposed development on land:**

No.

- (2) If *State Environmental Planning Policy (Housing) 2021*, Chapter 2, Part 2, Division 1 or 5 applies to the land, any conditions of a development consent in relation to the land that are of a kind referred to in that Policy clause 21(1) or 40(1).**

NA.

The following matters are prescribed under Section 290 of the *Environmental Planning & Assessment Regulation 2021* by section 59(2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

- (a) That the land to which the certificate relates is significantly contaminated land—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued:

No.

- (b) That the land to which the certificate relates is subject to a management order—if it is subject to such an order at the date when the certificate is issued:

No.

- (c) That the land to which the certificate relates is the subject of an approved voluntary management proposal—if it is the subject of such an approved proposal at the date when the certificate is issued:

No.

- (d) That the land to which the certificate relates is subject to an ongoing maintenance order—if it is subject to such an order at the date when the certificate is issued:

No.

- (e) That the land to which the certificate relates is the subject of a site audit statement—if a copy of such a statement has been provided at any time to the local authority issuing the certificate:

No.



for the GENERAL MANAGER
LITHGOW CITY COUNCIL

For any further information, please contact the Economic Development & Environment Department on (02) 63549999.

DISCLAIMER

THIS SECTION 10.7 CERTIFICATE CONTAINS INFORMATION PROVIDED TO LITHGOW CITY COUNCIL BY OTHER AUTHORITIES AND IS AS CURRENT AS THE LATEST INFORMATION AVAILABLE TO COUNCIL AT THE TIME OF PRODUCTION OF THIS DOCUMENT. IT IS STRONGLY RECOMMENDED THAT YOU CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE ACCURACY OF THE INFORMATION.



CERTIFICATE OF ANALYSIS

Work Order	: ES2424007	Page	: 1 of 25
Client	: CASH SALES SYDNEY	Laboratory	: Environmental Division Sydney
Contact	: Sami Azzi	Contact	: Customer Services ES
Address	: Australian Ground Sciences 2/65 Marigold Street Revesby 2214	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: -----	Telephone	: +61-2-8784 8555
Project	: 24524 South Bowenfels	Date Samples Received	: 25-Sep-2024 18:00
Order number	: -----	Date Analysis Commenced	: 25-Sep-2024
C-O-C number	: -----	Issue Date	: 4-Oct-2024 10:35
Sampler	: Gaby Eliya Eid		
Site	: -----		
Quote number	: EN/444		
No. of samples received	: 26		
No. of samples analysed	: 25		



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Descriptive Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alana Smylie	Team Leader - Asbestos	Newcastle - Asbestos, Mayfield West, NSW
Ankit Joshi	Senior Chemist - Inorganics	Sydney Inorganics, Smithfield, NSW
Brendan Schrader	Laboratory Technician	Newcastle - Asbestos, Mayfield West, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benzo(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1,2,3-cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EA200: Asbestos Identification Samples were analysed by Polarised Light Microscopy including dispersion staining.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- **EA200 Legend**
- EA200 'Am' Amosite (brown asbestos)
- EA200 'Cr' Crocidolite (blue asbestos)
- EA200 'Ch' Chrysotile (white asbestos)
- EA200: 'UMF' Unknown Mineral Fibres. "-" indicates fibres detected may or may not be asbestos fibres. Confirmation by alternative techniques is recommended.
- EA200: Analysis of asbestos from swabs and tapes is not covered under the current scope of NATA accreditation.
- EP080: Samples not received in a suitable time frame to conduct the analysis within the recommended holding time.
- Unless otherwise stated, analytical work for this work order will be conducted at ALS Sydney, NATA accreditation no. 825, site no. 10911.
- EP080: The trip spike and its control have been analysed for volatile TPH and BTEXN only. The trip spike and control were prepared in the lab using reagent grade sand spiked with petrol. The spike was dispatched from the lab and the control retained.
- EA200 'Trace' - Asbestos fibres ("Free Fibres") detected by trace analysis per AS4964. The result can be interpreted that the sample contains detectable 'respirable' asbestos fibres
- EA200: For samples larger than 30g, the <2mm fraction may be sub-sampled prior to trace analysis as outlined in ISO23909:2008(E) Sect 6.3.2-2
- EA200: 'Yes' - Asbestos detected by polarised light microscopy including dispersion staining.
- EA200: 'No*' - No asbestos found, at the reporting limit of 0.1g/kg, by polarised light microscopy including dispersion staining. Asbestos material was detected and positively identified at concentrations estimated to be below 0.1g/kg.
- EA200: 'No' - No asbestos found at the reporting limit 0.1g/kg, by polarised light microscopy including dispersion staining.
- EA200: N/A - Not Applicable

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID	
Compound	CAS Number	Sampling date / time		
		LOR	Unit	
EA055: Moisture Content (Dried @ 105-110°C)				
Moisture Content		1.0	%	
EA200: AS 4964 - 2004 Identification of Asbestos in Soils				
Asbestos Detected	1332-21-4	0.1	g/kg	
Asbestos (Trace)	1332-21-4	-	-	
Asbestos Type	1332-21-4	-	-	
Sample weight (dry)		0.01	g	
APPROVED IDENTIFIER:		-	-	
Synthetic Mineral Fibre		-	-	
Organic Fibre		-	-	
EG005(ED093)T: Total Metals by ICP-AES				
Arsenic	7440-38-2	5	mg/kg	
Cadmium	7440-43-9	1	mg/kg	
Chromium	7440-47-3	2	mg/kg	
Copper	7440-50-8	5	mg/kg	
Lead	7439-92-1	5	mg/kg	
Nickel	7440-02-0	2	mg/kg	
Zinc	7440-66-6	5	mg/kg	
EG035T: Total Recoverable Mercury by FIMS				
Mercury	7439-97-6	0.1	mg/kg	
EP066: Polychlorinated Biphenyls (PCB)				
Total Polychlorinated biphenyls		0.1	mg/kg	
EP068A: Organochlorine Pesticides (OC)				
alpha-BHC	319-84-6	0.05	mg/kg	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	
beta-BHC	319-85-7	0.05	mg/kg	
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	
delta-BHC	319-86-8	0.05	mg/kg	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID		BH1 (0-0.1m)	BH1 (0.3-0.1m)	BH2 (0-0.1m)	BH2 (0.4-0.5m)	BH3 (0-0.1m)
Compound		CAS Number	LOR	Sampling date / time	Unit	ES2424007-001	ES2424007-002	ES2424007-003	ES2424007-004	ES2424007-005
						Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued										
Heptachlor		76-44-8	0.05		mg/kg	----	<0.05	----	<0.05	----
Aldrin		309-00-2	0.05		mg/kg	----	<0.05	----	<0.05	----
Heptachlor epoxide		1024-57-3	0.05		mg/kg	----	<0.05	----	<0.05	----
^ Total Chlordane (sum)		-----	0.05		mg/kg	----	<0.05	----	<0.05	----
trans-Chlordane		5103-74-2	0.05		mg/kg	----	<0.05	----	<0.05	----
alpha-Endosulfan		959-98-8	0.05		mg/kg	----	<0.05	----	<0.05	----
cis-Chlordane		5103-71-9	0.05		mg/kg	----	<0.05	----	<0.05	----
Dieldrin		60-57-1	0.05		mg/kg	----	<0.05	----	<0.05	----
4,4'-DDE		72-55-9	0.05		mg/kg	----	<0.05	----	<0.05	----
Endrin		72-20-8	0.05		mg/kg	----	<0.05	----	<0.05	----
beta-Endosulfan		33213-65-9	0.05		mg/kg	----	<0.05	----	<0.05	----
^ Endosulfan (sum)		115-29-7	0.05		mg/kg	----	<0.05	----	<0.05	----
4,4'-DDD		72-54-8	0.05		mg/kg	----	<0.05	----	<0.05	----
Endrin aldehyde		7421-93-4	0.05		mg/kg	----	<0.05	----	<0.05	----
Endosulfan sulfate		1031-07-8	0.05		mg/kg	----	<0.05	----	<0.05	----
4,4'-DDT		50-29-3	0.2		mg/kg	----	<0.2	----	<0.2	----
Endrin ketone		53494-70-5	0.05		mg/kg	----	<0.05	----	<0.05	----
Methoxychlor		72-43-5	0.2		mg/kg	----	<0.2	----	<0.2	----
^ Sum of Aldrin + Dieldrin		309-00-2/60-57-1	0.05		mg/kg	----	<0.05	----	<0.05	----
^ Sum of DDD + DDE + DDT		72-54-8/72-55-9/50-2	0.05		mg/kg	----	<0.05	----	<0.05	----
EP075(SIM)E: Polynuclear Aromatic Hydrocarbons										
Naphthalene		91-20-3	0.5		mg/kg	----	<0.5	----	<0.5	----
Acenaphthylene		208-96-8	0.5		mg/kg	----	<0.5	----	<0.5	----
Acenaphthene		83-32-9	0.5		mg/kg	----	<0.5	----	<0.5	----
Fluorene		86-73-7	0.5		mg/kg	----	<0.5	----	<0.5	----
Phenanthrene		85-01-8	0.5		mg/kg	----	<0.5	----	<0.5	----



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID		BH1 (0-0.1m)	BH1 (0.3-0.1m)	BH2 (0-0.1m)	BH2 (0.4-0.5m)	BH3 (0-0.1m)
Compound				Sampling date / time	Unit	25-Sep-202400:00	25-Sep-202400:00	25-Sep-202400:00	25-Sep-202400:00	25-Sep-202400:00
				CAS Number	LOR	ES2424007-001	ES2424007-002	ES2424007-003	ES2424007-004	ES2424007-005
						Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued										
Anthracene	120-12-7	0.5	mg/kg			<0.5			<0.5	
Fluoranthene	206-44-0	0.5	mg/kg			<0.5			<0.5	
Pyrene	129-00-0	0.5	mg/kg			<0.5			<0.5	
Benz(a)anthracene	56-55-3	0.5	mg/kg			<0.5			<0.5	
Chrysene	218-01-9	0.5	mg/kg			<0.5			<0.5	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg			<0.5			<0.5	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg			<0.5			<0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg			<0.5			<0.5	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg			<0.5			<0.5	
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg			<0.5			<0.5	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg			<0.5			<0.5	
^ Sum of polycyclic aromatic hydrocarbons		0.5	mg/kg			<0.5			<0.5	
^ Benzo(a)pyrene TEQ (zero)		0.5	mg/kg			<0.5			<0.5	
^ Benzo(a)pyrene TEQ (half LOR)		0.5	mg/kg			0.6			0.6	
^ Benzo(a)pyrene TEQ (LOR)		0.5	mg/kg			1.2			1.2	
EP080/071: Total Petroleum Hydrocarbons										
C6 - C9 Fraction		10	mg/kg			<10			<10	
C10 - C14 Fraction		50	mg/kg			<50			<50	
C15 - C28 Fraction		100	mg/kg			<100			<100	
C29 - C36 Fraction		100	mg/kg			<100			<100	
^ C10 - C36 Fraction (sum)		50	mg/kg			<50			<50	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions										
C6 - C10 Fraction	C6_C10	10	mg/kg			<10			<10	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg			<10			<10	
>C10 - C16 Fraction		50	mg/kg			<50			<50	
>C16 - C34 Fraction		100	mg/kg			<100			<100	

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID			BH1 (0-0.1m)	BH1 (0.3-0.1m)	BH2 (0-0.1m)	BH2 (0.4-0.5m)	BH3 (0-0.1m)
Compound	CAS Number	LOR	Sampling date / time	Unit	25-Sep-2024 00:00	25-Sep-2024 00:00	25-Sep-2024 00:00	25-Sep-2024 00:00	25-Sep-2024 00:00
					ES2424007-001	ES2424007-002	ES2424007-003	ES2424007-004	ES2424007-005
					Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
>C34 - C40 Fraction		100	mg/kg		<100			<100	
^ >C10 - C40 Fraction (sum)		50	mg/kg		<50			<50	
^ >C10 - C16 Fraction minus Naphthalene (F2)		50	mg/kg		<50			<50	
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg			<0.2		<0.2	
Toluene	108-88-3	0.5	mg/kg			<0.5		<0.5	
Ethylbenzene	100-41-4	0.5	mg/kg			<0.5		<0.5	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg			<0.5		<0.5	
ortho-Xylene	95-47-6	0.5	mg/kg			<0.5		<0.5	
^ Sum of BTEX		0.2	mg/kg			<0.2		<0.2	
^ Total Xylenes		0.5	mg/kg			<0.5		<0.5	
Naphthalene	91-20-3	1	mg/kg			<1		<1	
EP066S: PCB Surrogate									
Decachlorobiphenyl	2051-24-3	0.1	%			92.2		94.0	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%			108		117	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%			84.5		83.4	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%			83.9		91.7	
2-Chlorophenol-D4	93951-73-6	0.5	%			86.0		86.9	
2,4,6-Tribromophenol	118-79-6	0.5	%			65.6		57.4	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%			87.8		86.2	
Anthracene-d10	1719-06-8	0.5	%			85.6		87.5	
4-Terphenyl-d14	1718-51-0	0.5	%			80.7		114	
EP080S: TPH(V)/BTEX Surrogates									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		BH1 (0-0.1m)		BH1 (0.3-0.1m)		BH2 (0-0.1m)		BH2 (0.4-0.5m)		BH3 (0-0.1m)	
		CAS Number	LOR	Sampling date / time	Unit	Result	Result	Result	Result	Result	Result	Result	Result
Compound						ES2424007-001	ES2424007-002	ES2424007-003	ES2424007-004	ES2424007-005			
EP080S: TPH(V)/BTX Surrogates - Continued													
1,2-Dichloroethane-D4		17060-07-0	0.2	%		75.5			86.1				
Toluene-D8		2037-26-5	0.2	%		93.0			102				
4-Bromofluorobenzene		460-00-4	0.2	%		116			111				



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		Sampling date / time		Unit		BH5 (0-0.1m)	BH4 (0-0.1m)	BH6 (0-0.1m)	BH6 (0.5-0.6m)	BH7 (0-0.1m)
Compound	CAS Number	LOR	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
EA055: Moisture Content (Dried @ 105-110°C)												
Moisture Content	----	1.0	%	14.7	16.9	12.1	----	22.1	----	----	----	22.1
EA200: AS 4964 - 2004 Identification of Asbestos in Soils												
Asbestos Detected	1332-21-4	0.1	g/kg	No	Yes	----	No	No	No	No	No	No
Asbestos (Trace)	1332-21-4	-	-	No	Yes	----	No	No	No	No	No	No
Asbestos Type	1332-21-4	-	---	-	Ch+Am+Cr	----	-	-	-	-	-	-
Sample weight (dry)	-----	0.01	g	715	584	----	715	584	598	642	598	642
APPROVED IDENTIFIER:	-----	-	---	A.SMYLIE	A.SMYLIE	----	A.SMYLIE	A.SMYLIE	A.SMYLIE	A.SMYLIE	A.SMYLIE	A.SMYLIE
Synthetic Mineral Fibre	-----	-	---	No	No	----	No	No	No	No	No	No
Organic Fibre	-----	-	---	No	No	----	No	No	No	No	No	No
EG005(ED093)T: Total Metals by ICP-AES												
Arsenic	7440-38-2	5	mg/kg	12	10	19	12	10	19	25	19	25
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	7440-47-3	2	mg/kg	30	25	28	30	25	28	35	28	35
Copper	7440-50-8	5	mg/kg	14	36	28	14	36	28	42	28	42
Lead	7439-92-1	5	mg/kg	48	78	88	48	78	88	98	88	98
Nickel	7440-02-0	2	mg/kg	6	15	8	6	15	8	8	15	8
Zinc	7440-66-6	5	mg/kg	111	159	213	111	159	213	247	159	247
EG035T: Total Recoverable Mercury by FIMS												
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EP066: Polychlorinated Biphenyls (PCB)												
Total Polychlorinated biphenyls	----	0.1	mg/kg	----	----	<0.1	----	----	<0.1	----	----	----
EP068A: Organochlorine Pesticides (OC)												
alpha-BHC	319-84-6	0.05	mg/kg	----	----	<0.05	----	----	<0.05	----	----	----
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	----	----	<0.05	----	----	<0.05	----	----	----
beta-BHC	319-85-7	0.05	mg/kg	----	----	<0.05	----	----	<0.05	----	----	----
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	----	----	<0.05	----	----	<0.05	----	----	----
delta-BHC	319-86-8	0.05	mg/kg	----	----	<0.05	----	----	<0.05	----	----	----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID					
Compound	CAS Number	LOR	Sampling date / time	BH4 (0-0.1m)	BH5 (0-0.1m)	BH6 (0-0.1m)	BH6 (0.5-0.6m)	BH7 (0-0.1m)
			Unit	25-Sep-2024 00:00	25-Sep-2024 00:00	25-Sep-2024 00:00	25-Sep-2024 00:00	25-Sep-2024 00:00
			Result	ES2424007-006	ES2424007-007	ES2424007-008	ES2424007-009	ES2424007-010
Result								
EP068A: Organochlorine Pesticides (OC) - Continued								
Heptachlor	76-44-8	0.05	mg/kg	#####	#####	<0.05	#####	#####
Aldrin	309-00-2	0.05	mg/kg	#####	#####	<0.05	#####	#####
Heptachlor epoxide	1024-57-3	0.05	mg/kg	#####	#####	<0.05	#####	#####
^ Total Chlordane (sum)	#####	0.05	mg/kg	#####	#####	<0.05	#####	#####
trans-Chlordane	5103-74-2	0.05	mg/kg	#####	#####	<0.05	#####	#####
alpha-Endosulfan	959-98-8	0.05	mg/kg	#####	#####	<0.05	#####	#####
cis-Chlordane	5103-71-9	0.05	mg/kg	#####	#####	<0.05	#####	#####
Dieldrin	60-57-1	0.05	mg/kg	#####	#####	<0.05	#####	#####
4,4'-DDE	72-55-9	0.05	mg/kg	#####	#####	<0.05	#####	#####
Endrin	72-20-8	0.05	mg/kg	#####	#####	<0.05	#####	#####
beta-Endosulfan	33213-65-9	0.05	mg/kg	#####	#####	<0.05	#####	#####
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	#####	#####	<0.05	#####	#####
4,4'-DDD	72-54-8	0.05	mg/kg	#####	#####	<0.05	#####	#####
Endrin aldehyde	7421-93-4	0.05	mg/kg	#####	#####	<0.05	#####	#####
Endosulfan sulfate	1031-07-8	0.05	mg/kg	#####	#####	<0.05	#####	#####
4,4'-DDT	50-29-3	0.2	mg/kg	#####	#####	<0.2	#####	#####
Endrin ketone	53494-70-5	0.05	mg/kg	#####	#####	<0.05	#####	#####
Methoxychlor	72-43-5	0.2	mg/kg	#####	#####	<0.2	#####	#####
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	#####	#####	<0.05	#####	#####
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	#####	#####	<0.05	#####	#####
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Naphthalene	91-20-3	0.5	mg/kg	#####	#####	<0.5	#####	#####
Acenaphthylene	208-96-8	0.5	mg/kg	#####	#####	<0.5	#####	#####
Acenaphthene	83-32-9	0.5	mg/kg	#####	#####	<0.5	#####	#####
Fluorene	86-73-7	0.5	mg/kg	#####	#####	<0.5	#####	#####
Phenanthrene	85-01-8	0.5	mg/kg	#####	#####	<0.5	#####	#####



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID		Sampling date / time		BH4 (0-0.1m)		BH5 (0-0.1m)		BH6 (0-0.1m)		BH6 (0.5-0.6m)		BH7 (0-0.1m)	
Compound	CAS Number	LOR	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued																	
Anthracene	120-12-7	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Fluoranthene	206-44-0	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Pyrene	129-00-0	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Benz(a)anthracene	56-55-3	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Chrysene	218-01-9	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Benzo(a)pyrene	50-32-8	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
^ Sum of polycyclic aromatic hydrocarbons	-----	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
^ Benzo(a)pyrene TEQ (zero)	-----	0.5	mg/kg	-----	-----	-----	-----	<0.5	-----	-----	-----	<0.5	-----	-----	-----	-----	-----
^ Benzo(a)pyrene TEQ (half LOR)	-----	0.5	mg/kg	-----	-----	-----	-----	0.6	-----	-----	-----	0.6	-----	-----	-----	-----	-----
^ Benzo(a)pyrene TEQ (LOR)	-----	0.5	mg/kg	-----	-----	-----	-----	1.2	-----	-----	-----	1.2	-----	-----	-----	-----	-----
EP080/071: Total Petroleum Hydrocarbons																	
C6 - C9 Fraction	-----	10	mg/kg	-----	-----	-----	-----	<10	-----	-----	-----	<10	-----	-----	-----	-----	-----
C10 - C14 Fraction	-----	50	mg/kg	-----	-----	-----	-----	<50	-----	-----	-----	<50	-----	-----	-----	-----	-----
C15 - C28 Fraction	-----	100	mg/kg	-----	-----	-----	-----	<100	-----	-----	-----	<100	-----	-----	-----	-----	-----
C29 - C36 Fraction	-----	100	mg/kg	-----	-----	-----	-----	<100	-----	-----	-----	<100	-----	-----	-----	-----	-----
^ C10 - C36 Fraction (sum)	-----	50	mg/kg	-----	-----	-----	-----	<50	-----	-----	-----	<50	-----	-----	-----	-----	-----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions																	
C6 - C10 Fraction	C6_C10	10	mg/kg	-----	-----	-----	-----	<10	-----	-----	-----	<10	-----	-----	-----	-----	-----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	-----	-----	-----	-----	<10	-----	-----	-----	<10	-----	-----	-----	-----	-----
>C10 - C16 Fraction	-----	50	mg/kg	-----	-----	-----	-----	<50	-----	-----	-----	<50	-----	-----	-----	-----	-----
>C16 - C34 Fraction	-----	100	mg/kg	-----	-----	-----	-----	<100	-----	-----	-----	<100	-----	-----	-----	-----	-----

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)			Sample ID		BH4 (0-0.1m)		BH5 (0-0.1m)		BH6 (0-0.1m)		BH6 (0.5-0.6m)		BH7 (0-0.1m)		
			Sampling date / time		25-Sep-2024 00:00		25-Sep-2024 00:00		25-Sep-2024 00:00		25-Sep-2024 00:00		25-Sep-2024 00:00		
Compound	CAS Number	LOR	Unit	ES2424007-006		ES2424007-007		ES2424007-008		ES2424007-009		ES2424007-010			
				Result		Result		Result		Result		Result			
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued															
>C34 - C40 Fraction			100	mg/kg					<100						
>C10 - C40 Fraction (sum)			50	mg/kg					<50						
>C10 - C16 Fraction minus Naphthalene (F2)			50	mg/kg					<50						
EP080: BTEXN															
Benzene			71-43-2	0.2	mg/kg					<0.2					
Toluene			108-88-3	0.5	mg/kg					<0.5					
Ethylbenzene			100-41-4	0.5	mg/kg					<0.5					
meta- & para-Xylene			108-38-3 106-42-3	0.5	mg/kg					<0.5					
ortho-Xylene			95-47-6	0.5	mg/kg					<0.5					
Sum of BTEX				0.2	mg/kg					<0.2					
Total Xylenes				0.5	mg/kg					<0.5					
Naphthalene			91-20-3	1	mg/kg					<1					
EP066S: PCB Surrogate															
Decachlorobiphenyl			2051-24-3	0.1	%					89.4					
EP068S: Organochlorine Pesticide Surrogate															
Dibromo-DDE			21655-73-2	0.05	%					107					
EP068T: Organophosphorus Pesticide Surrogate															
DEF			78-48-8	0.05	%					83.6					
EP075(SIM)S: Phenolic Compound Surrogates															
Phenol-d6			13127-88-3	0.5	%					79.1					
2-Chlorophenol-D4			93951-73-6	0.5	%					79.6					
2,4,6-Tribromophenol			118-79-6	0.5	%					64.1					
EP075(SIM)T: PAH Surrogates															
2-Fluorobiphenyl			321-60-8	0.5	%					99.6					
Anthracene-d10			1719-06-8	0.5	%					95.9					
4-Terphenyl-d14			1718-51-0	0.5	%					85.0					
EP080S: TPH(V)/BTEX Surrogates															



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		Sampling date / time		BH4 (0-0.1m)		BH5 (0-0.1m)		BH6 (0-0.1m)		BH6 (0.5-0.6m)		BH7 (0-0.1m)	
		CAS Number	LOR	Unit	Result	ES2424007-006	25-Sep-202400:00	ES2424007-007	25-Sep-202400:00	ES2424007-008	25-Sep-202400:00	ES2424007-009	25-Sep-202400:00	ES2424007-010	25-Sep-202400:00
Compound				Unit	Result										
EP080S: TPH(V)/BTX Surrogates - Continued															
1,2-Dichloroethane-D4		17060-07-0	0.2	%						97.9					
Toluene-D8		2037-26-5	0.2	%						114					
4-Bromofluorobenzene		460-00-4	0.2	%						120					



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		Sampling date / time		Unit		BH7 (0.4-0.5m)	BH8 (0-0.1m)	BH8 (0.4-0.5m)	BH9 (0-0.1m)	BH9 (0.4-0.5m)
Compound	CAS Number	LOR	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result
				ES2424007-011	ES2424007-012	ES2424007-013	ES2424007-014	ES2424007-015				
EA055: Moisture Content (Dried @ 105-110°C)												
Moisture Content		1.0	%	14.1	19.7	15.7	20.1	10.6				
EA200: AS 4964 - 2004 Identification of Asbestos in Soils												
Asbestos Detected	1332-21-4	0.1	g/kg	-----	-----	-----	No	-----				
Asbestos (Trace)	1332-21-4	-	-	-----	-----	-----	No	-----				
Asbestos Type	1332-21-4	-	---	-----	-----	-----	-	-----				
Sample weight (dry)	-----	0.01	g	-----	-----	-----	630	-----				
APPROVED IDENTIFIER:	-----	-	---	-----	-----	-----	A. SMYLIE	-----				
Synthetic Mineral Fibre	-----	-	---	-----	-----	-----	No	-----				
Organic Fibre	-----	-	---	-----	-----	-----	No	-----				
EG005(ED093)T: Total Metals by ICP-AES												
Arsenic	7440-38-2	5	mg/kg	10	11	19	16	13				
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	<1	<1				
Chromium	7440-47-3	2	mg/kg	25	33	37	39	50				
Copper	7440-50-8	5	mg/kg	21	17	87	18	10				
Lead	7439-92-1	5	mg/kg	21	15	37	51	19				
Nickel	7440-02-0	2	mg/kg	5	4	5	7	6				
Zinc	7440-66-6	5	mg/kg	29	24	30	93	12				
EG035T: Total Recoverable Mercury by FIMS												
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1				
EP066: Polychlorinated Biphenyls (PCB)												
Total Polychlorinated biphenyls		0.1	mg/kg	<0.1	<0.1	-----	-----	-----				
EP068A: Organochlorine Pesticides (OC)												
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	-----	-----	-----				
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	-----	-----	-----				
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	-----	-----	-----				
gamma-BHC - (Lindane)	58-89-9	0.05	mg/kg	<0.05	<0.05	-----	-----	-----				
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	-----	-----	-----				



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID		Sampling date / time		BH7 (0.4-0.5m)		BH8 (0-0.1m)		BH9 (0-0.1m)		BH9 (0.4-0.5m)	
Compound	CAS Number	LOR	Unit	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result	Result
EP068A: Organochlorine Pesticides (OC) - Continued															
Heptachlor	76-44-8	0.05	mg/kg	<0.05				<0.05		<0.05					
Aldrin	309-00-2	0.05	mg/kg	<0.05				<0.05		<0.05					
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05				<0.05		<0.05					
^ Total Chlordane (sum)		0.05	mg/kg	<0.05				<0.05		<0.05					
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05				<0.05		<0.05					
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05				<0.05		<0.05					
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05				<0.05		<0.05					
Dieldrin	60-57-1	0.05	mg/kg	<0.05				<0.05		<0.05					
4,4'-DDE	72-55-9	0.05	mg/kg	<0.05				<0.05		<0.05					
Endrin	72-20-8	0.05	mg/kg	<0.05				<0.05		<0.05					
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05				<0.05		<0.05					
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05				<0.05		<0.05					
4,4'-DDD	72-54-8	0.05	mg/kg	<0.05				<0.05		<0.05					
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05				<0.05		<0.05					
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05				<0.05		<0.05					
4,4'-DDT	50-29-3	0.2	mg/kg	<0.2				<0.2		<0.2					
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05				<0.05		<0.05					
Methoxychlor	72-43-5	0.2	mg/kg	<0.2				<0.2		<0.2					
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05				<0.05		<0.05					
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-29-3	0.05	mg/kg	<0.05				<0.05		<0.05					
EP075(SIM)E: Polynuclear Aromatic Hydrocarbons															
Naphthalene	91-20-3	0.5	mg/kg	<0.5				<0.5		<0.5					
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5				<0.5		<0.5					
Acenaphthene	83-32-9	0.5	mg/kg	<0.5				<0.5		<0.5					
Fluorene	86-73-7	0.5	mg/kg	<0.5				<0.5		<0.5					
Phenanthrene	85-01-8	0.5	mg/kg	<0.5				<0.5		<0.5					

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)					
Compound	CAS Number	LOR	Sampling date / time		Sample ID
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued					
Anthracene	120-12-7	0.5	mg/kg	<0.5	BH7 (0.4-0.5m) 25-Sep-202400:00 ES2424007-011 Result
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	BH8 (0-0.1m) 25-Sep-202400:00 ES2424007-012 Result
Pyrene	129-00-0	0.5	mg/kg	<0.5	BH9 (0-0.1m) 25-Sep-202400:00 ES2424007-014 Result
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	BH8 (0.4-0.5m) 25-Sep-202400:00 ES2424007-013 Result
Chrysene	218-01-9	0.5	mg/kg	<0.5	BH9 (0.4-0.5m) 25-Sep-202400:00 ES2424007-015 Result
Benzo(b,j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	
Indeno(1,2,3-cd)pyrene	193-39-5	0.5	mg/kg	<0.5	
Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	
Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	
^ Sum of polycyclic aromatic hydrocarbons		0.5	mg/kg	<0.5	
^ Benzo(a)pyrene TEQ (zero)		0.5	mg/kg	<0.5	
^ Benzo(a)pyrene TEQ (half LOR)		0.5	mg/kg	0.6	
^ Benzo(a)pyrene TEQ (LOR)		0.5	mg/kg	1.2	
EP080/071: Total Petroleum Hydrocarbons					
C6 - C9 Fraction		10	mg/kg	<10	
C10 - C14 Fraction		50	mg/kg	<50	
C15 - C28 Fraction		100	mg/kg	<100	
C29 - C36 Fraction		100	mg/kg	<100	
^ C10 - C36 Fraction (sum)		50	mg/kg	<50	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions					
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	
>C10 - C16 Fraction		50	mg/kg	<50	
>C16 - C34 Fraction		100	mg/kg	<100	

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		BH7 (0.4-0.5m)		BH8 (0-0.1m)		BH8 (0.4-0.5m)		BH9 (0-0.1m)		BH9 (0.4-0.5m)	
Compound	CAS Number	LOR	Sampling date / time	Unit	Result		Result		Result		Result		
					ES2424007-011	ES2424007-012	ES2424007-013	ES2424007-014	ES2424007-015				
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued													
>C34 - C40 Fraction		100	mg/kg		<100		<100						
^ >C10 - C40 Fraction (sum)		50	mg/kg		<50		<50						
^ >C10 - C16 Fraction minus Naphthalene (F2)		50	mg/kg		<50		<50						
EP080: BTEXN													
Benzene	71-43-2	0.2	mg/kg		<0.2		<0.2						
Toluene	108-88-3	0.5	mg/kg		<0.5		<0.5						
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5		<0.5						
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5		<0.5						
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5		<0.5						
^ Sum of BTEX		0.2	mg/kg		<0.2		<0.2						
^ Total Xylenes		0.5	mg/kg		<0.5		<0.5						
Naphthalene	91-20-3	1	mg/kg		<1		<1						
EP066S: PCB Surrogate													
Decachlorobiphenyl	2051-24-3	0.1	%		95.5		86.2						
EP068S: Organochlorine Pesticide Surrogate													
Dibromo-DDE	21655-73-2	0.05	%		116		98.4						
EP068T: Organophosphorus Pesticide Surrogate													
DEF	78-48-8	0.05	%		87.8		82.1						
EP075(SIM)S: Phenolic Compound Surrogates													
Phenol-d6	13127-88-3	0.5	%		90.8		90.2						
2-Chlorophenol-D4	93951-73-6	0.5	%		85.9		97.6						
2,4,6-Tribromophenol	118-79-6	0.5	%		76.1		65.4						
EP075(SIM)T: PAH Surrogates													
2-Fluorobiphenyl	321-60-8	0.5	%		120		93.2						
Anthracene-d10	1719-06-8	0.5	%		81.8		89.5						
4-Terphenyl-d14	1718-51-0	0.5	%		94.6		80.4						
EP080S: TPH(V)/BTEX Surrogates													



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		Sampling date / time		BH7 (0.4-0.5m)		BH8 (0-0.1m)		BH8 (0.4-0.5m)		BH9 (0-0.1m)		BH9 (0.4-0.5m)	
Compound	CAS Number	LOR	Unit	Result		Result		Result		Result		Result		Result	
				25-Sep-202400:00		25-Sep-202400:00		25-Sep-202400:00		25-Sep-202400:00		25-Sep-202400:00		25-Sep-202400:00	
				ES2424007-011		ES2424007-012		ES2424007-013		ES2424007-014		ES2424007-015			
EP080S: TPH(V)/BTX Surrogates - Continued															
1,2-Dichloroethane-D4	17060-07-0	0.2	%	86.7		92.2									
Toluene-D8	2037-26-5	0.2	%	102		109									
4-Bromofluorobenzene	460-00-4	0.2	%	113		116									



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		Sampling date / time		Unit		Result		Result		Result		Result	
		CAS Number	LOR												
Compound				CAS Number	LOR	Unit		Result		Result		Result		Result	
EA055: Moisture Content (Dried @ 105-110°C)															
Moisture Content		1332-21-4	1.0	%				22.8			13.0				
EA200: AS 4964 - 2004 Identification of Asbestos in Soils															
Asbestos Detected		1332-21-4	0.1	g/kg			No			No					
Asbestos (Trace)		1332-21-4	-	-			No			No					
Asbestos Type		1332-21-4	-	-			-			-					
Sample weight (dry)			0.01	g			637			646					
APPROVED IDENTIFIER:			-	-			A. SMYLIE			A. SMYLIE					
Synthetic Mineral Fibre			-	-			No			No					
Organic Fibre			-	-			No			No					
EG005(ED093)T: Total Metals by ICP-AES															
Arsenic		7440-38-2	5	mg/kg					9			9			
Cadmium		7440-43-9	1	mg/kg					<1			<1			
Chromium		7440-47-3	2	mg/kg					24			23			
Copper		7440-50-8	5	mg/kg					13			13			
Lead		7439-92-1	5	mg/kg					14			44			
Nickel		7440-02-0	2	mg/kg					3			7			
Zinc		7440-66-6	5	mg/kg					27			125			
EG035T: Total Recoverable Mercury by FIMS															
Mercury		7439-97-6	0.1	mg/kg					<0.1			<0.1			
EP066: Polychlorinated Biphenyls (PCB)															
Total Polychlorinated biphenyls			0.1	mg/kg					<0.1						
EP068A: Organochlorine Pesticides (OC)															
alpha-BHC		319-84-6	0.05	mg/kg					<0.05						
Hexachlorobenzene (HCB)		118-74-1	0.05	mg/kg					<0.05						
beta-BHC		319-85-7	0.05	mg/kg					<0.05						
gamma-BHC - (Lindane)		58-89-9	0.05	mg/kg					<0.05						
delta-BHC		319-86-8	0.05	mg/kg					<0.05						



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID									
		Sampling date / time									
Compound	CAS Number	LOR	Unit	BH10 (0-0.1m)	BH10 (0.1-0.2m)	BH11 (0-0.1m)	DUP 1	Trip Spike - 23			
				25-Sep-202400:00 ES2424007-016 Result	25-Sep-202400:00 ES2424007-017 Result	25-Sep-202400:00 ES2424007-018 Result	25-Sep-202400:00 ES2424007-020 Result	25-Sep-202400:00 ES2424007-021 Result			
EP068A: Organochlorine Pesticides (OC) - Continued											
Heptachlor	76-44-8	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
Aldrin	309-00-2	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
Heptachlor epoxide	1024-57-3	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
^ Total Chlordane (sum)	-----	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
trans-Chlordane	5103-74-2	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
alpha-Endosulfan	959-98-8	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
cis-Chlordane	5103-71-9	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
Dieldrin	60-57-1	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
4,4'-DDE	72-55-9	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
Endrin	72-20-8	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
beta-Endosulfan	33213-65-9	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
4,4'-DDD	72-54-8	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
Endrin aldehyde	7421-93-4	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
Endosulfan sulfate	1031-07-8	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
4,4'-DDT	50-29-3	0.2	mg/kg	-----	<0.2	-----	-----	-----	-----	-----	-----
Endrin ketone	53494-70-5	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
Methoxychlor	72-43-5	0.2	mg/kg	-----	<0.2	-----	-----	-----	-----	-----	-----
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	-----	<0.05	-----	-----	-----	-----	-----	-----
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons											
Naphthalene	91-20-3	0.5	mg/kg	-----	<0.5	-----	-----	-----	-----	-----	-----
Acenaphthylene	208-96-8	0.5	mg/kg	-----	<0.5	-----	-----	-----	-----	-----	-----
Acenaphthene	83-32-9	0.5	mg/kg	-----	<0.5	-----	-----	-----	-----	-----	-----
Fluorene	86-73-7	0.5	mg/kg	-----	<0.5	-----	-----	-----	-----	-----	-----
Phenanthrene	85-01-8	0.5	mg/kg	-----	<0.5	-----	-----	-----	-----	-----	-----

Sub-Matrix: SOIL
(Matrix: SOIL)

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID		BH10 (0-0.1m)		BH10 (0.1-0.2m)		BH11 (0-0.1m)		DUP 1		Trip Spike - 23	
Compound	CAS Number	LOR	Sampling date / time	Unit	BH10 (0-0.1m)		BH10 (0.1-0.2m)		BH11 (0-0.1m)		DUP 1		Trip Spike - 23		
					Result	Result	Result	Result	Result	Result	Result				
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued															
Anthracene	120-12-7	0.5		mg/kg			<0.5								
Fluoranthene	206-44-0	0.5		mg/kg			<0.5								
Pyrene	129-00-0	0.5		mg/kg			<0.5								
Benz(a)anthracene	56-55-3	0.5		mg/kg			<0.5								
Chrysene	218-01-9	0.5		mg/kg			<0.5								
Benzo(b,j)fluoranthene	205-99-2	0.5		mg/kg			<0.5								
Benzo(k)fluoranthene	207-08-9	0.5		mg/kg			<0.5								
Benzo(a)pyrene	50-32-8	0.5		mg/kg			<0.5								
Indeno(1,2,3-cd)pyrene	193-39-5	0.5		mg/kg			<0.5								
Dibenz(a,h)anthracene	53-70-3	0.5		mg/kg			<0.5								
Benzo(g,h,i)perylene	191-24-2	0.5		mg/kg			<0.5								
^ Sum of polycyclic aromatic hydrocarbons		0.5		mg/kg			<0.5								
^ Benzo(a)pyrene TEQ (zero)		0.5		mg/kg			<0.5								
^ Benzo(a)pyrene TEQ (half LOR)		0.5		mg/kg			0.6								
^ Benzo(a)pyrene TEQ (LOR)		0.5		mg/kg			1.2								
EP080/071: Total Petroleum Hydrocarbons															
C6 - C9 Fraction		10		mg/kg			<10								
C10 - C14 Fraction		50		mg/kg			<50								
C15 - C28 Fraction		100		mg/kg			<100								
C29 - C36 Fraction		100		mg/kg			<100								
^ C10 - C36 Fraction (sum)		50		mg/kg			<50								
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions															
C6 - C10 Fraction	C6_C10	10		mg/kg			<10								
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10		mg/kg			<10								
>C10 - C16 Fraction		50		mg/kg			<50								
>C16 - C34 Fraction		100		mg/kg			<100								

Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID				BH10 (0-0.1m)	BH10 (0.1-0.2m)	BH11 (0-0.1m)	DUP 1	Trip Spike - 23
		Sampling date / time				25-Sep-2024 00:00	25-Sep-2024 00:00	25-Sep-2024 00:00	25-Sep-2024 00:00	25-Sep-2024 00:00
Compound	CAS Number	LOR	Unit	ES2424007-016	ES2424007-017	ES2424007-018	ES2424007-020	ES2424007-021		
				Result	Result	Result	Result	Result		
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued										
>C34 - C40 Fraction		100	mg/kg		<100					
^ >C10 - C40 Fraction (sum)		50	mg/kg		<50					
^ >C10 - C16 Fraction minus Naphthalene (F2)		50	mg/kg		<50					
EP080: BTEXN										
Benzene	71-43-2	0.2	mg/kg		<0.2				<0.2	
Toluene	108-88-3	0.5	mg/kg		<0.5				2.6	
Ethylbenzene	100-41-4	0.5	mg/kg		<0.5				2.9	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg		<0.5				3.4	
ortho-Xylene	95-47-6	0.5	mg/kg		<0.5				1.6	
^ Sum of BTEX		0.2	mg/kg		<0.2				10.5	
^ Total Xylenes		0.5	mg/kg		<0.5				5.0	
Naphthalene	91-20-3	1	mg/kg		<1				<1	
EP066S: PCB Surrogate										
Decachlorobiphenyl	2051-24-3	0.1	%		110					
EP068S: Organochlorine Pesticide Surrogate										
Dibromo-DDE	21655-73-2	0.05	%		136					
EP068T: Organophosphorus Pesticide Surrogate										
DEF	78-48-8	0.05	%		103					
EP075(SIM)S: Phenolic Compound Surrogates										
Phenol-d6	13127-88-3	0.5	%		89.6					
2-Chlorophenol-D4	93951-73-6	0.5	%		83.8					
2,4,6-Tribromophenol	118-79-6	0.5	%		59.0					
EP075(SIM)T: PAH Surrogates										
2-Fluorobiphenyl	321-60-8	0.5	%		81.5					
Anthracene-d10	1719-06-8	0.5	%		81.2					
4-Terphenyl-d14	1718-51-0	0.5	%		80.9					
EP080S: TPH(V)/BTEX Surrogates										

Sub-Matrix: SOIL
(Matrix: SOIL)

Sub-Matrix: SOIL (Matrix: SOIL)	Sample ID			BH10 (0-0.1m)	BH10 (0.1-0.2m)	BH11 (0-0.1m)	DUP 1	Trip Spike - 23
	Sampling date / time	LOR	Unit					
EP080S: TPH(V)/BTEX Surrogates - Continued								
1,2-Dichloroethane-D4	17060-07-0	0.2	%		98.4	*****	*****	104
Toluene-D8	2037-26-5	0.2	%		116	*****	*****	124
4-Bromofluorobenzene	460-00-4	0.2	%		122	*****	*****	122

Sub-Matrix: SOIL
(Matrix: SOIL)

Sub-Matrix: SOIL (Matrix: SOIL)		Sample ID		Trip Blank	Trip Control Spike - 23			
Compound	CAS Number	Sampling date / time		25-Sep-2024 00:00	24-Sep-2024 00:00			
		LOR	Unit	ES2424007-022	ES2424007-023			
				Result	Result			
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction		10	mg/kg	<10				
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	10	mg/kg	<10				
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10				
EP080: BTEXN								
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2			
Toluene	108-88-3	0.5	mg/kg	<0.5	4.2			
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	4.5			
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	5.1			
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	2.3			
^ Sum of BTEX		0.2	mg/kg	<0.2	16.1			
^ Total Xylenes		0.5	mg/kg	<0.5	7.4			
Naphthalene	91-20-3	1	mg/kg	<1	<1			
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	0.2	%	116	100			
Toluene-D8	2037-26-5	0.2	%	124	116			
4-Bromofluorobenzene	460-00-4	0.2	%	126	115			



Analytical Results

Sub-Matrix: SOLID (Matrix: SOLID)		Sample ID		Sampling date / time		BH3 (0-0.1m)		BH4 (0-0.1m)		BH11 (0-0.1m)			
		CAS Number	LOR	Unit		Result		Result		Result			
EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples													
Asbestos Detected		1332-21-4	0.1	g/kg		No		Yes		No			
Asbestos Type		1332-21-4	-	---		-		Ch		-			
Asbestos (Trace)		1332-21-4	-	-		No		N/A		N/A			
Sample weight (dry)			0.01	g		2.81		4.53		10.9			
Synthetic Mineral Fibre			-	-		No		No		No			
Organic Fibre			-	-		No		No		No			
APPROVED IDENTIFIER:			-	---		J.PAGE		J.PAGE		J.PAGE			

Analytical Results
Descriptive Results

Sub-Matrix: SOIL		Sample ID - Sampling date / time		Analytical Results	
Method: Compound		EA200: AS 4964 - 2004 Identification of Asbestos in Soils			
EA200: Description		BH1(0-0.1m) - 25-Sep-202400:00		Soilsample.	
EA200: Description		BH2(0-0.1m) - 25-Sep-202400:00		Soilsample.	
EA200: Description		BH3(0-0.1m) - 25-Sep-202400:00		Soilsample.	
EA200: Description		BH4(0-0.1m) - 25-Sep-202400:00		Soilsample.	
EA200: Description		BH5(0-0.1m) - 25-Sep-202400:00		Soilsample.	
EA200: Description		BH6(0.5-0.6m) - 25-Sep-202400:00		Soilsample.	
EA200: Description		BH7(0-0.1m) - 25-Sep-202400:00		Soilsample.	
EA200: Description		BH9(0-0.1m) - 25-Sep-202400:00		Soilsample.	
EA200: Description		BH10(0-0.1m) - 25-Sep-202400:00		Soilsample.	
EA200: Description		BH11(0-0.1m) - 25-Sep-202400:00		Soilsample.	



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP066S: PCB Surrogate			
Decachlorobiphenyl	2051-24-3	39	149
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	63	125
Toluene-D8	2037-26-5	67	124
4-Bromofluorobenzene	460-00-4	66	131

Inter-Laboratory Testing

Analysis conducted by ALS Newcastle, NATA accreditation no. 825, site no. 1656 (Chemistry / Biology).
(SOIL) EA200: AS 4964 - 2004 Identification of Asbestos in Soils
(SOLID) EA200: AS 4964 - 2004 Identification of Asbestos in bulk samples

Report

**Stage 1 Preliminary Site
Investigation (PSI)**

**Proposed Development
Lot 1 Magpie Hollow Road, South
Bowenfels**

(Ref.73912.07.24.Stage1PSI)

**Prepared for:
Dezign**

The AIRSAFE logo consists of the word "AIRSAFE" in a bold, white, sans-serif font, centered within a solid blue rectangular background.

Report

**Stage 1 Preliminary Site
Investigation (PSI)**

**Proposed Development
Lot 1 Magpie Hollow Road, South
Bowenfels**

(Ref.73912.07.24.Stage1PSI)

**Prepared for:
Dezign**



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ATTACHMENTS

APPENDIX A: FIGURES/PLANS

- FIGURE 1 (73912-F01) – SITE LOCATION
- PHOTOGRAPHS

APPENDIX B: SUPPORTING DOCUMENTS

- HISTORICAL TITLE INFORMATION
- PLANNING CERTIFICATE
- OTHER DOCUMENTATION

ABBREVIATIONS

Abbreviations	
ACM	Asbestos Cement Material
mAHD	metres Australian Height Datum
As	Arsenic
B(a)P	Benzo (a) pyrene (a component of PAHs)
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
BH	Borehole
Cd	Cadmium
Cr	Chromium
EPA (NSW)	Environmental Protection Agency (NSW)
DECCW(NSW)	Dept. Environment, Climate Change & Water (NSW)
Hg	Mercury
MAH	Mono Aromatic Hydrocarbons
NEHF	National Environment Health Forum
Ni	Nickel
OCPs	Organochlorin pesticides
OPPs	Organophosphate Pesticides
PCBs	Poly Cyclic Biphenyls
PCM	Potentially Contaminated Media
PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PID	Photo Ionisation Detector
QA/QC	Quality Assurance and Quality Control
RAP	Remedial Action Plan
RPD	Relative Percentage Difference
TCLP	Toxicity Characteristics Leaching Procedure
TRH	Total Recoverable Hydrocarbons
UST	Underground storage tank
VOCs	Volatile Organic Compounds

EXECUTIVE SUMMARY

ES-1 Background

This investigation was authorized by Tim Pridham of Dezign on the 18th of June 2024 and the on-site inspection was conducted on 25th of June 2024.

The site consisted of one Lot, identified as Lot 1 DP527491. At the time of inspection, the Lot consisted of a vacant block which slopes slightly downward west. No building structures currently occupies the site. A small number of cows were grazing on the site at the time of inspection and residual fencing construction materials were observed along the western boundary of the site. The total area of the Lot is 11,720m². Refer to Appendix A for the site boundaries.

The property is located between the 948 metre & 946 metre AHD map contour. The site is positioned on a slight slope to the west. Surface water is expected to follow the topography southwest into the adjacent valley watercourse.

ES-2 Discussion

Points taken into consideration to enable recommendations:

Points taken into consideration to enable recommendations:

- Lot 1 DP527491 is located at Lot 1 Magpie Hollow Road, South Bowenfels NSW 2079. The proposed development for this site is for the construction of a school facility on the vacant site. The Lot slightly slopes toward the west.
- The Lot consisted of a vacant block which was vegetated with patchy tufts of grass. The soil appeared to be comprised of mostly brown sandy loam. A small amount of fence building materials were identified along the western boundary of the site. No stockpiles of fill material or residual building materials were identified on the surface of the site.
- No building structures currently occupy the area. The total area of the Lot is 11,720m².
- Historical photographs identified that no significant building structures were constructed on the Lot since 1950. A review of the aerial photograph taken from 1979 identified an indistinguishable object(s) along the western boundary of the Lot. It is suspected that it may be an orchard or livestock stalls.
- The lot appears to have been mostly unaltered since 1950 apart from the creation of a small dam at some point between 1979 and 1984. This small dam was backfilled at some point prior to 1999.

- It is suspected that the dam has been backfilled with the spoil that was originally excavated during the creation of the dam. Although it cannot be ruled out that the dam was backfilled with potentially contaminated fill.
- The title search and historical aerial photos show no evidence the site has been used for any significant industrial activity that may have had an impact on the soil with respect to chemical contamination.
- The immediate properties on the northern and western side of the Lot are residential dwellings. A service station and carwash are present on the eastern neighbouring boundary.
- There is a slight gradient downwards from the service station toward the Lot across the eastern boundary. The service station is located on the eastern end of the neighboring block, which is a considerable distance from the site boundary. It is a possibility that surface fuel spillage may have migrated to surface soils along the eastern boundary of the Lot.
- All vegetation appeared to be healthy with no signs of stress. Odours or hydrocarbon style staining were not identified.
- No asbestos or other hazardous building material products were identified during the site walkover.
- Generally, the exact nature of the sub-surface material is not known, although the property appears to be consistent with the natural levels of the surrounding area. It is not suspected that large quantities of fill material have been imported onto the site.
- The site is not listed on the EPA NSW Contaminated Lands database.
- No chemicals were located or are suspected to be located on the site. No significant staining or odours were identified during the inspection.
- The matters as prescribed by Section 59(2) of the Contaminated Lands Management Act 1997 (documented in the Planning Certificate 149) do NOT indicate that the land is contaminated, or under any orders or notices issued by the EPA NSW.
- The NSW Environment Protection Authority (EPA) is undertaking an investigation program to assess the legacy of *per- and poly- fluoroalkyl substances (PFAS) use across NSW. The site is not part of the PFAS investigation program.
- No data is currently available regarding the ASS risk class status of the site. The probability of occurrence of Acid Sulphate Soils is Low (6-70%). It is our opinion that PASS (potential acid sulfate soils) shall not be an issue affecting the site.
- The site was not identified as being in a risk zone regarding dryland salinity. This is not considered an issue that will affect the development proposal.

- Uncertainties regarding the backfilled dam, the indistinguishable object along the western boundary, and the potential for surface soil contamination from fuel spill surface run-off along the eastern boundary should be investigated by undertaking limited targeted soil sampling. Soil sampling will focus on the potential areas of environmental concern only. Sample analysis results and conclusions from the limited sampling will be added to this reports addendum.

ES-2 Conclusion & Recommendations

ES-2.1 General Conclusion – Suitability of the Property for the Proposed Development

This report was prepared in accordance with:

- *National Environmental Protection (Assessment of Site Contamination) Measure (NEPM), 1999 (amended 2013)*
- *State Environmental Planning Policy No.55 Remediation of Land (SEPP 55)*
- *EPA NSW Guidelines for Consultants reporting on contaminated land, NSW EPA 2020.*

The investigation did not identify significant on-site present or historical industrial or agricultural contaminating activities. No area/s of significant environmental concern were identified in this report. It is the opinion of Airsafe, with respect to the investigation carried out within this report that the site should be suitable for the proposed development of a school although further investigation will be required to discern potential areas of environmental concern.

The suitability of the site for the proposed development of a school will be dependent on the results and conclusions reached following limited targeted investigation and sampling to discern potential areas of environmental concern.

The suitability of the site for the proposed development is conditional on the following:

ES-2.1 Condition #1: Limited Sampling to Address Uncertainty Data Gaps

Limited targeted sampling will be undertaken in the following areas to address the uncertainties in the data:

- **Location of Backfilled Dam**
 - Test pit(s) shall be excavated in the location of the backfilled dam to allow visual inspection of the soil strata for indications that potentially contaminated fill may have been imported on to the Lot for backfilling purposes.
 - Three (3) shallow soil samples shall be collected at a depth of 0.1-0.5m BGL from test pits and be analysed for TRH, BTEX, Asbestos, Heavy Metals, OCPs, OPPs and PAHs.
- **Undetermined Object Along Western Boundary**
 - Test pit(s) shall be excavated in the location of the undetermined object identified along the western boundary in the 1979 aerial photograph.
 - Two (2) shallow soil samples shall be collected at a depth of 0.1m-0.5m BGL from test pits and analysed for Asbestos, Heavy Metals, OCPs, OPPs and PAHs.
- **Fuel Spillage Surface Run-off Along Eastern Boundary**
 - Three (3) shallow soil samples shall be collected at a depth of 0.1-0.5m BGL along the eastern boundary fence that adjoins the service station.
 - Soil samples will be analysed for BTEX, PAHs, TRHs, and Heavy Metals.

Sample analysis results and conclusions from the limited sampling will be added to this reports addendum.

ES-2.3 Condition #2: General Excavation of Fill/ Imported Soil / Waste Classification Requirements
(See Section 5.2.2)

ES-2.4 Condition #3: Imported Soil – VENM (See Section 5.2.3)

ES-2.5 Condition #4: 5.2.5 Unexpected Finds Protocol – Unknown Contaminated Soil (See Section 5.2.4)

SECTION 1: INTRODUCTION

1.1 AUTHORIZATION

This investigation was authorized by Tim Pridham of DeSign on the 18th of June 2024 and the on-site inspection was conducted on 25th of June 2024.

1.2 SCOPE OF WORK - CONSULTANTS BRIEF

Airsafe was requested to carry out a Stage 1 Preliminary Site Investigation (as defined by EPA NSW and SEPP 55) on the property. The scope of the survey entailed:

- Identify all past and present potentially contaminating activities where possible.
- Assessment of site history available within the records and available aerial photographs where applicable.
- Site visit to assess site activities past and present.
- A search of historical title information at the Land and Property Information, Macquarie Street, Sydney, to assess prior ownership and potential for contamination.
- A review of the available geological, topological maps and acid sulfate soils maps.
- A search for any notices relating to the potential for site contamination as issued by the EPA NSW and SafeWork NSW.

Following the research and site visit, recommendations were made regarding whether the site is suitable for the proposed development and/or the need for further investigations.

1.3 LIMITATIONS OF THE REPORT

This report has been prepared to meet the requirements outlined in the scope of work. It does not include evaluation of any other issues. Airsafe performed the services in a professional manner, in accordance with relevant guidelines and standards, and generally accepted industry practices. Airsafe does not make any other warranty, expressed or implied, as to the professional advice contained in this report.

Within the guidelines set down for this investigation, every effort has been made to give an accurate assessment of the property identified in this document. Airsafe does not accept any responsibility for any contamination that may exist in the area now or in the future. Airsafe accepts no liability for the use of this document by any other person other than the client. This report is based on current and historical information available at the time of writing.

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SECTION 2: PHYSICAL & SITE INFORMATION

2.1 SITE IDENTIFICATION

ADDRESS	Lot 1 Magpie Hollow Road, South Bowenfels NSW 2709
LOCAL GOVERNMENT AUTHORITY	Lithgow City Council
LOT & DEPOSITED PLAN	Lot 1 DP527491
PARISH	Lett
COUNTY	Cook
COUNCIL LAND ZONING	R2 - Low Density Residential
SITE AREA	Approx. 11,720m ²

2.2 SOIL LANDSCAPE & GEOLOGY

Soil Landscapes:

The site is located within a Lithgow soil landscape group. Soils Landscapes Data Source: NSW Department of Planning, Industry and Environment.

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<http://creativecommons.org/licenses/by/4.0/au/deed.en>

Lithgow Landscape Group - Described as:

- Landscape: flat to undulating rises and broad valley floors on Illawarra Coal Measures and the Berry Formation. Local relief to 20 m. Slopes <10%. Elevation approximately 800 – 1 000 m. Localised rock outcrop. Extensively cleared open-forest and open-woodland.
- Soil: ly deep (<120 cm), moderately well drained Red Podzolic Soils (Dr3.41), Yellow Podzolic Soils (Dy2.11, Dy3.11, Dy3.51), Yellow Leached Earths (Gn2.34) and Yellow Earths (Gn2.11) on upper slopes and well-drained areas. Moderately deep to deep (<170 cm), imperfectly drained Solods/yellow Solodic Soils (Dy2.41, Dy3.41, Dy5.41).

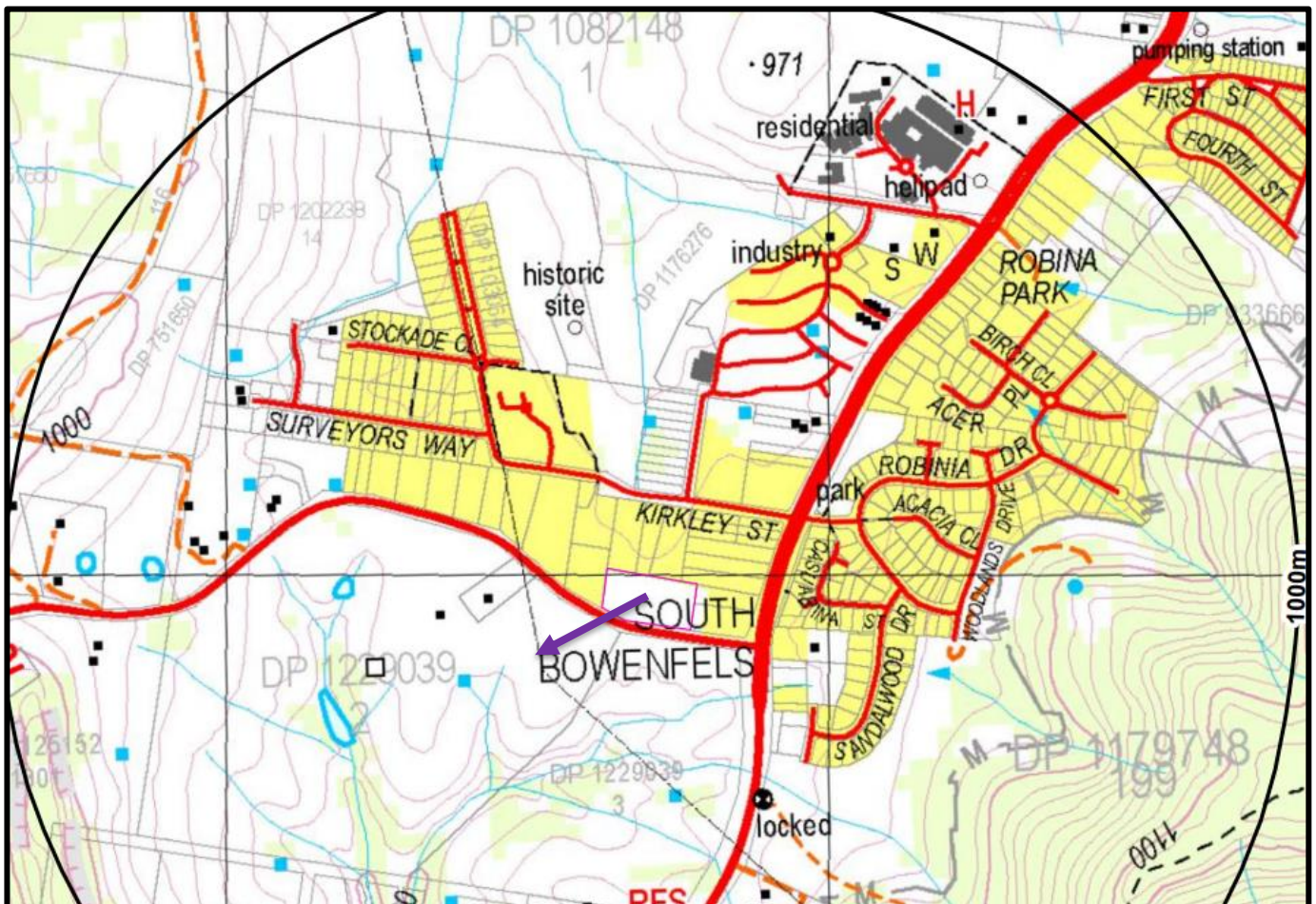
Soil Landscapes of Central and Eastern NSW: NSW Department of Planning, Industry and Environment.

Geological Landscape: Parent materials include the Illawarra Coal Measures and the Berry Formation. Horizontally bedded shale, sandstone, siltstone, mudstone, claystone, limestone, coal, torbanite and conglomerate are the main rock types.

2.3 TOPOGRAPHY AND HYDROGEOLOGY

The property is located between the 948 metre & 946 metre AHD map contour. The site is positioned on a slight slope toward the west. Surface water is expected to follow the topography southwest into the adjacent valley watercourse.

Figure 1.

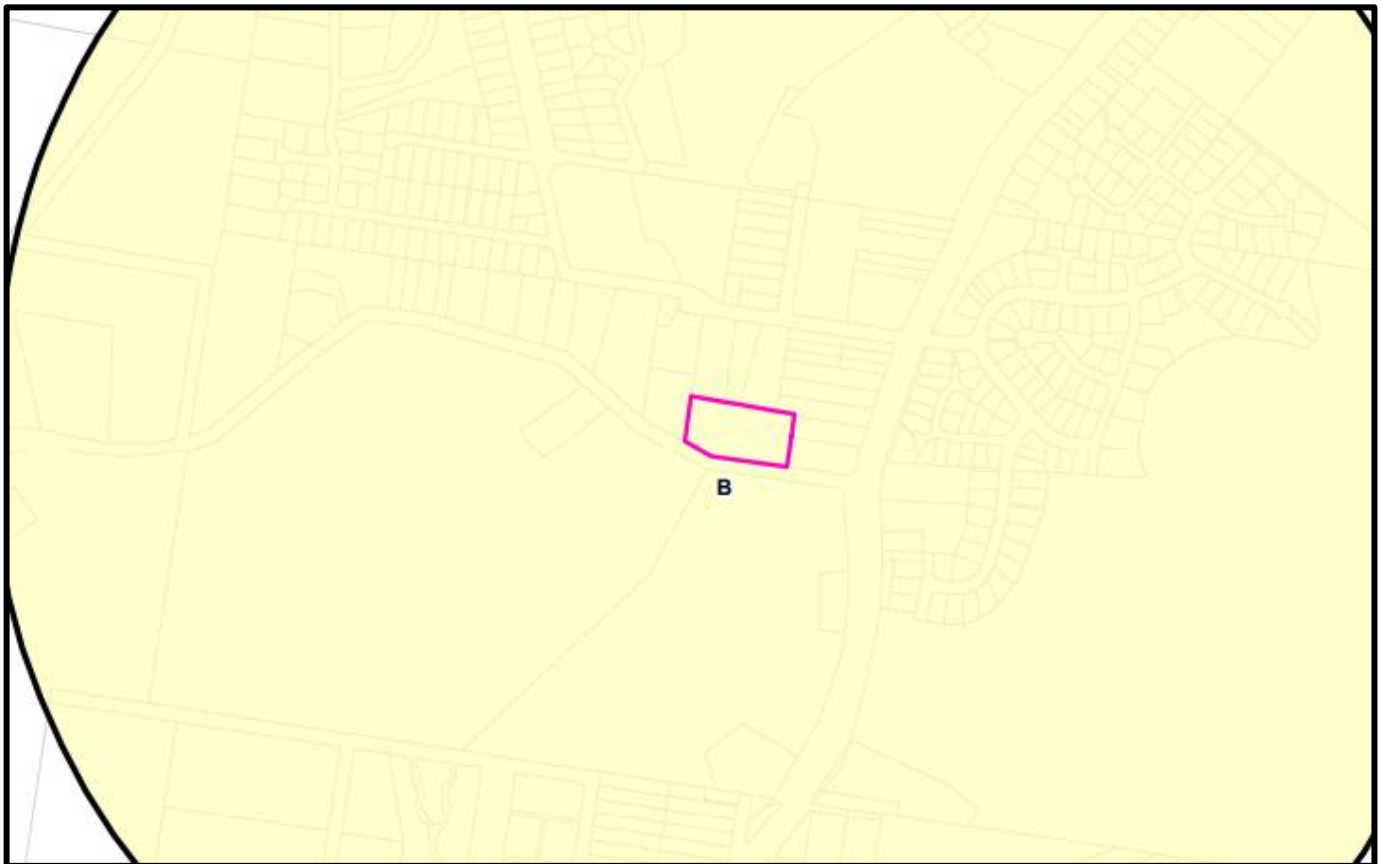


Suspected surface water run-off direction (Purple arrow).

2.4 ACID SULFATE SOIL RISK

No data is presently available for ASS plan class for the site. The probability of occurrence of Acid Sulphate Soils is Low (6-70%). It is our opinion that PASS (potential acid sulfate soils) shall not be an issue affecting the site.

Figure 2.



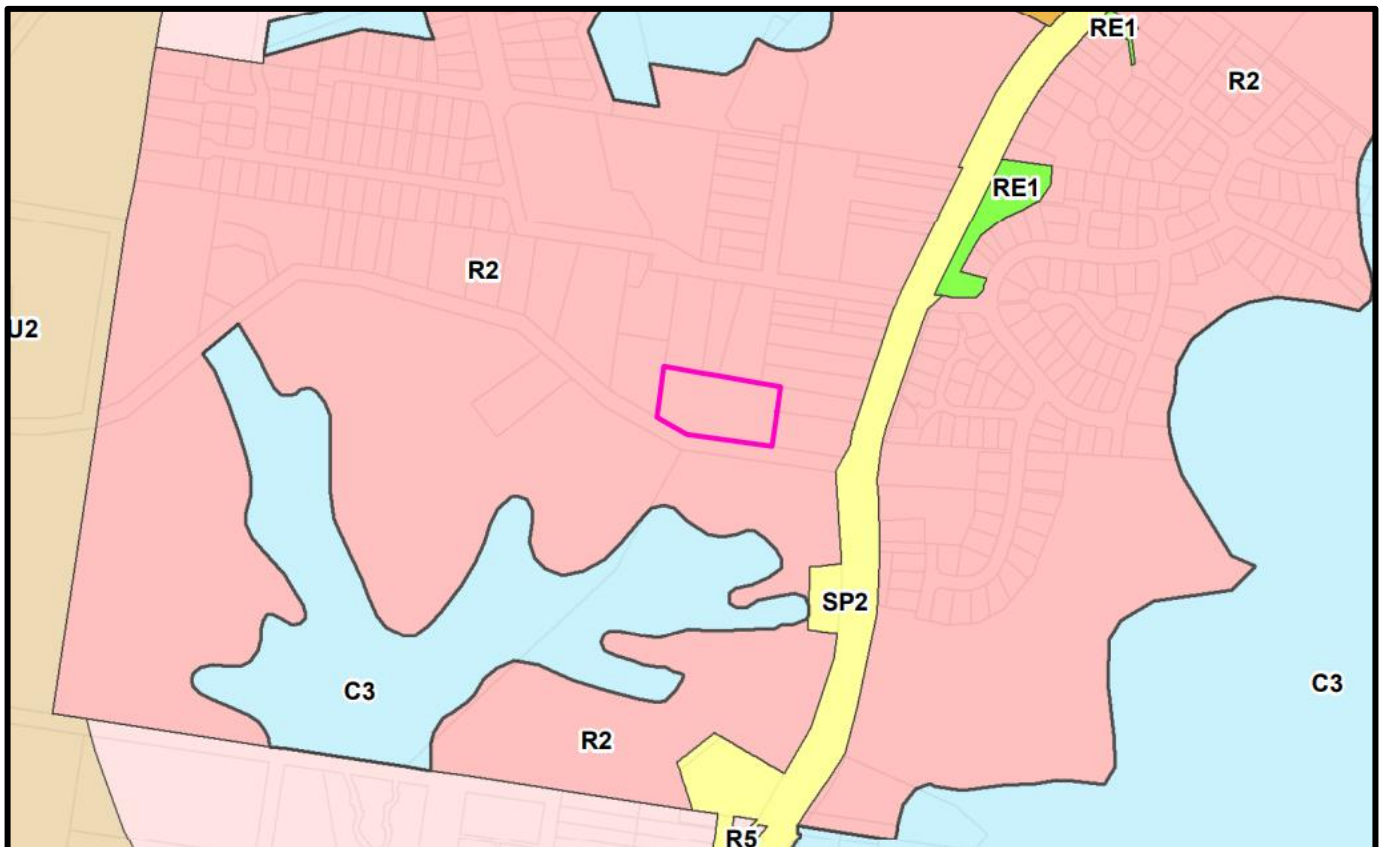
Acid Sulphate Probability Map

2.5 ZONED LAND USE

Lithgow Local Environmental Plan 2014: The site is within the:

- R2 – Low density Residential.

Figure 3.



2.6 DRYLAND SALINITY

There currently is no Dryland Salinity data regarding this site. This is not expected to be an issue affecting the development.

2.7 SAFEWORK NSW SITE SEARCH (DANGEROUS GOODS ON PREMISES)

The title history did not show evidence of ownership by an industrial entity. It was not considered necessary to search of the Stored Chemical Information Database (SCID) and the microfiche records held by Safework NSW.

2.8 SITE TITLE HISTORY

SUMMARY OF PROPRIETORS: Lot 11 DP 1295137	
YEAR	PROPRIETOR
16.05.1908 (1908 to 1944)	John Thomas Cary (Grazier) (& his deceased estate)
16.06.1944 (1944 to 1961)	Florence Margaret Annie Costello (Married Woman)
13.04.1961 (1961 to 1965)	John Drew (Stock & Station Agent)
28.07.1965 (1965 to 1969)	Jessie Elizabeth Drew (Widow) (Section 94 Application not investigated)
13.01.1969 (1969 to 1983)	The Farmers & Graziers' Co-operative Company Limited
18.08.1983 (1983 to 2011)	Antonio Inzitari Rosa Inzitari
28.04.2011 (2011 to 2016)	Rosa Inzitari
20.12.2016 (2016 to date)	# Rosaton Pty Limited

2.9 EPA PFAS* INVESTIGATION PROGRAM

The NSW Environment Protection Authority (EPA) is undertaking an investigation program to assess the legacy of *per- and poly- fluoroalkyl substances (PFAS) use across NSW.

PFAS are a group of chemicals that include perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA). They have many specialty applications and are widely used in a range of products in Australia and internationally.

PFAS are an emerging contaminant, which means that their ecological and/or human health effects are unclear. The EPA is investigating to better understand the extent of PFAS use and contamination in NSW. This will enable the EPA to be better prepared to respond if any health and environmental impacts become known.

The site was not located within the PFAS Investigation Zone.

2.10 HISTORICAL AIR PHOTOS



1950 AERIAL PHOTOGRAPH

No building structures can be seen on the site. Appears to be a minor amount of vegetation on site and some buildings on the eastern neighbouring side.



1979 AERIAL PHOTOGRAPH

Unclear what is on the western end of the site, it is suspected that it could potentially be a small orchard or stalls of some kind. More buildings have been constructed on the northern and western neighbouring sides.



1984 AERIAL PHOTOGRAPH

A dam can be seen in the centre of the site, no other significant changes are noted.



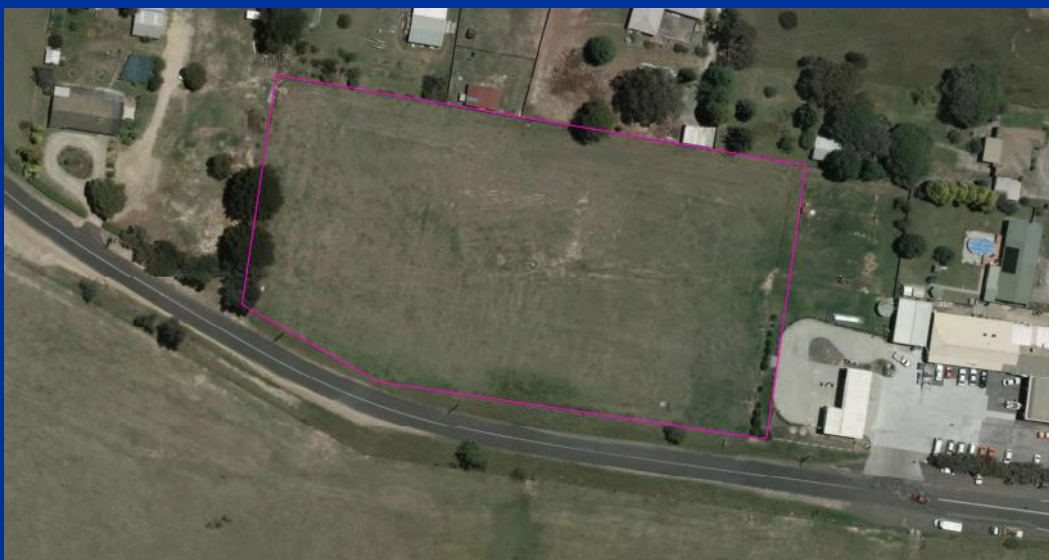
1990 AERIAL PHOTOGRAPH

No significant changes since previous aerial photo. Dam still present in centre of site.



2002 AERIAL PHOTOGRAPH

Dam has now been backfilled, no other significant changes.



2009 AERIAL PHOTOGRAPH

No significant alterations to the site were observed.



2011 AERIAL PHOTOGRAPH

No significant alterations to the site were observed.



2016 AERIAL PHOTOGRAPH

No significant alterations to the site were observed.



2020 AERIAL PHOTOGRAPH

No significant alterations to the site were observed. More building structures present on northern neighbouring side of site.



2024 (CURRENT) AERIAL PHOTOGRAPH

No significant alterations to the site were observed.

2.11 TITLE, BUSINESS AND AIR PHOTO DISCUSSION

Data Sources: Historical Aerials: © NSW Department of Customer Service)

1950-1979	The land is privately owned. Site vacant, no building structures can be seen on the site. Building structures can be seen on the eastern neighbouring side.
1979 - 1984	The land is privately owned. A dam has been constructed in the centre of the site.
1984 - 1990	The land is privately owned. No significant changes observed in aerial photography. Dam is still present in the centre of the site.
1990-2002	The land is privately owned. Dam has been filled in and no longer can be seen in the aerial photography.
2002 - 2016	The land is privately owned. No significant changes observed in aerial photography.
2016 - 2020	The land is privately owned. No significant changes observed on the site. More building structures can be seen on the northern neighbouring side of the site.
2020 -Current (2024)	The land is privately owned. No significant changes observed in aerial photography.

2.12 EPA NSW CONTAMINATED LAND DATABASE

A search of the contaminated land database was carried out for the site. The site in question was not listed in the NSW EPA Contaminated Land list.

2.13 PROPOSED DEVELOPMENT

The development proposal outlines the construction of school facility on the currently vacant parcel of land.

2.14 LGA (LITHGOW CITY COUNCIL) PLANNING CERTIFICATE

Lithgow City Council – *Planning Certificate Under Section 10.7 Environmental Planning & Assessment Act 1979* – Certificate No: PLANC2-22-0152 – Date 29/09/2022.

Page 8 – The following matters are prescribed under Section 290 of the Environmental Planning & Assessment Regulation 2021

Matters arising Section 59(2) of the Contaminated Lands Management Act 1997 as additional matters to be specified in a planning certificate:

- (a) The land is not significantly contaminated land (or part of the land) within the meaning of the Contaminated Lands Management Act 1997 at the date when the certificate is issued.
- (b) The land is not subject to a management order within the meaning of the Contaminated Lands Management Act 1997 at the date when the certificate is issued.
- (c) The land is not the subject of an approved voluntary management proposal within the meaning of the Contaminated Lands Management Act 1997 at the date when the certificate is issued.
- (d) The land is not subject to an ongoing maintenance order within the meaning of the Contaminated Lands Management Act 1997 at the date when the certificate is issued.
- (e) The land is not subject to a site audit statement within the meaning of the Contaminated Lands Management Act 1997.

28. LOOSE-FILL ASBESTOS INSULATION

A statement if the land includes any residential premises (within the meaning of Division 1A of Part 8 of the Home Building Act 1989) that are listed on the Loose-Fill Asbestos Insulation Register maintained by the Secretary of NSW Fair Trading. The land to which this certificate relates has not been identified in the Loose-Fill Asbestos Insulation Register as containing loose-fill asbestos ceiling insulation. Contact NSW Fair Trading for more information.

29. AFFECTED BUILDING NOTICES AND BUILDING PRODUCT RECTIFICATION ORDERS

There are no affected building notices or building rectification orders regarding this property.

2.15 GROUNDWATER

Numerous groundwater bores are located throughout the area. A registered groundwater bore is located with relevant drillers log information is documented below.

Groundwater Bore No.	GW115819
Licence No	10096645
Location/Direction	105m Northwest
Owner Type	Private
Purpose	Water Supply
Drilled Depth	120m
Standing water Level	-
Date Completed	11/05/2018
Salinity	-
Drillers Log for GW115819	
0.00m-0.30m TOPSOIL	
0.30m- 39.60m GRANITE SOFT WATER SUPPLY	
39.60m-53.40m GRANITE	

SECTION 3: SITE INSPECTION

A site inspection was carried out on 25th of June 2024.

3.1 BUILDING CONDITION, CURRENT OCCUPIER AND USE

The site consisted of one Lot, identified as Lot 1 DP527491. At the time of inspection, the Lot consisted of a vacant block which slopes slightly downward west. No building structure currently occupies the site. A small number of cows were grazing on the site at the time of inspection. The total area of the Lot is 11,720m². Refer to Appendix A for the site boundaries.

3.2 SURROUNDING LAND USE

- North: Adjacent residential.
- East: Service station & car wash.
- West: Adjacent residential.
- South: Magpie Hollow Road, farmland.

3.3 SURFACE CONDITION AND VEGETATION

The ground surface over the site mainly consisted of brown sandy loam topsoil with patchy grasses over the entirety of the site. Some metal pipe lengths and concrete debris was observed along the western boundary of the site. It is suspected that it is surplus building supplies used for the construction of fencing.

A walkover of the site failed to identify any significant signs of surface site contamination such as stockpiles of suspected fill or asbestos contamination.

All vegetation (shrubs and grasses) appeared to be healthy with no signs of stress. Odours or hydrocarbon style staining were not noticed during the inspection.

3.4 UNDERGROUND TANKS AND ASSOCIATED SERVICES

No underground storage tanks were located during the inspection.

3.5 FILL MATERIAL

Generally, the exact nature of the sub-surface material is not known. Land levels fall away slightly over the width of the site toward the western boundary. The parcel of land generally appears to be consistent with the levels of the surrounding area. Observations made from the historical aerial photographs show that a dam had been constructed at some point after 1979 and filled back in sometime prior to 2002. The dam was located the in centre of the site. It is suspected that the dam was been filled back in using on-site soil material.

3.6 CHEMICAL AND WASTE STORAGE

No waste storage tanks were located during the inspection.

SECTION 4: CONCEPTUAL SITE MODEL

4.1 POTENTIAL RECEPTORS

The site inspection revealed a number of potential receptors for on-site and off-site migration of potential contamination:

- Adjacent residential properties.
- Current & Future Occupants.
- Ecological Receptors.
- Construction workers.

4.2 POTENTIAL SOURCES AND CONTAMINANTS OF CONCERN

Historical Activity	Contaminant(s) of Concern	Affected Media	Location	Likelihood of Elevated Contaminants
Illegal dumping of building material	Asbestos	Surface soil	Entire site.	Unlikely - No evidence of illegal dumping on the site.
Potentially contaminated fill	Asbestos, Heavy Metals, BTEX, OCP, PCBs, Asbestos, TRH	Surface soil Sub-surface soils.	Entire site	Possible - It is not suspected that fill has been imported to site from 1950 to current. A dam present on the site was backfilled at some time prior to 1999. It is suspected that the dam has been backfilled with the spoil originally excavated from the creation of the dam.
Environmental fall out due to traffic and industrial emissions	Lead	Surface soil	Entire site	Unlikely - Area not subject to high volumes of road traffic adequate to warrant concern.

Historical Activity	Contaminant(s) of Concern	Affected Media	Location	Likelihood of Elevated Contaminants
Fuel contamination migration from neighboring service station UPT leakage (East)	TRH, PAH, BTEX	Sub-surface soils, Groundwater, and bedrock	Entire site	Unlikely – Groundwater expected to be present at significant depth. It is not expected that groundwater would flow in the direction of the site. No significant migration pathways were identified on site such as buried services or drainage lines.
Fuel spillage surface run-off from neighboring service station on to site.	TRH, PAH, BTEX	Surface soils	Eastern site boundary	Possible – There is a slight gradient southwest from the service station to the site across the eastern boundary. The service station is located on the eastern end of the neighboring block, which is a considerable distance from the site boundary.

4.3 POTENTIALLY AFFECTED MEDIA (PCM)

The potentially contaminated media on site are:

- Surface soil – Possible
- Sub-surface – Possible
- Groundwater – Unlikely

4.4 POTENTIAL EXPOSURE PATHWAYS

Pathway	Contaminants	Likelihood
Airborne contaminant particles	Heavy metals, Asbestos, Lead	Unlikely - No ACM identified on site. No building structures historically or currently on site
Dermal contact	Heavy metals, TRH, PAHs, OCP, PCBs	Possible - No odors or staining identified, fill not suspected on site. No building structures historically or currently on site
Ingestion	Heavy metals, OCP, PCBs, PAHs, TRH	Unlikely - No odors or staining identified, fill not suspected on site. No building structures historically or currently on site.
Airborne Vapours	Volatile contaminants	Unlikely - No basement or concrete slab over the site.

4.5 HUMAN AND ECOLOGICAL RECEPTORS

Type	Receptors	Likelihood
Human	Future Occupants and landholders	Possible
	Neighboring properties	Unlikely
	Construction and maintenance workers. Particularly if involved in potential on-site excavation works.	Possible
Ecological	Adjacent gardens, trees, and scrubs	Unlikely
	Watercourse in valley	Unlikely

4.6 ASSESSMENT OF DATA GAPS

DATA GAPS	COMMENTS
Status of soil with respect to sub-surface fill material	Quantities of imported fill are not suspected, although the backfilling of the dam with potentially contaminated fill cannot be ruled out. Historical contaminating activities not suspected on site.
Groundwater sampling	Assessed to be at depth. Not suspected to be encountered during excavation works. Any perched groundwater encountered during the excavation should be assessed if identified.
Potential vapour (VOC) accumulation	Not considered an issue.

SECTION 5: DISCUSSION, CONCLUSION & RECOMMENDATIONS

5.1 DISCUSSION

Points taken into consideration to enable recommendations:

- Lot 1 DP527491 is located at Lot 1 Magpie Hollow Road, South Bowenfels NSW 2079. The proposed development for this site is for the construction of a school facility on the vacant site. The Lot slightly slopes toward the west.
- The Lot consisted of a vacant block which was vegetated with patchy tufts of grass. The soil appeared to be comprised of mostly brown sandy loam. A small amount of fence building materials were identified along the western boundary of the site. No stockpiles of fill material or residual building materials were identified on the surface of the site.
- No building structures currently occupy the area. The total area of the Lot is 11,720m².
- Historical photographs identified that no significant building structures were constructed on the Lot since 1950. A review of the aerial photograph taken from 1979 identified an indistinguishable object(s) along the western boundary of the Lot. It is suspected that it may be an orchard or livestock stalls.
- The lot appears to have been mostly unaltered since 1950 apart from the creation of a small dam at some point between 1979 and 1984. This small dam was backfilled at some point prior to 1999.
- It is suspected that the dam has been backfilled with the spoil that was originally excavated during the creation of the dam. Although it cannot be ruled out that the dam was backfilled with potentially contaminated fill.
- The title search and historical aerial photos show no evidence the site has been used for any significant industrial activity that may have had an impact on the soil with respect to chemical contamination.
- The immediate properties on the northern and western side of the Lot are residential dwellings. A service station and carwash are present on the eastern neighbouring boundary.
- There is a slight gradient downwards from the service station toward the Lot across the eastern boundary. The service station is located on the eastern end of the neighboring block, which is a considerable distance from the site boundary. It is a possibility that surface fuel spillage may have migrated to surface soils along the eastern boundary of the Lot.
- All vegetation appeared to be healthy with no signs of stress. Odours or hydrocarbon style staining were not identified.

- No asbestos or other hazardous building material products were identified during the site walkover.
- Generally, the exact nature of the sub-surface material is not known, although the property appears to be consistent with the natural levels of the surrounding area. It is not suspected that large quantities of fill material have been imported onto the site.
- The site is not listed on the EPA NSW Contaminated Lands database.
- No chemicals were located or are suspected to be located on the site. No significant staining or odours were identified during the inspection.
- The matters as prescribed by Section 59(2) of the Contaminated Lands Management Act 1997 (documented in the Planning Certificate 149) do NOT indicate that the land is contaminated, or under any orders or notices issued by the EPA NSW.
- The NSW Environment Protection Authority (EPA) is undertaking an investigation program to assess the legacy of *per- and poly- fluoroalkyl substances (PFAS) use across NSW. The site is not part of the PFAS investigation program.
- No data is currently available regarding the ASS risk class status of the site. The probability of occurrence of Acid Sulphate Soils is Low (6-70%). It is our opinion that PASS (potential acid sulfate soils) shall not be an issue affecting the site.
- The site was not identified as being in a risk zone regarding dryland salinity. This is not considered an issue that will affect the development proposal.
- Uncertainties regarding the backfilled dam, the indistinguishable object along the western boundary, and the potential for surface soil contamination from fuel spill surface run-off along the eastern boundary should be investigated by undertaking limited targeted soil sampling. Soil sampling will focus on the potential areas of environmental concern only. Sample analysis results and conclusions from the limited sampling will be added to this reports addendum.

5.2 CONCLUSION & RECOMMENDATIONS

5.2.1 General Conclusion – Suitability of the Property for the Proposed Development

This report was prepared in accordance with:

- *National Environmental Protection (Assessment of Site Contamination) Measure (NEPM), 1999 (amended 2013)*
- *State Environmental Planning Policy No.55 Remediation of Land (SEPP 55)*
- *EPA NSW Guidelines for Consultants reporting on contaminated land, NSW EPA 2020.*

The investigation did not identify significant on-site present or historical industrial or agricultural contaminating activities. No area/s of significant environmental concern were identified in this report. It is the opinion of Airsafe, with respect to the investigation carried out within this report that the site should be suitable for the proposed development of a school although further investigation will be required to discern potential areas of environmental concern.

The suitability of the site for the proposed development of a school will be dependent on the results and conclusions reached following limited targeted investigation and sampling to discern potential areas of environmental concern.

This recommendation is conditional on the following:

5.2.2 Condition #1: Limited Sampling to Address Uncertainty Data Gaps.

Limited targeted sampling will be undertaken in the following areas to address the uncertainties in the data:

- **Location of Backfilled Dam**
 - Test pit(s) shall be excavated in the location of the backfilled dam to allow visual inspection of the soil strata for indications that potentially contaminated fill may have been imported on to the Lot for backfilling purposes.
 - Three (3) shallow soil samples shall be collected at a depth of 0.1-0.5m BGL from test pits and be analysed for TRH, BTEX, Asbestos, Heavy Metals, OCPs, OPPs and PAHs.

- **Undetermined Object Along Western Boundary**

- Test pit(s) shall be excavated in the location of the undetermined object identified along the western boundary in the 1979 aerial photograph.
- Two (2) shallow soil samples shall be collected at a depth of 0.1m-0.5m BGL from test pits and analysed for Asbestos, Heavy Metals, OCPs, OPPs and PAHs.

- **Fuel Spillage Surface Run-off Along Eastern Boundary**

- Three (3) shallow soil samples shall be collected at a depth of 0.1-0.5m BGL along the eastern boundary fence that adjoins the service station.
- Soil samples will be analysed for BTEX, PAHs, TRHs, and Heavy Metals.

Sample analysis results and conclusions from the limited sampling will be added to this reports addendum.

5.2.3 - Condition #2: General Excavation of Fill/ Imported Soil / Waste Classification Requirements

General fill soils removed from the property must first be classified as per the EPA NSW Waste Classification Guidelines - Part 1: Classifying Waste (Nov 2014) prior to disposal. The soil sampling regime shall follow EPA NSW Sampling Design Guidelines September 1995. Classification samples of the soil shall be taken by the Environmental Consultant from in situ prior to excavation.

5.2.4 – Condition #3: Imported Soil – VENM

Any imported fill shall be sampled prior to importation and shall conform to VENM (virgin excavated natural material) as per EPA NSW Waste Classification Guidelines - Part 1: Classifying Waste (Nov 2014).

- **VENM with Documentation:** Backfill material shall be (virgin) excavated natural material (VENM) sourced from a reputable soil / landscaping supplier or excavation contractor. This shall be accompanied by suitable documentation verifying the material is VENM. The documentation shall be provided by a suitably qualified Environmental or Engineering Consultant.
- **VENM without Documentation:** Backfill material without suitable VENM documentation shall be validated using a frequency of one (1) sample for every twenty-five cubic metres (25m³). Each discrete sample analysed shall consist of a composite of these 5 sub-samples collected and mixed

in a stainless-steel tray. Each sample shall be analysed for the full suite of analytes listed in the EPA Waste Classification Guidelines, Part 1: Classifying Waste (DEC 2014) (Waste Classification Guidelines).

5.2.5 – Condition #4: Unexpected Finds Protocol – Unknown Contaminated Soil

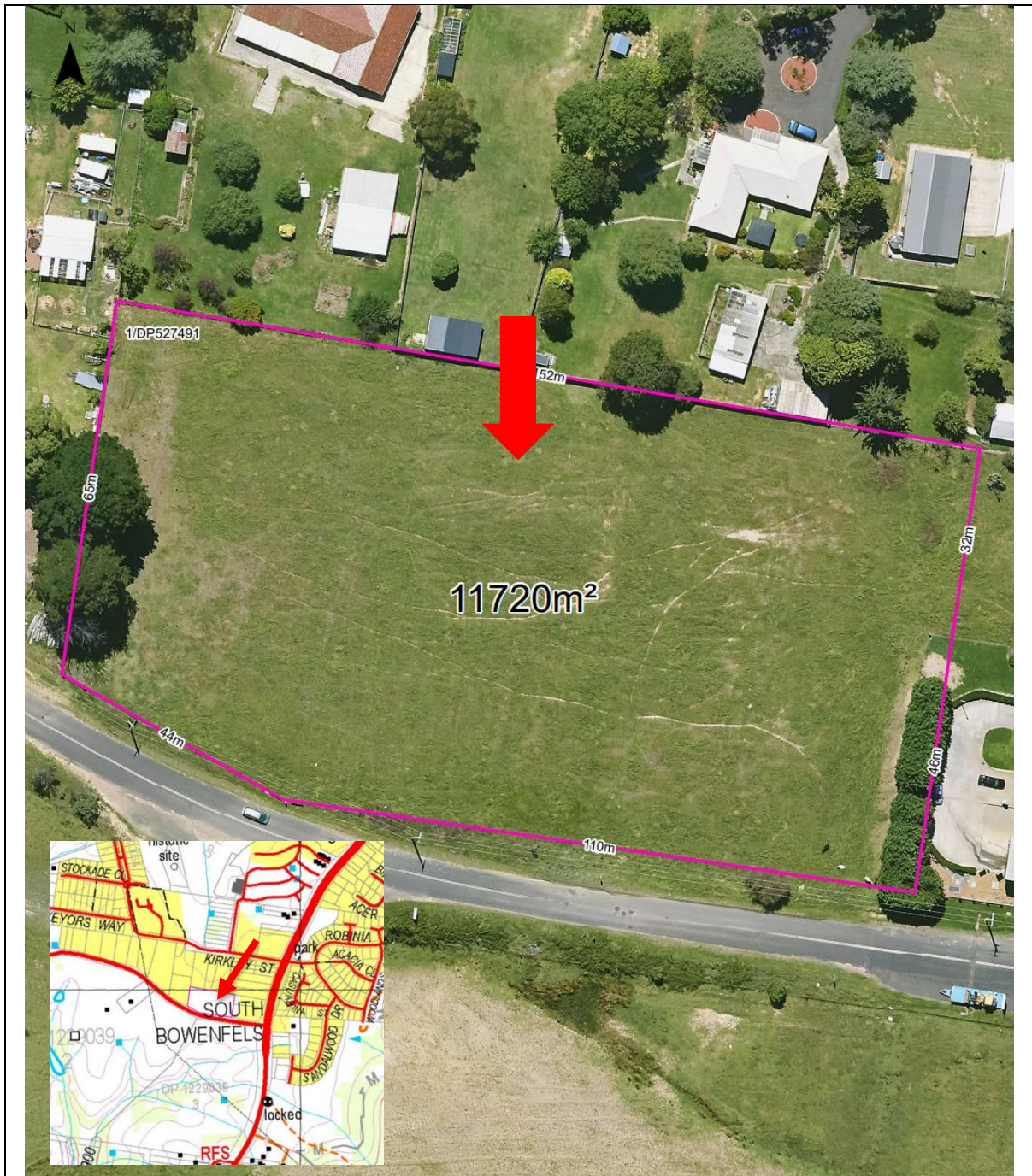
If during excavation soil is uncovered that is noticeably stained, has an odour or is suspected to be contaminated outside the known scope (including fragments of fibreboard '*fibro*'), then work should cease in that area. The soil or material should be assessed by an Environmental Geologist/Engineer and sampled for known or possible contaminants. A further report and/or special procedures may have to be undertaken if significant contamination is found on site or by laboratory analysis.

SECTION 6. REFERENCES AND LEGISLATION

- *Soils Landscapes Data Source : NSW Office of Environment and Heritage*
- *Property Boundaries & Topographic Data: Land and Property Information 2017*
- *EPA NSW Sampling design part 1 – application (Aug 2022).*
- *NSW Contaminated Land Management Act 2008 No.11.*
- *State Environmental Planning Policy (Resilience and Hazards) 2021;*
- *Waste Classification Guidelines (Part 1 : Classifying Waste – Department of Environment & Climate Change NSW (Nov 2014)*
- *Australian and New Zealand Guidelines from the Protection of Aquatic Organisms – 95% Protection of Species for Fresh and Marine Water (ANZECC 2000).*
- *Virgin excavated natural material (DECC 2008/447) Fact Sheet 2008.*
- *DEC NSW Guidelines for Assessing Former Orchards & Market Gardens June 2005.*
- *EPA NSW Guidelines for Consultants Reporting on Contaminated Sites May 2020*
- *Work Health and Safety Act 2011 (WHS Act) and Work Health and Safety Regulation 2011 (WHS Regulation)*
- *OEH NSW Guidelines for Consultants Reporting on Contaminated Sites April 2020.*

APPENDIX A: FIGURES/PLANS

- Lot 1 DP527491 (Figure No.1 – 73912-F01)
- Photographs



Legend:  - Site Location		 	
Figure No.	Figure No.1 - 73912-F01	Location	Lot 1 Magpie Hollow Road, South Bowenfels NSW 2709
Source	Aerometrex Pty Ltd	Client	Dezign
Drawn	L.M	Project	Stage 1 Preliminary Site Investigations
Approved	L.M	Description	Site Location

APPENDIX A: PHOTOGRAPHS

Stage 1 Preliminary Site Investigation [Ref.73912.07.24.Stage1PSI]
 Lot 1 Magpie Hollow Road, South Bowenfels (Lot 1 DP527491)



Photo 1

View of the site looking east from the western boundary.



Photo 2

View of the site looking north from the southern boundary.



Photo 3

Eastern boundary fence, looking south.



Photo 4

Exposed soil surface.



Photo 5

Residual fencing construction material along the western boundary of the site.



Photo 6

View of the site looking northeast.

APPENDIX B: SUPPORTING DOCUMENTS

- HISTORICAL TITLE INFORMATION
- PLANNING CERTIFICATE
- OTHER DOCUMENTATION



Cadastral Records Enquiry Report : Lot 1 DP 527491

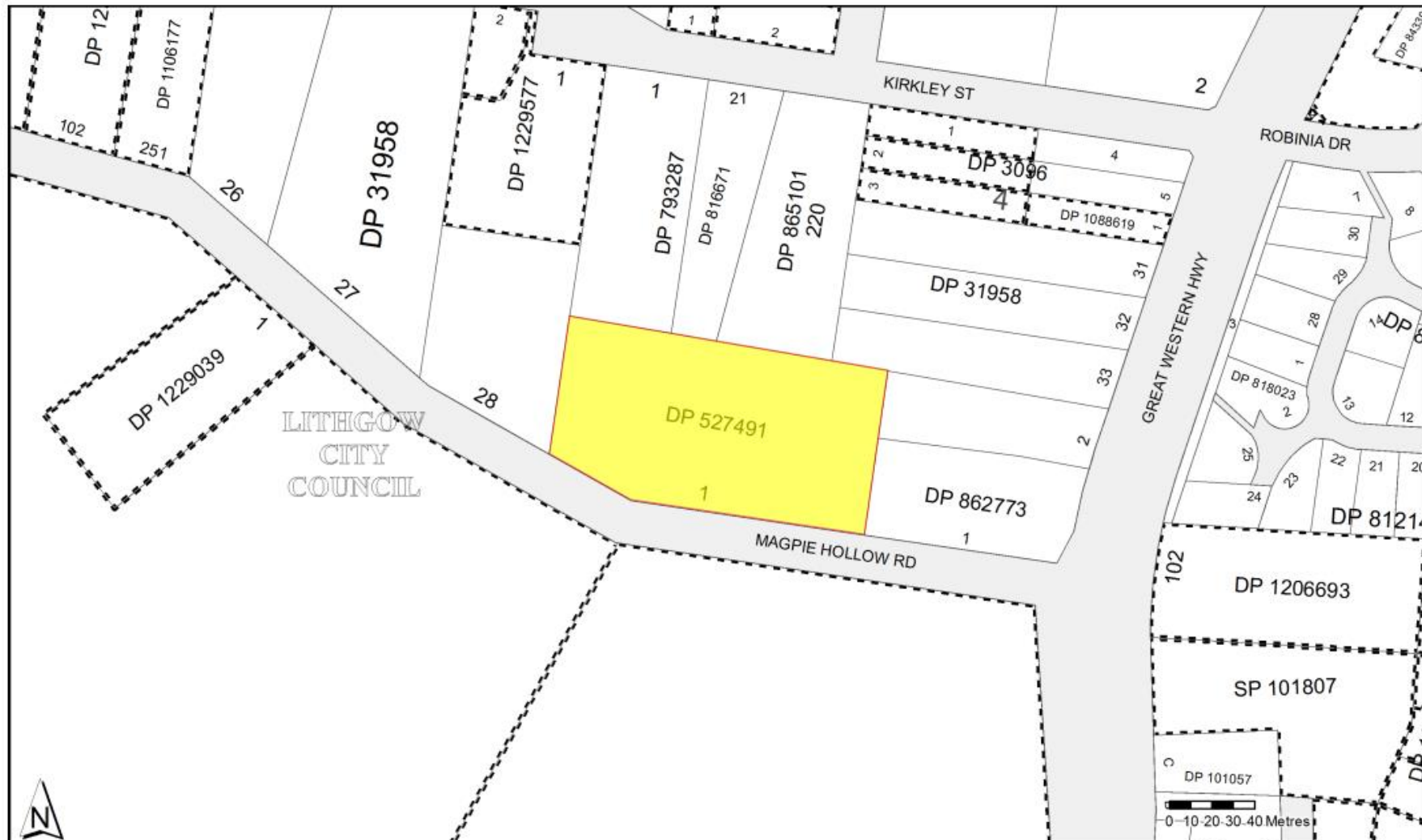
Locality : SOUTH BOWENFELS

LGA : LITHGOW CITY

Parish : LETT

County : COOK

Ref : LS057760_EP - Lot 1



Report Generated 1:17:38 PM, 25 June, 2024
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This information is provided as a searching aid only. Whilst every endeavour is made to ensure that current map, plan and titling information is accurately reflected, the Registrar General cannot guarantee the information provided. For ALL ACTIVITY PRIOR TO SEPTEMBER 2002 you must refer to the RGs Charting and Reference Maps

Page 1 of 3

Req:R628897 /Doc:DP 0827491 P /Rev:01-Sep-1992 /NSW LRS /Pgs:ALL /Prt:25-Jun-2024 13:16 /Seq:1 of 1
Office of the Registrar-General /Src:InfoTrack /Ref:L8057760 EP - Lot 1



NEW SOUTH WALES

Application No. 8955

Prior Title Volume 8153 Folio 175

CIFICATE OF TITLE
PROPERTY ACT, 1900, as amended.



Vol. **10751** Fol. **148**
Edition issued 6-3-1968.

CANCELLED

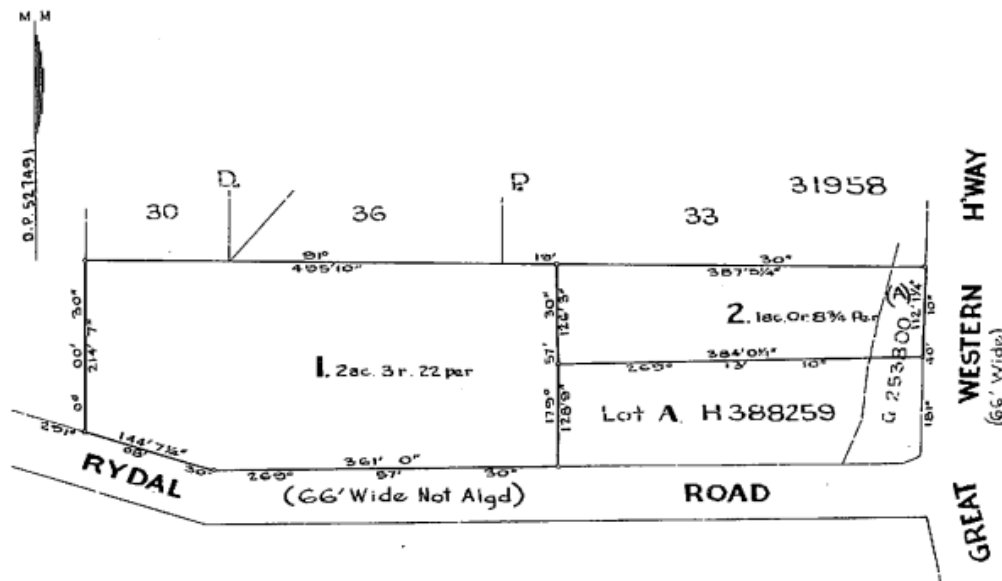
I certify that the person described in the First Schedule is the registered proprietor of the undermentioned estate in the land within described subject nevertheless to such exceptions encumbrances and interests as are shown in the Second Schedule.

Witness *M. Walter*

J. Watson
Registrar General.



PLAN SHOWING LOCATION OF LAND



ESTATE AND LAND REFERRED TO

Estate in Fee Simple in Lot 1 in Deposited Plan 527491 at South Bowenfels in the Shire of Blaxland Parish of Lett and County of Cook being part of Portion 27 granted to Alexander Binning on 16-6-1837.

FIRST SCHEDULE (continued overleaf)

JESSIE ELIZABETH DREW, of South Bowenfels, Widow.

SECOND SCHEDULE (continued overleaf)

1. Reservations and conditions, if any, contained in the Crown Grant above referred to.

J. Watson
Registrar General

NOTE: ENTRIES RULED THROUGH AND AUTHENTICATED BY THE SEAL OF THE REGISTRAR GENERAL ARE CANCELLED.

WARNING: THIS DOCUMENT MUST NOT BE REMOVED FROM THE LAND TITLES OFFICE.

Vol. 10751 Fol 148



LAND
REGISTRY
SERVICES

Historical Search



NEW SOUTH WALES LAND REGISTRY SERVICES - HISTORICAL SEARCH

SEARCH DATE

25/6/2024 1:16PM

FOLIO: 1/527491

First Title(s): SEE PRIOR TITLE(S)

Prior Title(s): VOL 10751 FOL 148

Recorded	Number	Type of Instrument	C.T. Issue
28/3/1988		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
1/7/1988		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
3/10/2002	9005228	DISCHARGE OF MORTGAGE	EDITION 1
28/4/2011	AG199167	NOTICE OF DEATH	EDITION 2
20/12/2016	AM15782	TRANSFER	EDITION 3

*** END OF SEARCH ***

Req:R628899 /Doc:DL AM015782 /Rev:23-Dec-2016 /NSW LRS /Pgs:ALL /Prt:25-Jun-2024 13:16 /Seq:1 of 1
 © Office of the Registrar-General /Src:InfoTrack /Ref:LS057760_EP - Lot 1

Form: 01T
 Release: 6-1

TRANSFER

New South Wales
 Real Property Act 1900

**AM15782E**

PRIVACY NOTE: Section 31B of the Real Property Act 1900 (RP Act) authorises by this form for the establishment and maintenance of the Real Property Act Register. Section 96B RP Act requires that the Register is made available to any person for search upon payment of a fee, if any.

STAMP DUTY

Office of State Revenue use only

Office of State Revenue

(NSW)

Client No: 131126930

4280

Duty: \$10.00 Trans No: 8952939-001.

Asst details:

(A) TORRENS TITLE

1/527491

(B) LODGED BYDocument
Collection
Box

Name, Address or DX, Telephone, and Customer Account Number if any

1089X

Reference: 1605709

J. J. RALPH & CO

123786S

1089X

CITY LEGAL SERVICES

CODES**T****TW****(C) TRANSFEROR**

ROSA INZITARI

(D) CONSIDERATION

The transferor acknowledges receipt of the consideration of \$ 400,000.00

and as regards

(E) ESTATEthe abovementioned land transfers to the transferee an estate in fee simple**(F) SHARE****TRANSFERRED**

WHOLE

Encumbrances (if applicable):

TRANSFEEE

ROSATON PTY LIMITED AEN: 20610907536

ABN:

TENANCY:**DATE** 8th December 2016

I certify I am an eligible witness and that the transferor
 signed this dealing in my presence.
 [See note* below]

Certified correct for the purposes of the Real Property Act
 1900 by the transferor.

Signature of witness:

Signature of transferor:

Name of witness:

Karen Nyitrai

Address of witness:

31 Main Street
 Lithgow.

Certified correct for the purposes of the Real Property Act
 1900 on behalf of the transferee by the person whose
 signature appears below.

Signature:

Signatory's name:

THOMAS JOSEPH

Signatory's capacity:

solicitor

(K) The transferee's solicitor certifies that the eNOS data relevant to this dealing has been submitted and stored under
 eNOS ID No. 1211654 Full name: THOMAS JOSEPH Signature:

* s117 RP Act requires that you must have known the signatory for more than 12 months or have sighted identifying documentation.

ALL HANDWRITING MUST BE IN BLOCK CAPITALS

Page 1 of 1

1303



LAND
REGISTRY
SERVICES

Title Search



NEW SOUTH WALES LAND REGISTRY SERVICES - TITLE SEARCH

FOLIO: 1/527491

SEARCH DATE	TIME	EDITION NO	DATE
-----	----	-----	----
25/6/2024	1:15 PM	3	20/12/2016

LAND

LOT 1 IN DEPOSITED PLAN 527491
AT SOUTH BOWENFELS
LOCAL GOVERNMENT AREA LITHGOW CITY
PARISH OF LETT COUNTY OF COOK
TITLE DIAGRAM DP527491

FIRST SCHEDULE

ROSATON PTY LIMITED (T AM15782)

SECOND SCHEDULE (1 NOTIFICATION)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

LS057760_EP - Lot 1

PRINTED ON 25/6/2024

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

Steele & Co Law & Conveyancing
PO Box 1504
BATHURST NSW 2795



PLANNING CERTIFICATE UNDER SECTION 10.7, ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979

CERTIFICATE NO: PLANC2-22-0152

YOUR REF: 192290
RECEIPT NO: 354625

PROPERTY NO: 78230
ISSUE DATE: 29/09/2022

PROPERTY ADDRESS: Great Western Highway BOWENFELS NSW 2790
OWNER: Rosaton Pty Ltd

LAND PARCEL DESCRIPTIONS: Lot 1 DP 527491

IN ACCORDANCE WITH SECTION 10.7(2) OF THE ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979, IT IS CERTIFIED THAT AT THE DATE OF THIS CERTIFICATE THE FOLLOWING PRESCRIBED MATTERS RELATE TO THE LAND:

1. Names of relevant planning instruments and development control plans

(1) The name of each planning instrument and development control plan that applies to the carrying out of development on the land:

Lithgow Local Environment Plan 2014

Lithgow Development Control Plan 2021

Further, the following State Environmental Planning Policies apply to the land:

State Environmental Planning Policy (Housing) 2021

State Environmental Planning Policy (Planning Systems) 2021

State Environmental Planning Policy (Biodiversity and Conservation) 2021

State Environment Planning Policy (Resilience and Hazards) 2021

State Environmental Planning Policy (Transport and Infrastructure) 2021

State Environmental Planning Policy (Industry and Employment) 2021

State Environmental Planning Policy (Resource and Energy) 2021

State Environmental Planning Policy (Primary Production) 2021

State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004

State Environmental Planning Policy (Exempt and Complying Development Codes) 2008

State Environmental Planning Policy No 65 – Design Quality of Residential Apartment Development

A copy of the SEPPs are available on the NSW Legislation website- www.legislation.nsw.gov.au

(2) The name of each proposed environmental planning instrument and draft development control plan which is or has been subject to community consultation or public exhibition under the Act, that will apply to the carrying out of development on land:

The following draft State Environmental Planning Policies apply to the land:

- Draft Environment SEPP
- Draft Remediation of Land SEPP

A copy of the draft SEPPs are available on the NSW Planning Portal website at <https://www.planningportal.nsw.gov.au/draftplans>

- Employment Zone Reform
Public exhibition of the translation of existing Business and Industrial zones into the new Employment zones will be on exhibition until **12 July 2022**. To view the exhibition platform please visit the NSW Department of Planning & Environments at: <https://www.planning.nsw.gov.au/employment-zones-reform>

2. Zoning and land use under relevant planning instruments

(a) Identify the zone:

R2 LOW DENSITY RESIDENTIAL

(b) The purposes for which development in the zone:

(i) May be carried out without development consent:

Home occupations; roads;

(ii) May not be carried out except with development consent:

Attached dwellings; Bed and breakfast accommodation; Boarding houses; Building identification signs; Business identification signs; Caravan parks; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Emergency services facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Health services facilities; Home-based child care; Home businesses; Kiosks; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Pond-based aquaculture; Recreation areas; Respite day care centres; Seniors housing; Shop top housing; Tank-based aquaculture; Water recycling facilities; Water supply systems

(iii) Is prohibited:

Any development not specified in item (i) or (ii).

(c) whether additional permitted uses apply to the land:

Nil.

(d) Whether any development standards applying to the land fix minimum land dimensions for the erection of a dwelling- house on the land and, if so, the fixed minimum land dimensions:

800m² as per the Lot Size Map for Lithgow Local Environmental Plan 2014.

- Note:**
1. For zones R1 General Residential and R2 Low Density Residential, no minimum land size applies for a 'dwelling-house' and the above land size applies to the minimum lot size for the purpose of a Torrens Title subdivision or additional dwellings in relation to Clause 4.1A of LEP2014.
 2. A 'dwelling-house' may be permissible if it does not meet the minimum lot size for zones RU1, RU2, E3, E4, RU5 and R5 if it can comply with Clause 4.2A or 4.2B of LEP2014. A search in this regard may be sought separately from Council.
 3. The above minimum land size is as per the 'Lot Size Map' for the purpose of a subdivision (Clause 4.1 of LEP2014) and does not necessarily state that a 'dwelling-house' is permissible in that particular zoning.

(e) Whether the land is in an area of outstanding biodiversity value under the *Biodiversity Conservation Act 2016*:

No.

(f) Whether the land is in a conservation area (however described):

No.

(g) Whether an item of environmental heritage (however described) is located on the land:

No.

3. Contributions Plans

The name of each contributions plan under the Act, Division 7.1 applying to the land, including draft contribution plans applying to the land:

Lithgow Section 94A (Section 7.12) Development Contributions Plan 2015 applies to this land.

4. Complying Development

- (1) If the land is land on which complying development may be carried out under each of the complying development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that policy, clause 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) or 1.19:**

YES - Some developments on this land may constitute Complying Development provided it comply with the provisions of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

- (2) If complying development may not be carried out on that land because of one of the clause 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of that Policy, the reasons why it may not be carried out under the clause:**

N/A.

Note: The above responses apply only to the land exemptions for Exempt and Complying Development set out in clauses 1.17A (1) (c) to (e), (2), (3) and (4), 1.18 (1) (c3) and 1.19 of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*. Other clauses within the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008* may prohibit complying development from occurring on the subject land.

5. Exempt development

- (1) If the land is land on which exempt development may be carried out under each of the exempt development codes under *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*, because of that policy, clause 1.16 (1) (b1) to (d), or 1.16A:**

Yes. Some developments on this land may constitute Exempt Development provided it comply with the provisions of the *State Environmental Planning Policy (Exempt and Complying Development Codes) 2008*.

- (2) If exempt development may not be carried out on the land because of clause 1.16(1)(b1) to (d) or 1.16A, the reasons why it may not be carried out under the clause:**

N/A.

6. Affected Building notices and building product rectification orders

If Council is aware of any affected building notice, building product rectification order or notice of intention to make a building product rectification order that is in force in relations to the land is outstanding, as per the *Building Products (Safety) Act 2017*?

No.

7. Land reserved for acquisition

Whether or not any environmental planning instrument or proposed environmental planning instrument referred to in Section 1 makes provisions in relation to the acquisition of the land by a public authority of the State, as referred to in the Act Section 3.15:

No.

8. Road widening and road realignment

Whether the land is affected by any road widening or road realignment under:
a) the *Roads Act 1993*, Part 3, Division 2, or
b) an environmental planning instrument, or
c) a resolution of the council

The property fronts a Council managed road. No widening or realignment is proposed by Council for this road as at the date of this certificate.

9. Flood related development controls

(1) If the land or part of the land is within the flood planning area and subject to flood related development controls.

No - The land or part of the land is not within the Interim Flood Planning Area (IFPA) identified in the Lithgow Flood Study 2017 or the land is outside the Lithgow Flood Study area. If the land is outside the Lithgow Flood Study area, flood related assessment requirements may still apply to the land.

(2) If the land or part of the land is between the flood planning area and the probable maximum flood and subject to flood related development controls.

No.

10. Council and other public authority policies on hazard risk restrictions

Whether land is affected by an adopted that restricts the development of the land because of the likelihood of land slip, bushfire, tidal inundation, subsidence, acid sulphate soils, contamination, aircraft noise, salinity, coastal hazards, sea level rise or another risk, other than flooding:

No.

11. Bush Fire Prone Land

If any of the land is bush fire prone land, designated by the commissioner of the NSW Rural Fire Service under the Act, section 10.3, a statement that all or some of the land is bush fire prone land:

Yes - The land is partially bushfire prone as identified on Council's adopted bushfire mapping.

12. Loose- fill asbestos insulation

If the land includes residential premises, within the meaning of the *Home Building Act 1989*, Part 8, Division 1A, that are listed on the Register kept under that Division?

No.

13. Mine Subsidence

Whether the land is declared to be a mine subsidence district within the meaning of the *Coal Mine Subsidence Compensation Act 2017*.

No.

14. Paper subdivision information

The name of a development plan adopted by a relevant authority that applies to the land or is proposed to be subject to a ballot:

NA.

15. Property Vegetation Plans

If the land is land in relation to which a property vegetation plan is approved and in force under the *Native Vegetation Act 2003*, Part 4, a statement to that effect, but only if council has been notified of the existence of the plan by the person or body that approved the plan under that Act.

No.

16. Biodiversity stewardship sites

If the land is a biodiversity stewardship site under a biodiversity stewardship agreement under the *Biodiversity Conservation Act 2016*, Part 5 (but only if the Council has been notified of the existence of the agreement by the Chief Executive of the office of Environment & Heritage). Note: Biodiversity stewardship agreements include biobanking agreements under Part 7A of the *Threatened Species Conservation Act 1995* that is taken to be biodiversity stewardship agreements under Part 5 of the *Biodiversity Conservation Act 2016*:

No.

17. Biodiversity Certified Land

If the land is biodiversity certified land under *Biodiversity Conservation Act 2016* Part 8? Note: Biodiversity certified land includes land certified under Part 7AA of the *Threatened Species Conservation Act 1995* that is taken to be certified under Part 8 of the *Biodiversity Conservation Act 2016*:

No.

18. Orders under *Trees (Disputes Between Neighbours) Act 2006*

Whether an order has been made under the *Trees (Disputes Between Neighbours) Act 2006* to carry out work in relation to a tree on the land (but only if the Council has been notified of the order):

No.

19. Annual charges under *Local Government Act 1993* for coastal protection services that relate to existing coastal protection works.

NA.

20. State Environmental Planning Policy (Western Sydney Aerotropolis) 2020

NA.

21. Development consent conditions for seniors housing

If *State Environmental Planning policy (Housing) 2021*, Chapter 3, Part 5 applies to the land, any conditions of a development consent granted after 11 October 2007 in relation to the land that are of the kind set out in that Policy, clause 88(2):

No.

22. Site compatibility certificates and development consent conditions for affordable rental housing:

- (1) Whether there is a current site compatibility certificate under *State Environmental Planning Policy (Housing) 2021*, or a former site compatibility certificate, of which council is aware, in relation to proposed development on land:**

No.

- (2) If *State Environmental Planning Policy (Housing) 2021*, Chapter 2, Part 2, Division 1 or 5 applies to the land, any conditions of a development consent in relation to the land that are of a kind referred to in that Policy clause 21(1) or 40(1).**

NA.

The following matters are prescribed under Section 290 of the *Environmental Planning & Assessment Regulation 2021* by section 59(2) of the *Contaminated Land Management Act 1997* as additional matters to be specified in a planning certificate:

- (a) That the land to which the certificate relates is significantly contaminated land—if the land (or part of the land) is significantly contaminated land at the date when the certificate is issued:

No.

- (b) That the land to which the certificate relates is subject to a management order—if it is subject to such an order at the date when the certificate is issued:

No.

- (c) That the land to which the certificate relates is the subject of an approved voluntary management proposal—if it is the subject of such an approved proposal at the date when the certificate is issued:

No.

- (d) That the land to which the certificate relates is subject to an ongoing maintenance order—if it is subject to such an order at the date when the certificate is issued:

No.

- (e) That the land to which the certificate relates is the subject of a site audit statement—if a copy of such a statement has been provided at any time to the local authority issuing the certificate:

No.



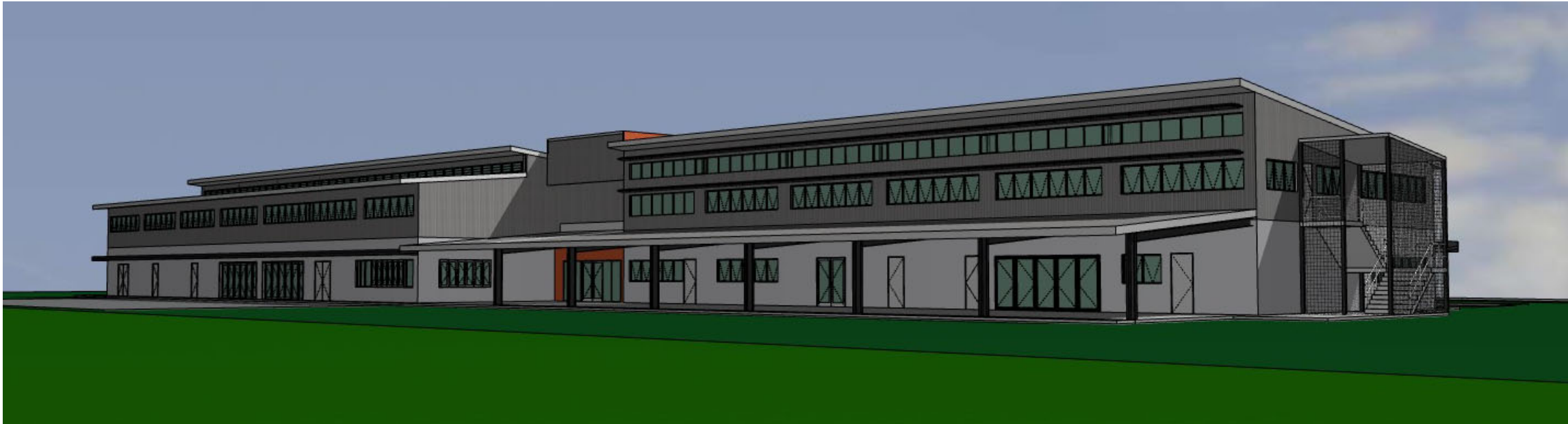
for the GENERAL MANAGER
LITHGOW CITY COUNCIL

For any further information, please contact the Economic Development & Environment Department on (02) 63549999.

DISCLAIMER

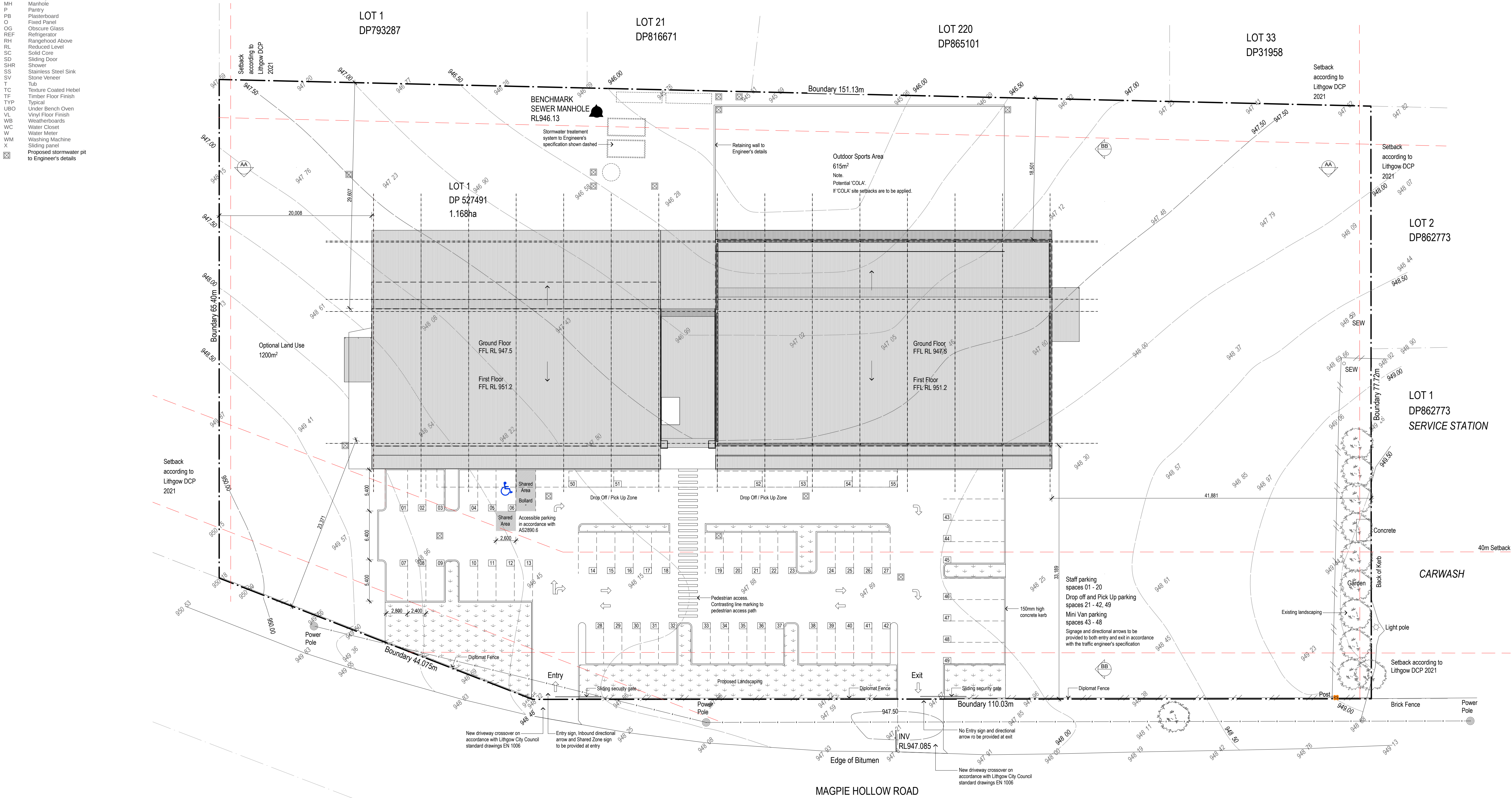
THIS SECTION 10.7 CERTIFICATE CONTAINS INFORMATION PROVIDED TO LITHGOW CITY COUNCIL BY OTHER AUTHORITIES AND IS AS CURRENT AS THE LATEST INFORMATION AVAILABLE TO COUNCIL AT THE TIME OF PRODUCTION OF THIS DOCUMENT. IT IS STRONGLY RECOMMENDED THAT YOU CONTACT THE RELEVANT AUTHORITIES TO CONFIRM THE ACCURACY OF THE INFORMATION.

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 - WM Washing Machine
 - X Sliding panel
 - Proposed stormwater pit to Engineer's details

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Compartment Schedule	Area	Volume
Classrooms	1364.4 m ²	6003.36 m ³
Gym	1397.5 m ²	8505.2 m ³
Total Building (Excl. Link)	2761.9 m²	14508.56 m³
Link	230.4 m ²	1013.76 m ³

Date	Issue	Amendment
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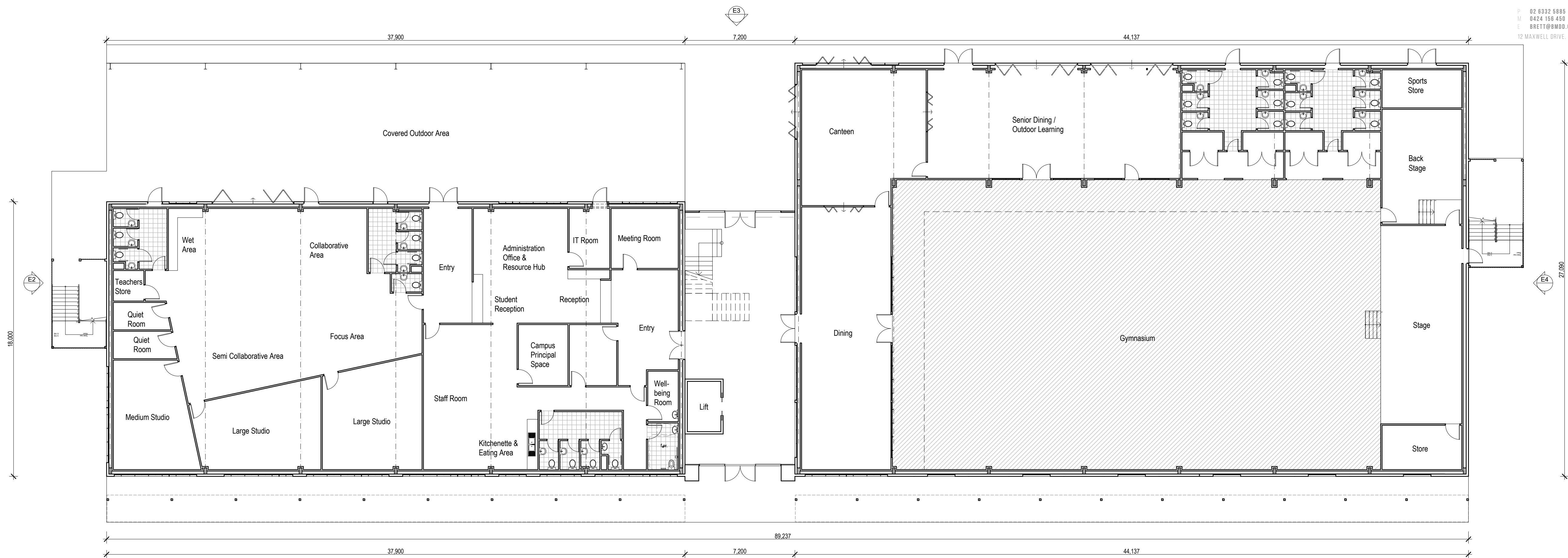
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NOT	FOR	CONSTRUCTION

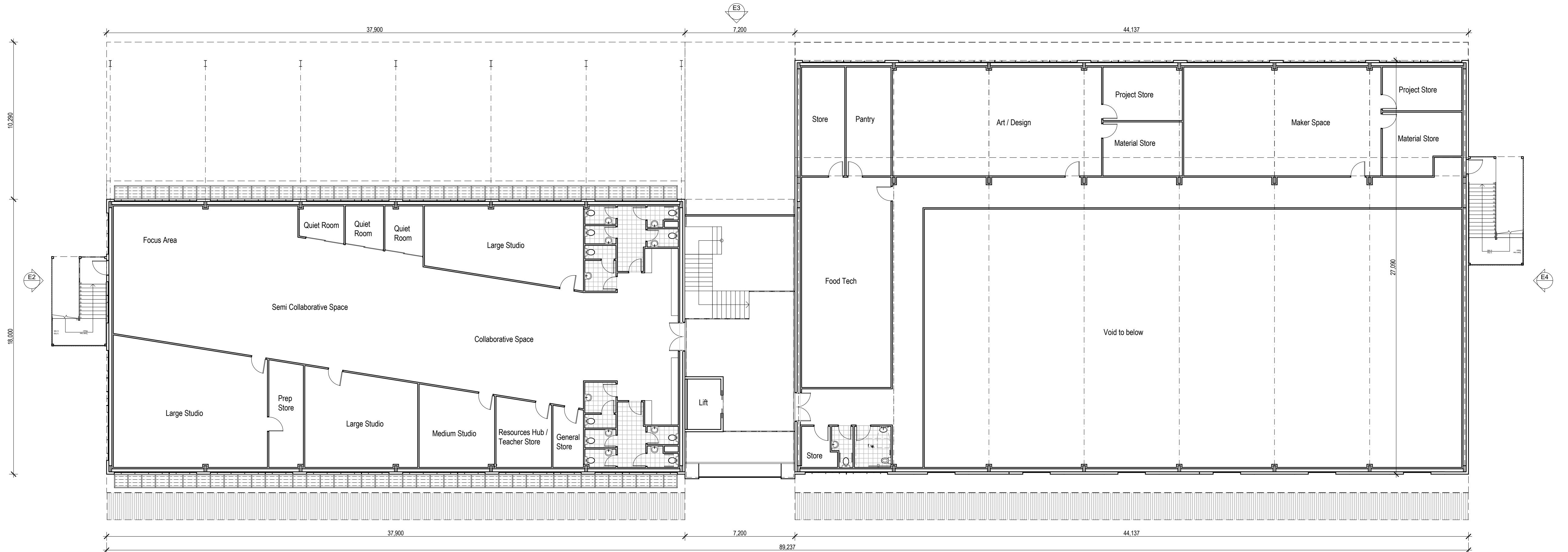
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05/09/23	F	Issued for comment

Proposed School
DEZIGN
Lot 1 Magpie Hollow Road South Bowenfels





Ground Floor - Proposed
Scale 1:150

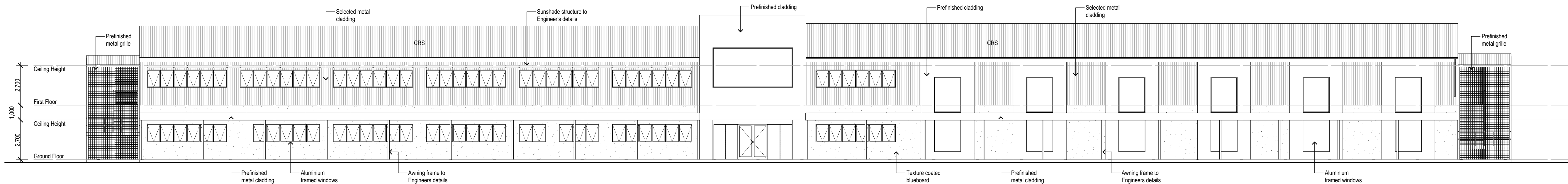


First Floor - Proposed

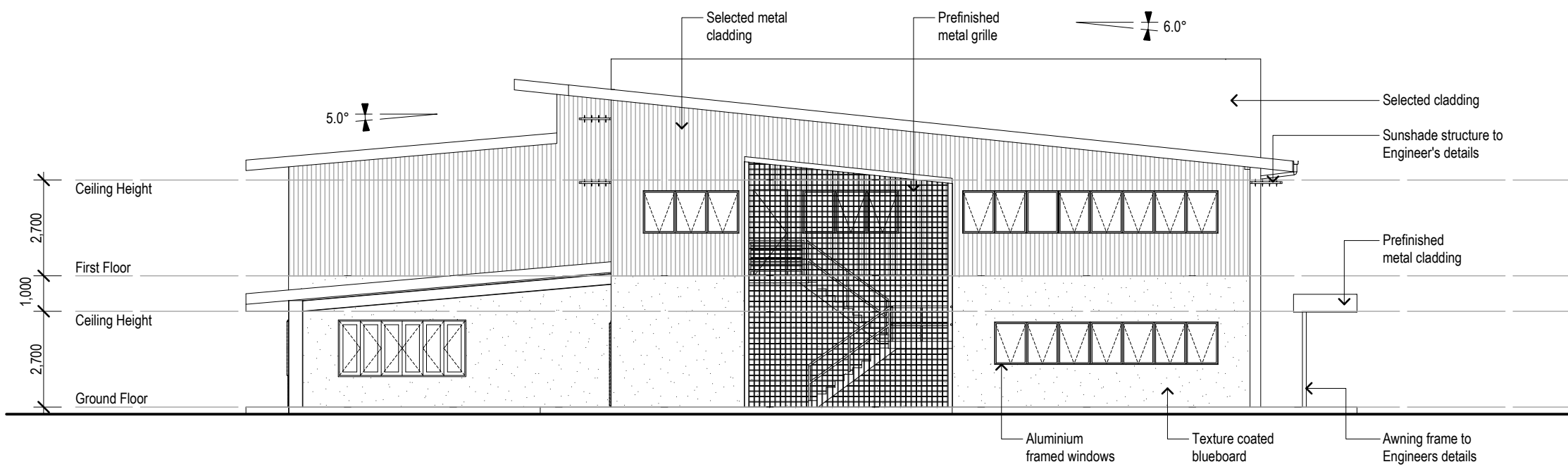
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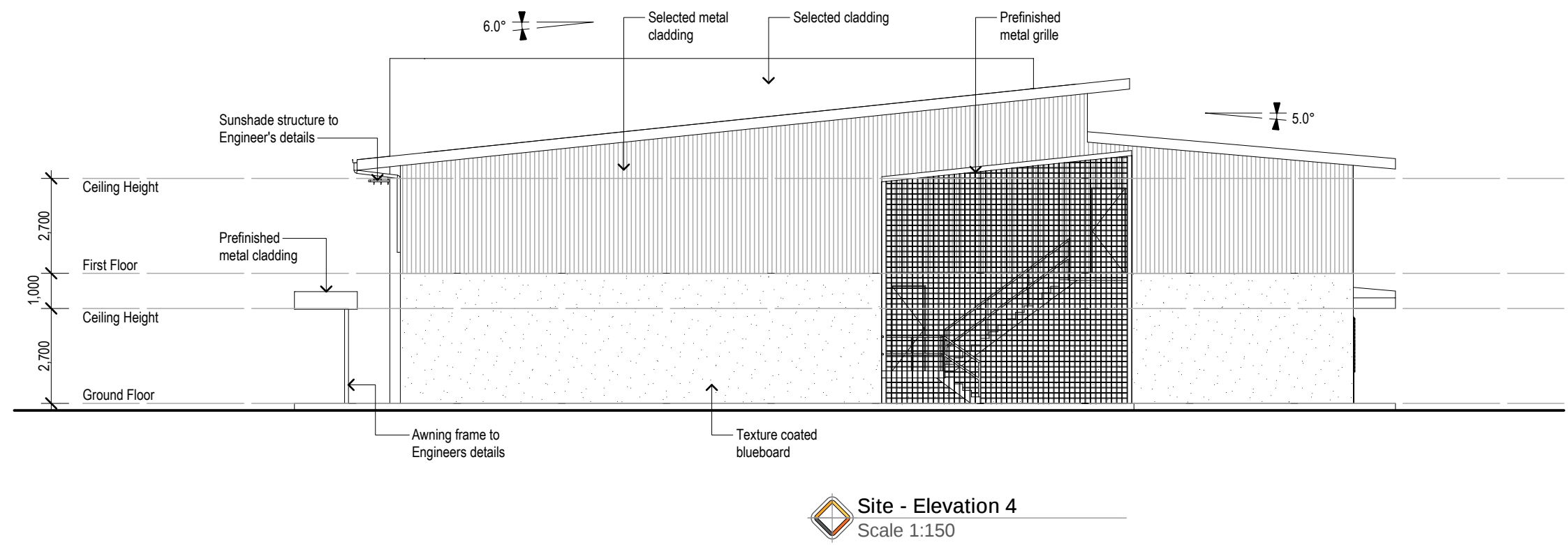
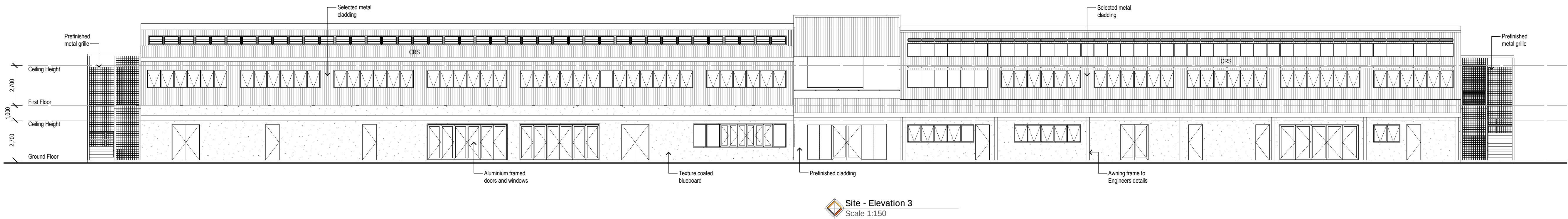
Site - Elevation 1
Scale 1:150



Site - Elevation 2
Scale 1:150

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- Legend**
- A Aluminium
 - B Basin
 - BDRY Boundary
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Notes:
1. Builder to confirm coordination of architectural and structural documentation prior to construction.
2. All dimensions are to be verified on site by contractor prior to commencement of any works.
3. All discrepancies are to be referred to designer for action.



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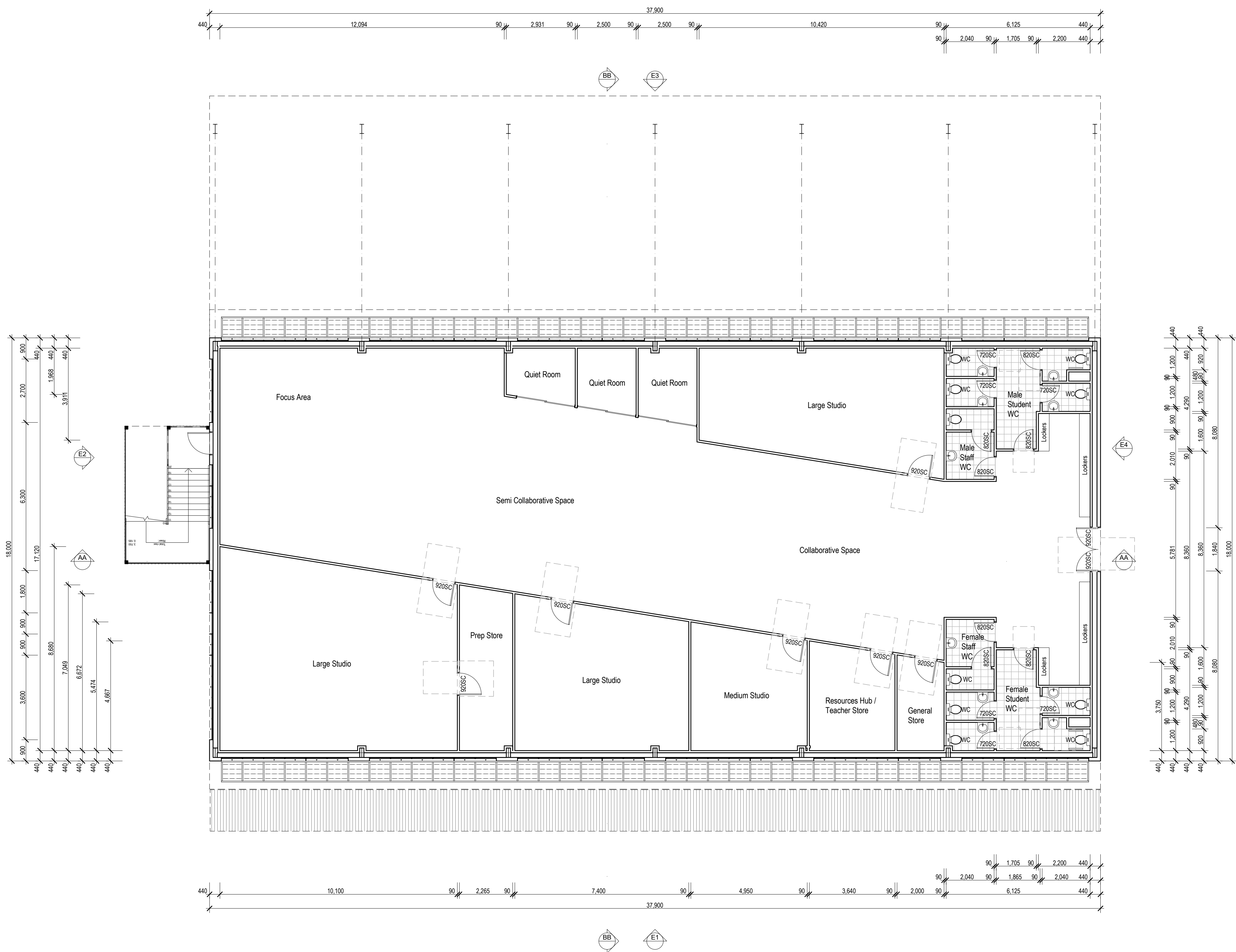
Proposed School
DEZIGN
Lot 1 Magpie Hollow Road South Bowenfels



Learning Centre - Ground Floor Plan
DACC 06
Issue: S
Scale: 1:100 @ A1
Date: 25/01/24
Project: BMD222389

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Proposed School
DEZIGN
Lot 1 Magpie Hollow Road South Bowenfels

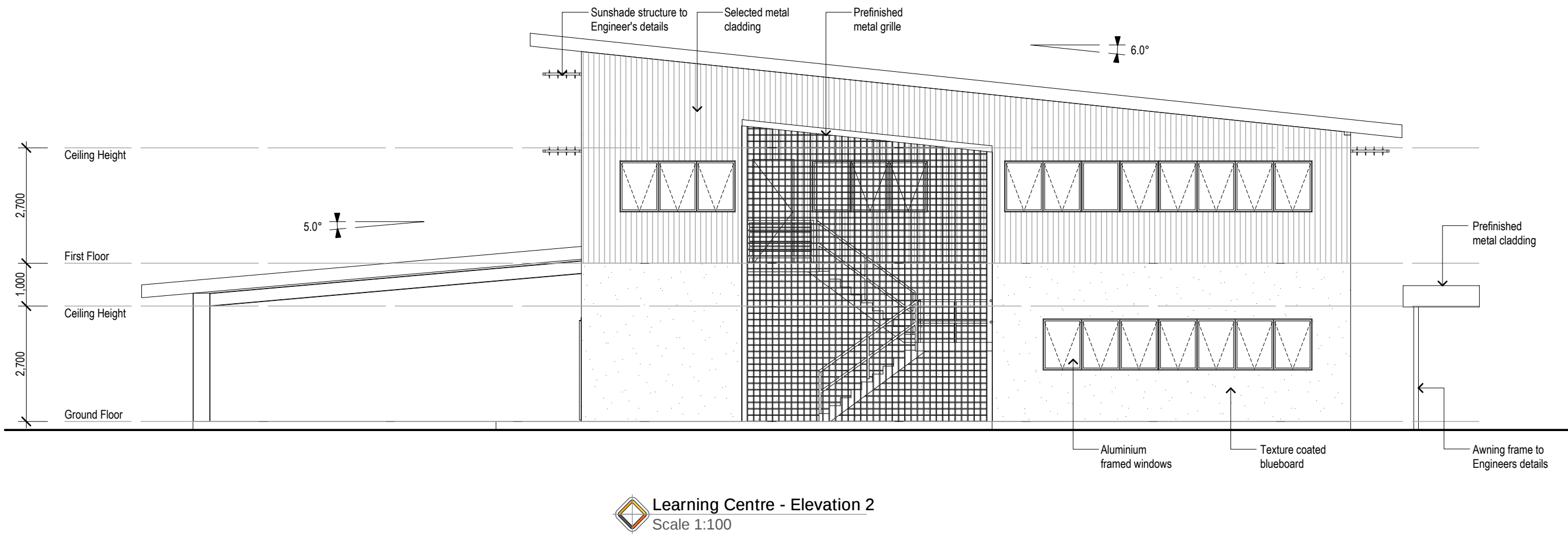
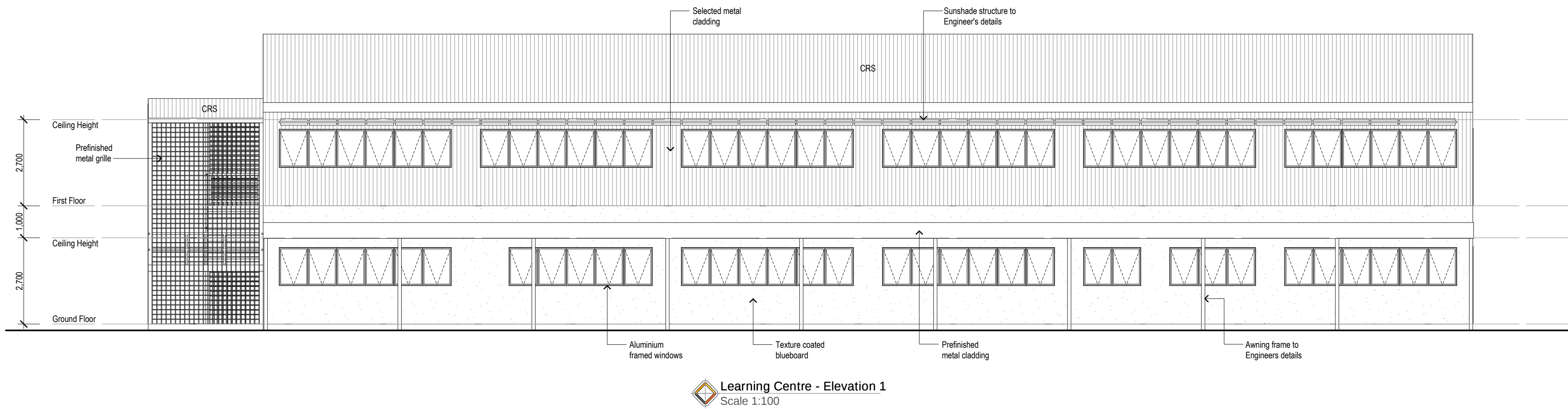


Learning Centre - First Floor Plan
DACC 07
Issue: S
Scale: 1:100 @ A1
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Project: BMD222399

Legend

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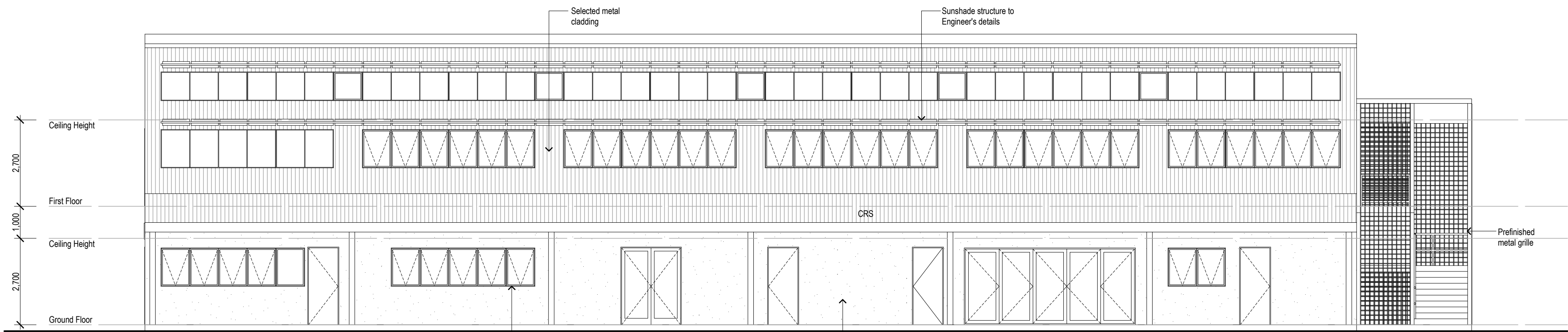


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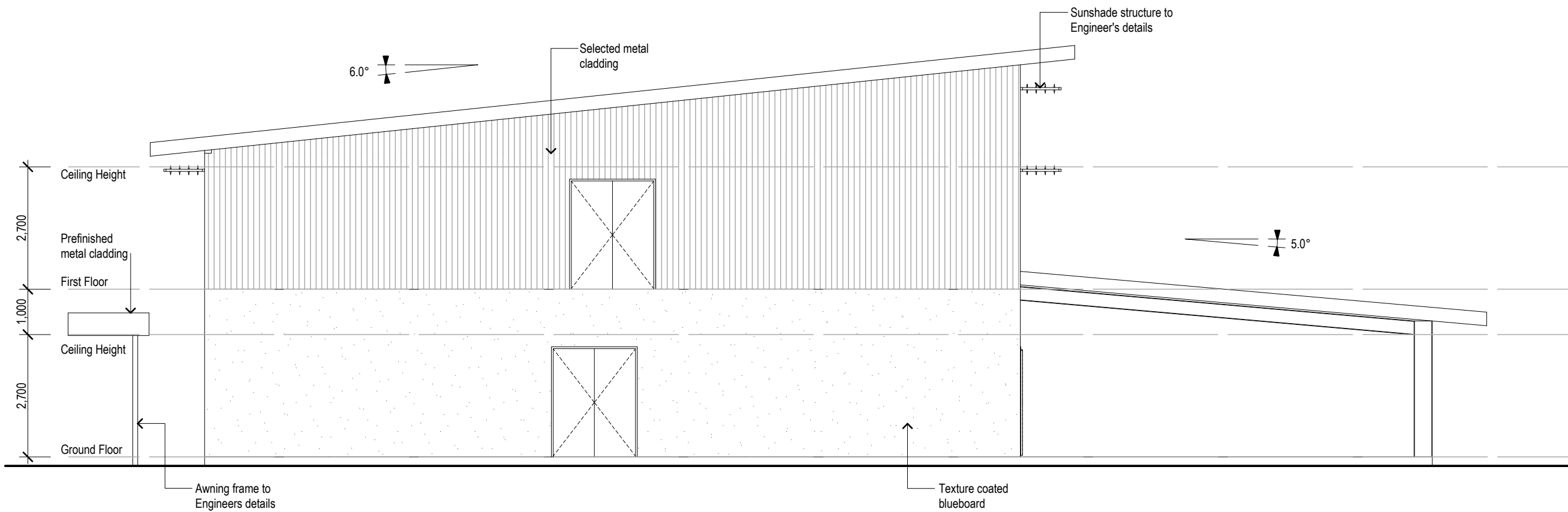


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Learning Centre - Elevation 3
Scale 1:100



Learning Centre - Elevation 4
Scale 1:100

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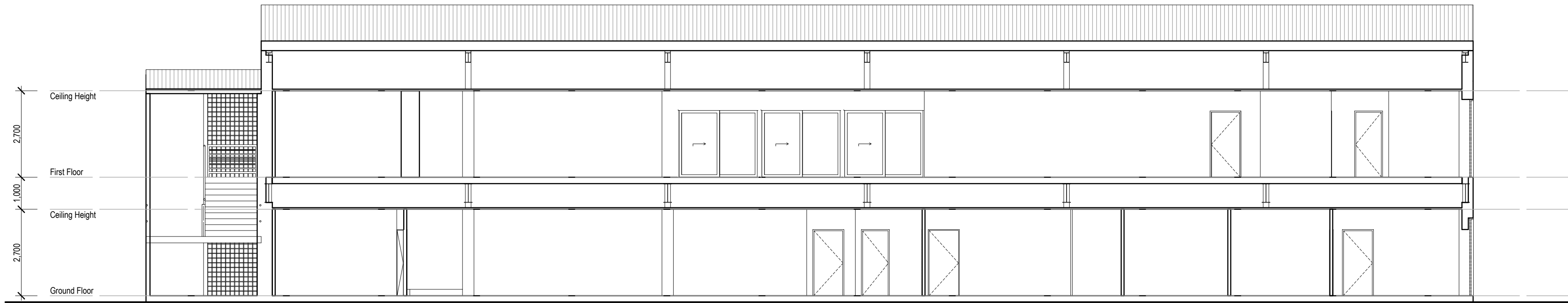
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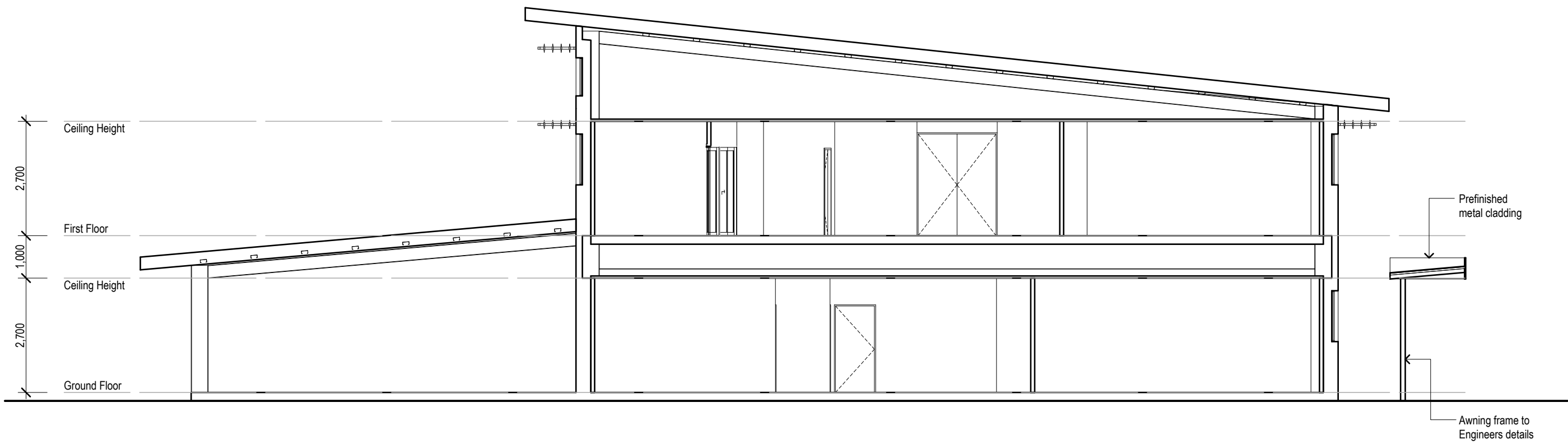
Proposed School
DEZIGN
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Learning Centre - Elevations 3 & 4
DACC 09
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Learning Centre - Section AA
Scale 1:100



Learning Centre - Section BB
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NOT FOR CONSTRUCTION



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 - DH Double Hung
 - DP Downpipe
 - EMB Electrical Meterboard
 - ENS Ensuite
 - FB Face Brick
 - FC Fibre Cement
 - FFL Finished Floor Level
 - F Fixed Glass
 - FW Floor Waste
 - GM Gas Meter
 - HC Hollow Core
 - HWS Hot Water Service
 - LDRY Laundry
 - MH Manhole
 - P Pantry
 - PB Plasterboard
 - O Fixed Panel
 - OG Obscure Glass
 - REF Refrigerator
 - RH Rangehood Above
 - RL Reduced Level
 - SC Solid Core
 - SD Sliding Door
 - SHR Shower
 - SS Stainless Steel Sink
 - SV Stone Veneer
 - T Tub
 - TC Texture Coated Hebel
 - TF Timber Floor Finish
 - TYP Typical
 - UBO Under Bench Oven
 - VL Vinyl Floor Finish
 - WB Weatherboards
 - WC Water Closet
 - W Water Meter
 - WM Washing Machine
 - X Sliding panel

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Compartment Schedule	Area	Volume
Classrooms	1364.4 m ²	6003.36 m ³
Gym	1657.5 m ²	10880.87 m ³
Total Building (Excl. Link)	3021.9 m²	16884.23 m³
Link	230.4 m ²	1013.76 m ³

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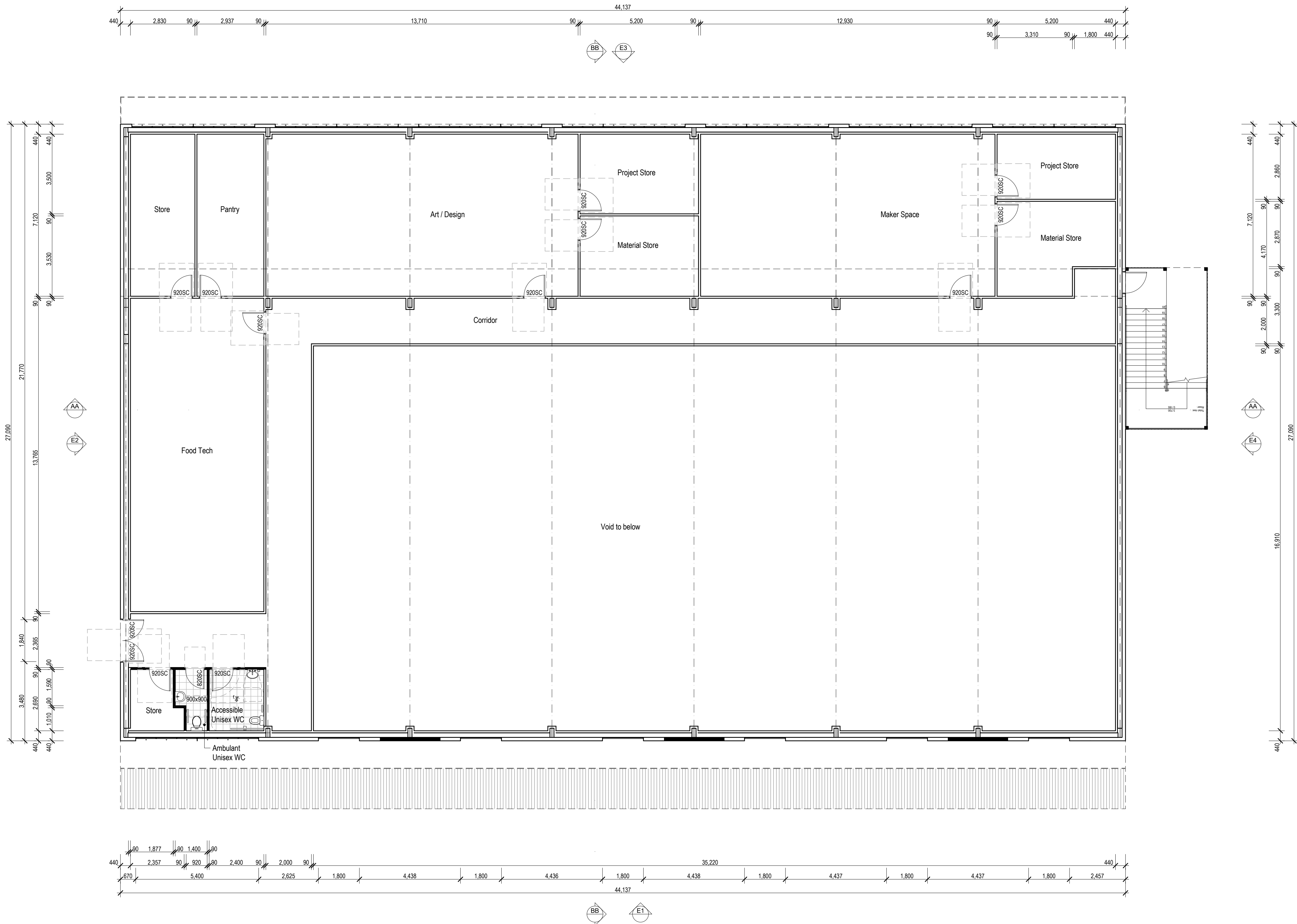
Proposed School
DEZIGN
Lot 1 Magpie Hollow Road South Bowenfels

Gymnasium - Ground Floor Plan
DACC 11
Issue: S
Scale: 1:100 @ A1

Date: 25/01/24
Project: BMD222389

- Legend**
- A Aluminium
 - B Basin
 - BDRY Boundary
 - BPB Bagged & Painted Brickwork
 - BY Brick Veneer
 - CL Ceiling Level
 - CONC Concrete
 - CP Concrete Paver
 - CPT Carpet
 - CRS Corrugated Roof Sheetting
 - CS Cavity Sliding Door
 - CT Ceramic Tile
 - DH Double Hung
 - DP Downpipe
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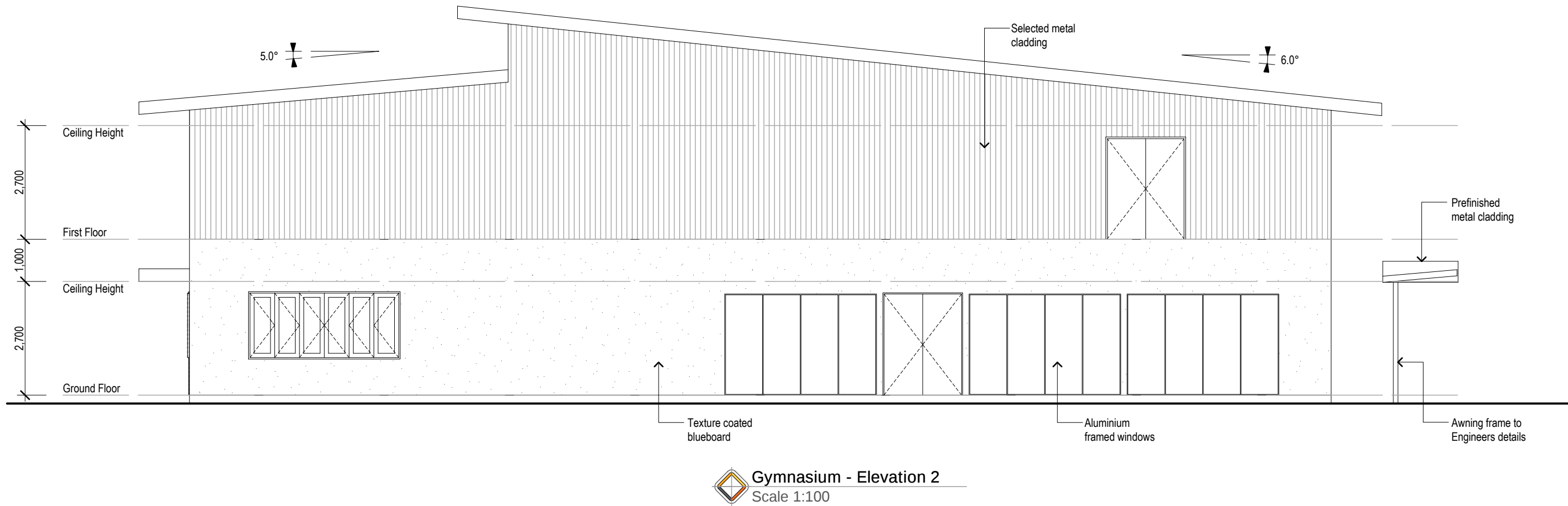
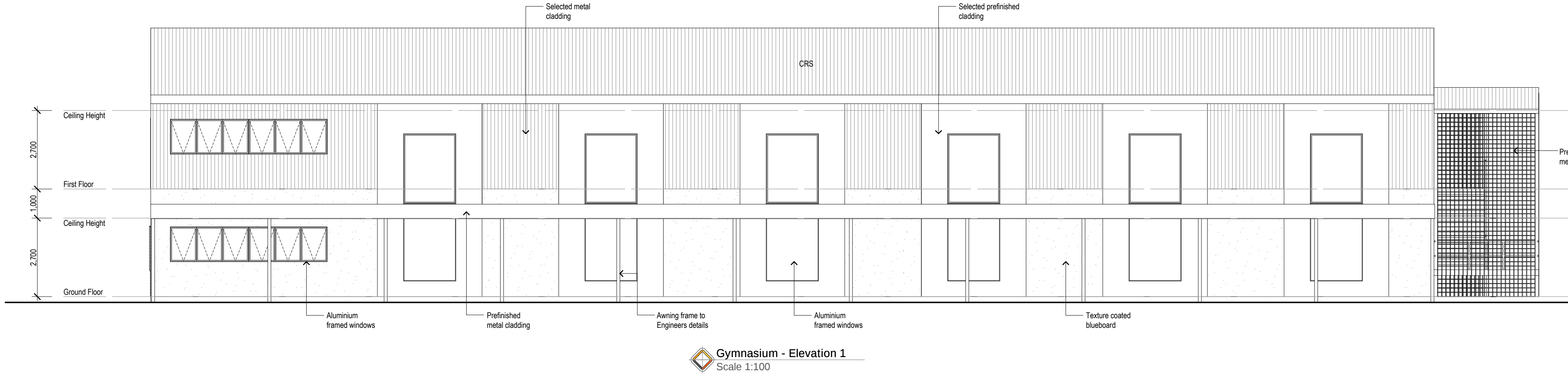
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Proposed School
DEZIGN
Lot 1 Magpie Hollow Road South Bowenfels

Gymnasium - First Floor Plan
DACC 12
Issue: S
Scale: 1:100 @ A1

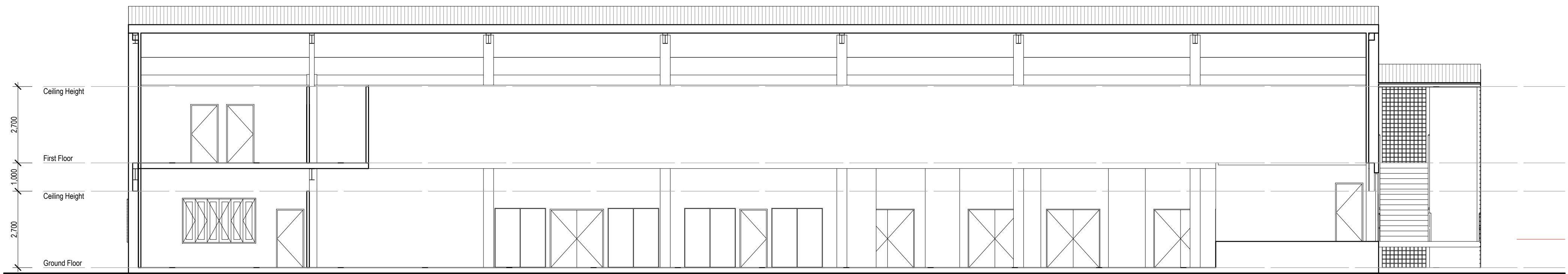
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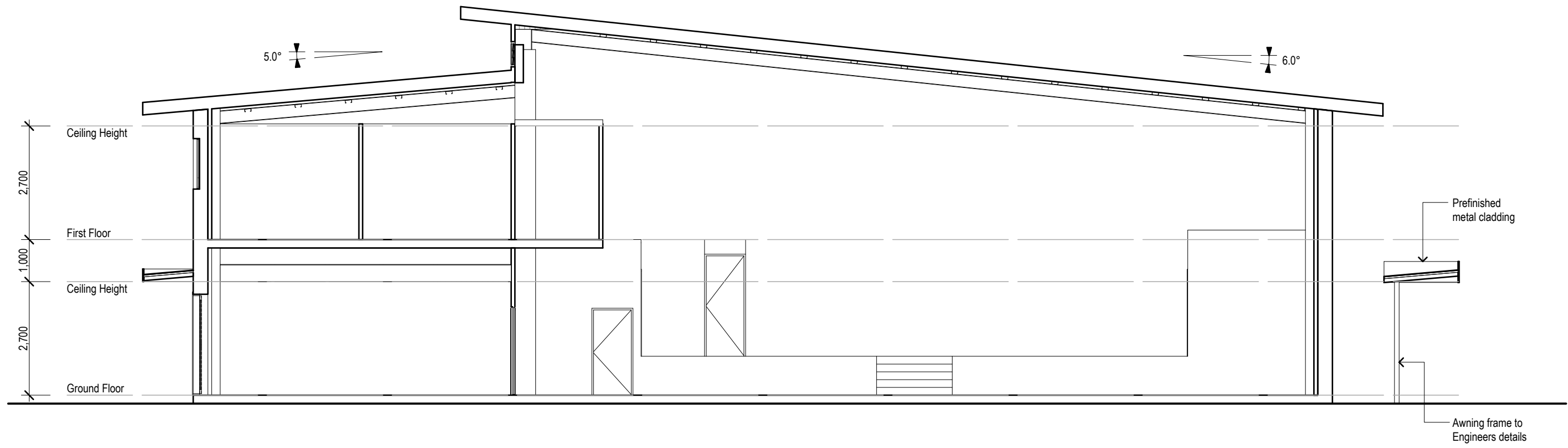
This architectural elevation drawing illustrates the facade of a building, detailing the ground floor and first floor. The drawing includes the following elements:

- Vertical Dimensions and Levels:**
 - Ground Floor:** Indicated by a horizontal line at the bottom.
 - First Floor:** Indicated by a horizontal line above the ground floor.
 - Ceiling Height (Ground Floor):** 2.700 meters.
 - Ceiling Height (First Floor):** 2.700 meters.
 - First Floor Height:** 1.000 meters.
- Materials and Finishes:**
 - Selected metal cladding:** Indicated by a label pointing to the upper section of the facade.
 - Prefinished metal grille:** Indicated by a label pointing to the vertical grille on the left side of the facade.
 - Texture coated blueboard:** Indicated by a label pointing to the wall area on the ground floor.
 - Aluminum framed windows:** Indicated by a label pointing to the window units on the ground floor.
- Window Details:**
 - Ground Floor Windows:** Various window types are shown, including single units, double units, and larger multi-unit configurations. Some windows are labeled with 'X' or 'K' symbols.
 - First Floor Windows:** Large, rectangular windows with internal mullions are shown across the upper level.

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Gymnasium - Section AA
Scale 1:100



Gymnasium - Section BB
Scale 1:100

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Proposed School
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Lot 1 Magpie Hollow Road South Bowenfels



Gymnasium - Sections AA &
BB
DACC 15

Issue: s
Date: 25/01/24
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C01
Off White
Ground floor texture
coated walls

C02
Yellow
Pantone 130C
Feature wall colour

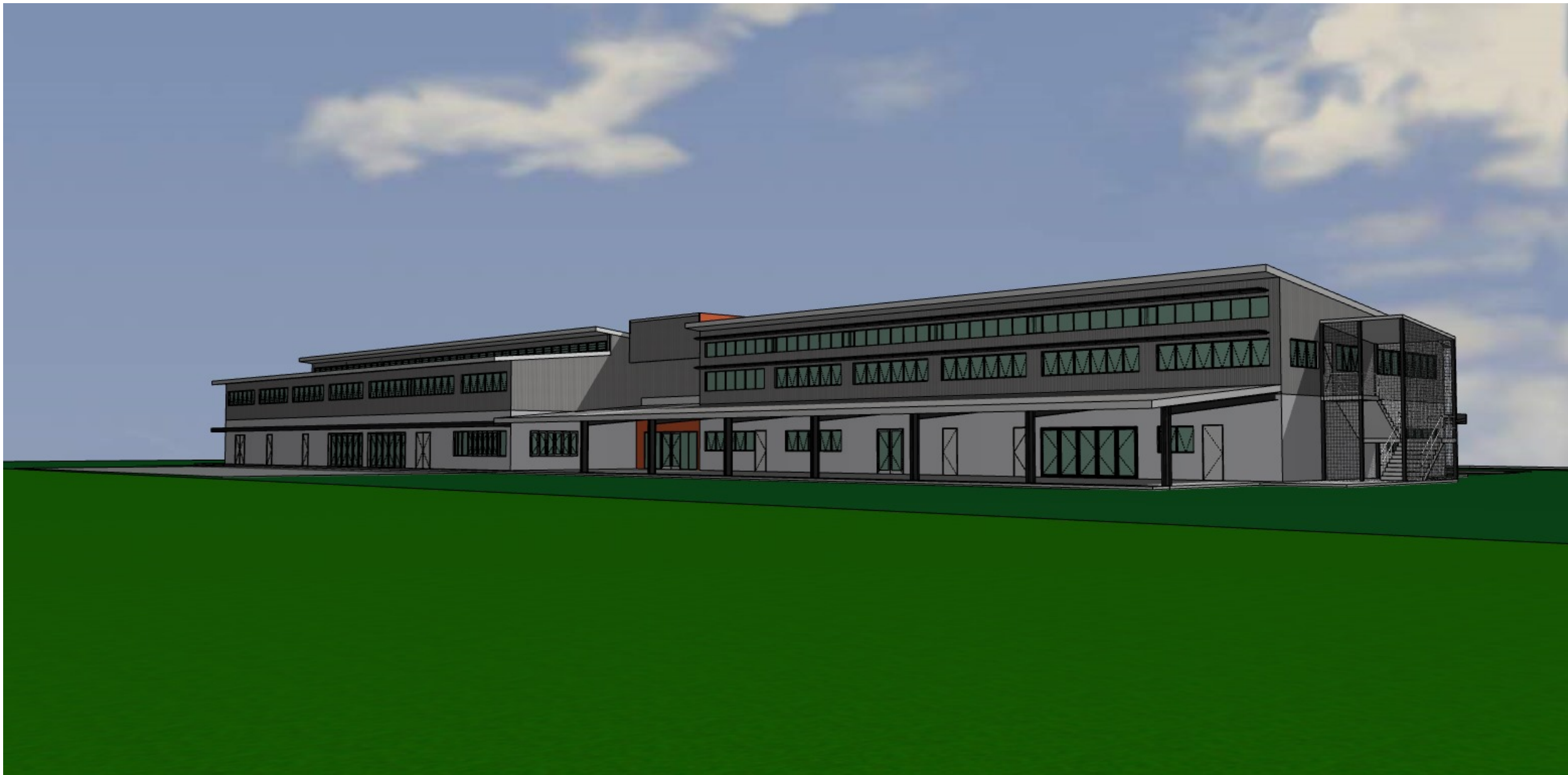
C03
Orange
Feature wall colour

P04
Dulux
Shale Grey
Fascias,
Downpipes,
Awning posts

P05
Dulux
Basalt
Awning fascia

P06
Dulux
Monument
Windows
Stair grille

Colorbond
Shale Grey
Roof, First floor
wall cladding

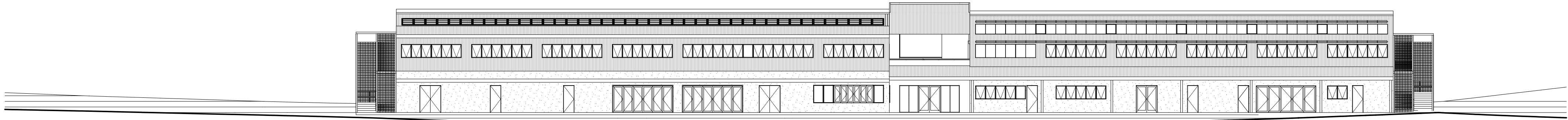


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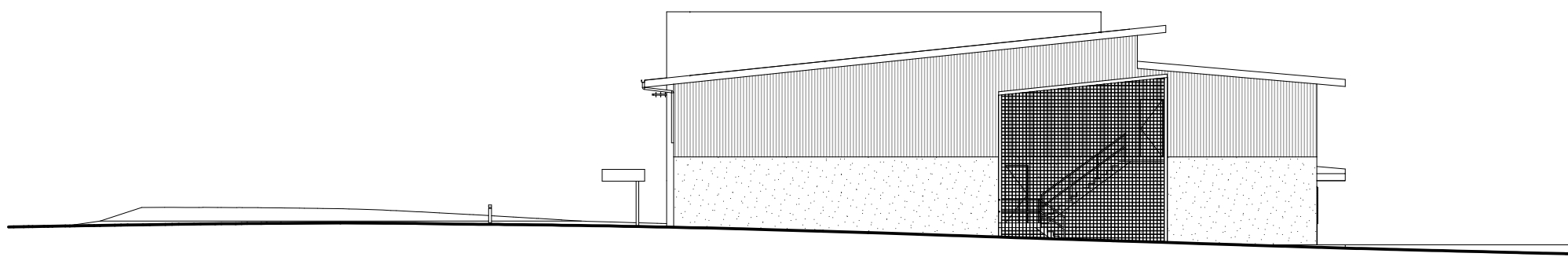
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Site Section AA
Scale 1:250



Site Section BB
Scale 1:250

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Proposed School
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Lot 1 Magpie Hollow Road South Bowenfels



Site Sections
DACC 18
Issue: S
Scale: 1:250 @ A1

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