

Waipapa Taumata Rau, Student Centre and Library

Contaminated Land Preliminary Site Investigation

Prepared for: The University of Auckland

Prepared by: Tonkin & Taylor Ltd

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Table of contents

1	**Introduction**	**1**
1.1	Objective and scope of work	2
2	**Site description**	**4**
2.1	Location and legal description	4
2.2	Site conditions	4
2.3	Geology	6
2.4	Hydrology and hydrogeology	6
3	**Site history**	**8**
3.1	Certificates of title	8
3.2	Aerial photograph review	8
3.3	Previous ground contamination investigations	9
3.4	Council property file	11
3.5	Client provided information	13
3.6	Council contamination enquiry	14
4	**Potential for ground contamination**	**16**
5	**Field investigations**	**18**
5.1	Investigation rationale	18
5.2	Data quality	18
5.3	Field observations	19
5.4	Analytical results	20
6	**Preliminary conceptual site model**	**22**
7	**Regulatory implications**	**24**
7.1	NESCS	24
7.2	AUP	25
7.3	Asbestos regulations	25
8	**Development implications**	**26**
8.1	General handling requirements during earthworks	26
8.2	Offisite disposal of soils	26
8.3	Onsite reuse of soils and residual contamination	26
9	**Conclusions**	**27**
10	**Applicability**	**29**
	Compliance with the Environment Court Practice Note 2023	29

Appendix A	**Site Feature Plan**
Appendix B	**Site Photographs**
Appendix C	**Historical Aerial Photographs**
Appendix D	**Key Site History Documents**
Appendix E	**Client Provided Information**
Appendix F	**Geotechnical Borehole Logs**
Appendix G	**Analytical Soil Results**
Appendix H	**Laboratory Reports**
Appendix I	**Council Contamination Enquiry**
Appendix J	**Regulatory Framework**
Appendix K	**Asbestos Controls – Trace Asbestos Contamination**

1 Introduction

Tonkin & Taylor Ltd (T+T) has been engaged by The University of Auckland (UoA) Waipapa Taumata Rau to conduct a Contaminated Land Preliminary Site Investigation (PSI) for the Student Centre and Library located on the corner of Princes Street and Alfred Street, Auckland Central (referred to below as the Site and shown in Figure 1.1).

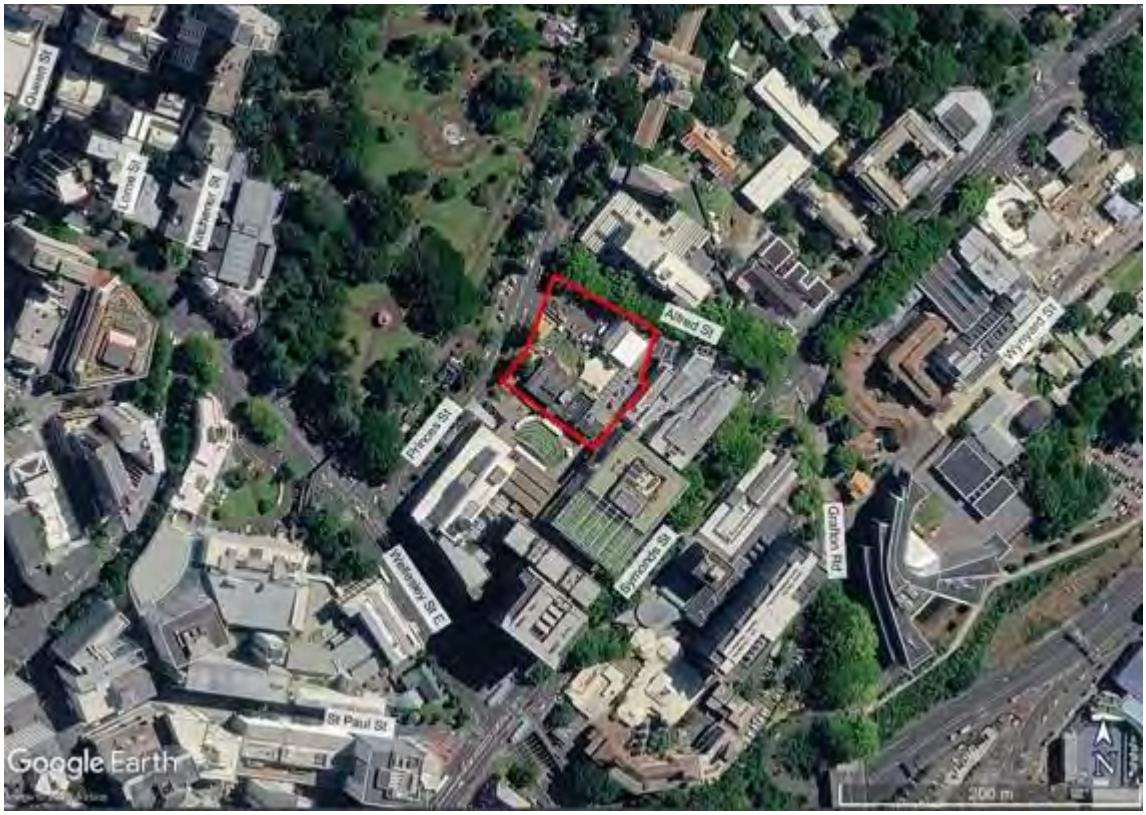


Figure 1.1: Site location with indicative site boundary shown in red. Top of photo is north. Source: Google Earth Pro.

The design proposal[1] for the UoA Student Centre and Library indicates that a new building will be developed at the Site. Proposed works include the demolition of the existing Student Union complex (B311 and B312) and the redevelopment of the Site with a 19,568 sqm building comprising eight levels, including two basement levels (Basement and Lower Ground) and six above-ground levels (Ground and Levels 1 to 5), with a rooftop plant level in addition, comprising new study, social and event spaces, a new contemporary library, a visitor hub and other supporting facilities (Figure 1.2).

The proposed basement floor level extends to RL 36.11, which is up to approximately 9.5 m below the existing ground surface.

[1] Warren and Mahoney Architects New Zealand Ltd., October 2026, Waipapa Taumata Rau The University of Auckland Student Centre and Library, 100% FTAA Substantive Application Rev B, Architectural & Landscape Design Report. Prepared for Waipapa Taumata Rau, The University of Auckland.



Figure 1.2: Student Centre and Library Design Proposal Cross Section[1].

This report has been prepared in general accordance with the requirements for a contamination desktop study (a Preliminary Site Investigation, PSI) referred to in the National Environmental Standard for Assessing and Managing Contamination in Soil (NESCS) regulations[2] and as outlined in the Ministry for Environment's (MfE) Contaminated Land Management Guidelines No.1[3]. The

persons undertaking, managing, reviewing, and certifying this investigation are suitably qualified and experienced practitioners as defined in the NESCS Soil User's Guide[4].

1.1 Objective and scope of work

The objective of this report is to identify any current and historical activities that may have the potential to cause ground contamination and, through preliminary sampling, understand the presence and nature of soil contamination (if any).

The scope of work for this assessment comprised:

- Review of the site history to establish activities that have the potential to cause ground contamination, including:
  - Review of readily available published information, client-provided information, and discuss previous use(s) of B311 and B312 with knowledgeable UoA staff.

[2] Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011.
[3] Ministry for the Environment, updated 2021, Contaminated land management guidelines *No. 1: Reporting on Contaminated Sites in New Zealand.*
[4] Ministry for the Environment. 2012. *Users' Guide: National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health.* Wellington: Ministry for the Environment.

  - Review of publicly available historical aerial photographs from Auckland Council GeoMaps and Retrolens.
  - Obtain and review of a Site Contamination Enquiry obtained from Auckland Council.
- A brief site walkover of the Site by a contaminated land specialist.
- Collect soil samples from geotechnical boreholes from the surface to the proposed basement founding level.
- Laboratory analysis of selected samples for contaminants of concern.
- Review and assessment of laboratory results against relevant regulatory criteria.
- Preparation of a PSI report documenting the work undertaken, findings and implications for the proposed development

2 Site description

2.1 Location and legal description

The Site is located on the corner of Princes Street and Alfred Street, Auckland Central, Auckland. The Site is currently owned and used by UoA. There are two four-storey buildings present on the Site housing the Student Union complex. Carparks and an open recreational space currently occupy the northern corner of the Site. The Site is within the Business – City Centre Zone. Further details on the properties occupying the Site are provided in Table 2.1 below.

Table 2.1: Property descriptions

Address	Legal Description	Current land use	Area (m^2)
30-38 Princes Street (the wider property)	The major part of the Site is a portion of Lot 1 Deposited Plan (DP) 151178 (also referred to as 8 Alfred Street). The western corner of the Site overlaps with part of Section 1 Survey Office Plan (SO) 44422 and part of Section 1 46532. The wider property comprises all of Lot 1 and 2 DP 151178, Section 1 SO 44422 and Section 1 SO 46532.	Student Union complex	Some 6,000 (a portion of the wider 26,282 property).
		Total site area	6,000

The immediate surrounding area to the north, south, and east predominantly comprise university buildings and are also zoned as Business – City Centre. Within 100 m of the Site, there are a number of UoA buildings, including the current UoA General Library and Old Choral Hall across Alfred Street to the north, the Kate Edger Information Commons and Hiwa Recreation Centre to the east, and the Science Centre and Faculty of Science to the south. Albert Park is located across Princes Street to the west of the Site and is zoned as Open Space – Informal Recreation Zone.

2.2 Site conditions

A site walkover inspection was undertaken on 3 July 2026 by a contaminated land specialist. The purpose of the walkover was to gather general information on topography and land use (both on Site and the surrounding area) as well as making observations for evidence of potential ground contamination. The Site walkover was limited to external and publicly accessible areas.

Relevant observations made at the time of the inspection are summarised below. Key site features including potential sources of contamination are shown in Appendix A and selected photographs are included in Appendix B. Bracketed numbers relate to the key shown on the site feature plan in Appendix A.

The Site is currently used by UoA and contains the following features:

- The Site, except for the northwest corner (former Maidment Theatre footprint), is generally flat at an elevation of 45 metres above sea level (asl).
  - The footpath along Alfred Street, to the north of the Site, slopes from west to east from some 45 to 43 m asl.
  - The portion of B311, located in the northeastern corner of the Site, has a lower ground/basement floor accessible via Alfred Street. A set of stairs leads up to the 'ground floor' of B311 and B312, where food retailers are located.
- A depression, which appears to be used as a construction laydown area, was observed at the northwest corner of the Site (formerly occupied by the Maidment Theatre) with an elevation of approximately 42 m asl. A driveway has been constructed on the western side of the depression leading to Princes Street. The depression was fenced off on all sides with a concrete lip and wooden fencing.

  Visibility into the construction area was limited. Observable areas showed that the former Maidment Theatre footprint area was fully paved with asphalt, and no visible cracks or staining were observed. The area appears to be used for storage of construction vehicles and materials, including plastic and concrete pipes and wooden pallets.
- B311 is a four-storey building (including one basement/lower ground level). Currently, retail and commercial food stores occupy the ground floor, with student spaces (e.g. student radio, student magazine offices) occupying the two upper floors. The following was observed:
  - Scaffolding and a plastic sheet cover the central portion of B311.
  - The building has paved brick floors and concrete walls with a concrete block façade. B311 had large windows with metal joinery. The metal appeared to be rusting.
  - An elevator shaft with a motor room next to it, was located at the lower-ground level of B311. A white room suspected to contain a transformer or electrical facilities was also noted at the lower ground level.
  - Several pipes were located running under the bridge connecting the ground floors of B311 and B315 (Kate Edger Information Commons).
- Building 312 is also a four-storey building (including one basement/lower ground level). The building currently appears unoccupied. Email communications with UoA property staff indicate that B312 has been in use as a contractor's office and may have been used to store chemicals. T+T noted the following:
  - Windows were covered, but one visible area showed internal concrete floors.
  - The building consisted of concrete walls and metal joinery. Paint chips were noted on the metal joinery.
- The central portion of the Site is a seating area between B311 and B312 and is covered with a canvas shade sail. Another seating area is located to the west of the shade sail, consisting of a brick paved area with an area of artificial turf.
- Two sets of transformers were located on the south-western section of the Site. One set was located on a concrete slab within a garden area, and another set was on asphalt pavement. No staining was noted. Cables were noted running into B312 from the northernmost set of transformers.
- A small transformer/electrical box was also noted on the asphalt pavement at the northwestern corner of the Site, outside of the fenced-off construction area.
- A grate cover and manhole were located in the approximate former location of an underground diesel storage tank (UST) (see Appendix A and further discussion in Section 3).

- Minor cracks in the asphalt pavement on Alfred Street appear to have been patched with asphalt. The cracks appear to have been caused by tree root growth.
- Vegetation was mostly located in garden and raised planter areas on the western side of the Site. Large trees are also present along Alfred Street. No stressed vegetation was observed.
- No staining or significant cracks in surfaces were noted.

2.3 Geology

The published geology[5] beneath the Site is described as lithic tuff of the Kerikeri Volcanic Group, generally comprising comminuted pre-volcanic materials with basaltic fragments and unconsolidated ash and lapilli deposits of well-sorted basalt and basinite fragments. The southeastern corner of the Site borders Waitemata Group sediments of the East Coast Bays Formation (ECBF), typically comprising alternating sandstone and mudstone with variable volcanic content and interbedded volcaniclastic grits (refer Figure 2.1).

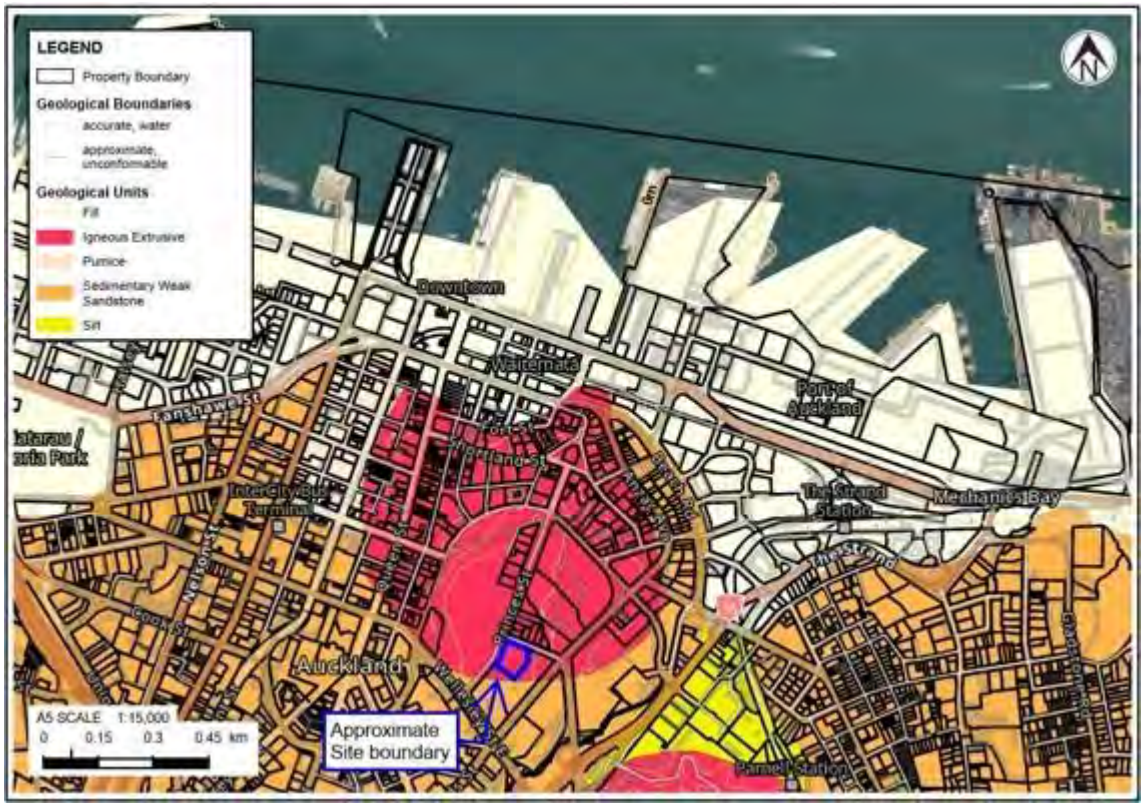


Figure 2.1: Published geology of the site (source: Heron, 2023).

2.4 Hydrology and hydrogeology

Previous work by T+T indicates groundwater conditions along the Symonds Street ridge generally consist of a series of perched groundwater levels which flow to the regional groundwater level some 20 – 40 m bgl within the underlying bedrock. The Queen Street valley to the west and the Stanley Street valley to the east are key geomorphological features controlling regional groundwater flow.

Based on surface topography, surface water and groundwater at the Site are expected to flow in a general northeasterly direction. Groundwater is anticipated to ultimately discharge to the

[5] Heron, D.W. (custodian) 2023. Geological map of New Zealand 1:250,000 [digital data]. 4th ed. Lower Hutt (NZ): GNS Science. (GNS Science geological map; 1). doi: https://doi.org/10.21420/03PC-H178

Waitematā Harbour, which is approximately 850 m north of the Site.

Investigations from the Kate Edger building immediately east of the proposed development found the groundwater table to be between 36-41.5 m RL. Groundwater monitoring at the Hiwa Recreation and Wellness Centre observed groundwater between 26.6 – 41.7 m RL. The T+T geotechnical report[6] should be referred to for a summary of historical groundwater observations from the surrounding area.

[6] T+T, July 2026. *UoA Waipapa Taumata Rau, Library and Student Hub – Geotechnical Interpretative Report.* T+T reference: 1103046-RPT-GEO-104 v2.1.

3 Site history

Historical information relating to the Site has been collected from a variety of sources including the Auckland Council Site Contamination Enquiry, historical aerial photographs and current and historical building plans and reports supplied by the client. This history focuses on on-site activities, except for the aerial photograph review where comments are also provided on readily observable surrounding land use. The information reviewed is summarised in the following sections. Key site history documents are included in Appendix D.

3.1 Certificates of title

Certificates of title (now Records of Title) were reviewed as part of the T+T 2015 investigation[87]. From that previous review, a summary of the property title information relevant to the Site is presented below:

- The earliest information that could be sourced is dated 1961 and is a proclamation pursuant to the Public Works Act 1928 declaring land (which includes the Site) taken for a university.
- A number of Gazette Notices were issued between 1965 and 1971 specifically declaring properties within the wider property for the University of Auckland.
- In 1992 the current Certificate of Title (NA90A/610) was issued which largely amalgamates the previous land parcels within the area bounded by Alfred Street to the northeast, Symonds Street to the southeast, Wellesley Street East to the southwest and Princes Street to the northwest.

3.2 Aerial photograph review

Historical aerial photographs were obtained from Retrolens, Auckland Council Geomaps and Google Earth. The photographs were reviewed and relevant features of the Site and surrounding area are summarised in Table 3.1 below. Aerial photographs are included in Appendix C.

Table 3.1: Aerial photograph review

Date	Key site features	Key surrounding area features
1940s	The Site appears to be in residential use, with at least seven dwellings and ancillary structures on the Site. The northeastern corner of the Site appears to be vacant.	The surrounding area appears to predominantly be in residential use to the north, east and south, with Princes Street and Albert Park located to the west of the Site. University buildings appear to be located further north of the Site.
1950s	No significant changes, except for the construction of two suspected residential dwellings in the northeastern corner of the Site.	No significant changes.
1960s	All suspected residential buildings within the Site were demolished and replaced with what appears to be part of Buildings 311 and 312 (Student Union Complex). The northwestern portion of the Site appears to be covered in asphalt.	Residential dwellings to the immediate north, south, and east of the Site were demolished and replaced with what appears to be university buildings (present-day General Library to the North, Faculty of Science to the southeast). Earthworks appear to be in progress south of the Site

[7] T+T, November 2015. *University of Auckland – Sector 300 – Preliminary Geotechnical Assessment and Environmental Review.* T+T job number 31200.

Date	Key site features	Key surrounding area features
		and residential dwellings remain to the east of the Site.
1970s	An additional building/building extension (the Maidment Theatre) is now present to the northwest portion of the Site.	Residential dwellings are removed and earthwork appears to be occurring to the immediate east of the Site. An additional university building is constructed to the immediate southwest of the Site and appears to be connected to B312. Additional university buildings to the south are constructed (present-day Science Centre).
1980s	No significant changes observed.	An additional university building (former recreation centre) is constructed to the southeast of the Site. Residential dwellings to the immediate east of the Site have been removed and replaced with a grassed area. A building to the northeast of the Site has been removed.
1990s	A shade sail is present in the centre area of the Site.	No significant changes observed.
2000-2005	A portion of the grassed area occupying the central-west portion of the Site appears to have been paved, and trees removed.	No significant changes observed.
2015-2016	No significant changes observed.	Buildings and the grassed area to the immediate east of the Site have been removed and replaced with a larger university building (present-day Kate Edger Information Commons). The building formerly connecting to B312 has been removed.
2024-2025	Maidment Theatre, formerly located at the northwestern section of the Site is removed and converted to car parking. The grassed and paved area in the central-west portion of the Site is removed, asphalted, and appears to be used as a construction storage area.	The former recreation centre to the southeast appears to have been removed and replaced with the present-day Hiwa Recreation Centre.
2026	The area in the central-west portion of the Site is replaced with grass and pavement.	No significant changes.

3.3 Previous ground contamination investigations

A number of previous ground investigations have been undertaken across the wider property as a result of previous redevelopment works.

T+T, 2009: University of Auckland Sector 300, School of Science Geotechnical Investigation and Ground Contamination Report[8].

[8] T+T, May 2009. *University of Auckland Sector 300, School of Science Geotechnical Investigation and Ground Contamination Report.* T+T ref: 25668.300.

- This investigation was conducted alongside geotechnical investigations for the redevelopment of Building 301 and Carpark 36, south of the Site but within the wider property. The borehole location plan from the investigation is included in Appendix D.
- Intrusive investigations targeted Carpark 36 and a former underground storage tank (UST) behind Building 301. Imported fill material was observed beneath Carpark 36 to 1 m depth forming the carpark subgrade, underlain by residual East Coast Bay Formation soils. Soil samples were analysed from five borehole locations: three in Carpark 36 and two near the former UST.
- Metals concentrations for samples targeting the former UST were below the Auckland City Council human health assessment criteria for commercial land use and the Auckland Regional Council environmental discharge criteria (relevant at the time) and were generally below background concentrations. Petroleum hydrocarbons and polycyclic aromatic hydrocarbons (PAH) were not detected.
- Metals concentrations for fill material in the upper 1 m of the soil profile beneath Carpark 36 were below the adopted human health and generally below the environmental discharge criteria, with the exception of nickel which was above the discharge criterion and was attributed to scoria being present in the fill.

T+T, 2015: University of Auckland – Sector 300 – Preliminary Geotechnical Assessment and Environmental Review[7]

- This investigation involved a review of historical information and a site walkover inspection for the Site and the Kate Edger Information Commons (Building 315), comprising a total area of 12,900 m^3. Relevant details from the site history review have been incorporated in Section 3.1 and 3.4.
- Potentially contaminating activities were identified relating to placement of fill, a UST associated with a boiler for B312, historical and current transformers, and use of asbestos-containing materials (ACM). The UST was indicated to be to the north of the eastern end of B312, which is in the vicinity of where the grate cover (Appendix A) was observed during the 2026 Site walkover.
- The report noted that previous geotechnical investigations within the wider property generally found asphalted/paved areas were typically underlain by basecourse material, which in some cases was underlain by fill materials (organic silt, clayey silt, and fine gravel) to about 1.5 m bgl.
- The report noted that it is unlikely that contamination is present at levels that would affect ongoing operation or future use of the Site

T+T, 2019: Recreation and Wellness Centre, 17 Symonds St, Auckland, Ground Contamination Assessment[9]

- The 2019 investigation was undertaken to support the development of the Hiwa Recreation and Wellness Centre, immediately southeast of the Site.
- From the desktop study, potentially contaminating activities were identified relating to placement of fill, use of ACM, and the B312 historical transformer room and boiler room, given the proximity of B312 to the project site boundary.
- Nine soil samples, comprising both fill and natural soils, were tested from six machine drilled boreholes. An additional sample was collected from an earth batter in a service room in B301

[9] T+T, February 2019. *Recreation and Wellness Centre, 17 Symonds St, Auckland – Ground Contamination Assessment.* Prepared for University of Auckland Property Services. T+T ref: 1001930.2000 v2

where construction water was observed on the surface. None of the sampling locations were targeting the potential sources relating to B312 due to access constraints.

- All 10 samples were tested for metals and PAH, with seven samples also tested for asbestos by the NZ semi-quantitative method, total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCB) and volatile organic compounds (VOC).
- All results were detected below NESCS Soil Contaminant Standards (SCS) for commercial/industrial land use and below Auckland Unitary Plan (AUP) Permitted Activity (PA) criteria.
- Metals concentrations were generally within background ranges. PAH was detected above laboratory limits of reporting (LOR) in two samples of fill. TPH, PCB and VOC were not detected about the laboratory LOR.
- Asbestos was detected in the sample from the earth batter at a trace level (<0.001 w/w), but was not detected in the other samples tested.
- The report noted that groundwater results from wells installed for the geotechnical investigation showed several exceedances of 80% ANZECC[10] protection of marine species values for total copper and zinc. However, based on the site history and surrounding geology these concentrations were not expected to be an indication of contamination at the Site.
- A Site Management Plan (SMP) was prepared under separate cover to support the proposed redevelopment works.

T+T, 2020. Site Management Plan, Recreation and Wellness Centre, 17 Symonds St, Auckland[11]

- In addition to the T+T 2019 results, the SMP notes that several phases of further soil sampling and validation had been completed across the earth batter in the service room of B301, which identified asbestos in soil concentrations above the human health criterion. The SMP set out different zones for asbestos controls for the construction phase.

T+T, 2024: Site Validation Report - Recreation and Wellness Centre, 17 Symonds St, Auckland[12]

- The Site Validation Report (SVR) was prepared to address the resource consent condition.
- Remedial works involved removal of earth batter material beneath the service room at B301 under Class B Asbestos work controls in several phases of work in 2020, 2022 and 2023.
- Results of soil validation sampling relating to the earth batter indicated asbestos in soil concentrations remained above the human health criteria. The area was capped with a geotextile layer and a soft cap of 0.2 m and the location added to the UoA asbestos management plan for the site. Soil validation sampling was not required elsewhere for the development.
- Based on information provided to T+T by the Contractor (Hawkins), no unexpected contamination was encountered during the works.

3.4 Council property file

The Council property files were reviewed as part of the T+T 2015 investigation[7]. A summary of the information reviewed for that report, but relating specifically to the Site, is presented below.

[10] [11]Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), 2000

[11] +T, September 2020. *Site Management Plan for Ground Contamination, 17 Symonds St, Auckland.* Prepared for University of Auckland Property Services. T+T ref: 1001930.2000 v3

[12] T+T, August 2024. *Site Validation Report – Recreation and Wellness Centre, 17 Symonds St, Auckland.* Prepared for University of Auckland Property Services. T+T ref: 1001930.2000 v1

- The oldest record for the Site found on file was a set of sketches/plans dated February 1910 of three buildings at the corner of Princes Street and Alfred Street. The layout of the buildings indicate they were for residential use.
- A 1912 plan shows proposed additions to a two-storey building fronting Alfred Street. The use of the building is shown as lodging (and is referred to as Hinemoa House).
- A 1948 plan shows another lodging (Hinemoa House) fronting Alfred Street.
- A plan dated 1954 details the conversion of a residence fronting Alfred Street into a doctor's room on the ground floor and flats above.
- A letter dated 14 March 1961 details the renovation of a former private hotel on Alfred Street into lecture rooms and offices for the Department of Economics of the UoA including provision of parking at the rear of the building.
- A 1965 plan of the Student Building (Building 312) shows the location of a boiler room and associated "oil tank pit" at the east end of the building as well as a transformer room at the west end (refer drawing S9 in Appendix D). The boiler room area was not visible/accessible during the 2026 Site walkover.
- A letter dated 17 March 1966 from the Town Planning Division includes details of the proposed construction of the Student Building (at the location of Building 312) as well as the closure of O'Rorke Street.
- 1972 plans of the Student Drama Centre (Building 313) details the typical arrangement of the heater battery pipework for the building and plant room (refer drawings M.2 and 7 in Appendix D). An application for building permit dated 1974 for the extensions of the plant room for an air condition plant is also on file.
- A 1972 site layout plan details the location of an existing boiler room at the southeast end of Building 312 and associated underground oil tank (refer Appendix A and drawing M.1 in Appendix D). The locations of the boiler room and oil tank shown on the plan generally align with the locations indicated in the 1965 plan (drawing S9).
- Plans dated 1979 for Building 311 shows details of a photographic darkroom.
- A set of plans dated 1996 includes details for the installation of a vehicle hoist at the front of the Student Union (Building 312) off of Princes Street. The hoist is shown to be powered by a powerpack.
- A number of plans and communications dated 1996 include information on the proposed development of the northeast corner of the Site for student amenities facilities. These plans do not appear to have been implemented. As new plans, reports and communications dated between 2001 and 2002 provide details of a proposed student amenities and information commons development at the corner of Alfred Street and Symonds Street. Approved plans dated 2003 show the design details of the Kate Edger Information Commons (Building 315) in this location and a Council note indicates the ground had fill materials present.
- A building consent application dated 2002 indicates the restoration and office fit out of the 'House' (Building 322) along Alfred Street. An undated letter notes that this house was built circa 1870's and refers to it as a Historic Merchant House.
- A set of plans dated 2002 provides details for a new boiler room for the Student Association Building (Buildings 312/311). The location of the new boiler room is provided in drawing A01 and details of the access doors to the boiler room are provided in drawing A03 (refer Appendix D). This area was not observed during the 2026 Site walkover (fenced-off). The boiler room location and natural gas pipelines running in the area were observed during the walkover for T+T 2015.
- Plans dated 2013 show the fit out works associated with the installation of a glassblower workshop in the basement of Building 312.

The above generally supports the features of the Site summarised in the historical aerial photograph review (refer Section 3.2). Additional key information held on file but not specific to the Site are provided below:

- The specification documents for the refurbishment of Building 303 (Math and Physics building) dated 2010 indicates presence of lead base paint and asbestos products within the building.
- Accompanying plans show details of a plant room covering the majority of the basement of B303.
- The recreation centre (Building 314) refurbishment documents dated 2012 indicates asbestos products present.
- Proposed refurbishment documents for Building 301 (Science Centre including laboratories) dated 2013 indicate the presence of switch gear area and a transformer room. Also associated with this building is a dangerous goods store and other hazardous material including a cobalt 60 radiation source, chemically contaminated ductwork, potentially contaminated ground and structural elements and asbestos present in the building.

The activities associated with these buildings are not expected to have caused significant ground contamination and are unlikely to have impacted the Site which is located to the northeast of these buildings.

3.5 Client provided information

Several documents were provided by the client, largely relating to the demolition of the Maidment theatre, formerly located at the northwestern portion of the Site. A summary of the client-provided information is provided below.

- UoA property staff are not aware of hazardous materials being disposed of or stored at the Site, however B312 has been a contractor's site office for several years and may have been used to store hazardous items.
- An undated drawing provided by UoA property services staff[13] (Appendix E) identifies the location of a former underground storage tank, positioned under pavers and some distance from a tree grate. A note on the drawing indicates that the tank was drained and filled with concrete slurry.
- A building condition assessment[1514] of the Maidment Theatre (B313) formerly located at the northwestern portion of the Site assessed the extent of defects in internal and external elements of the building.
  - The building was officially opened in 1976 and was designed purposely as the Student Drama Centre for Auckland University.
  - The building was constructed as an extension of the Student Union Buildings and was linked internally from the foyer space to B311.
  - In 1996, a major refurbishment added office spaces to the west elevation of the building.
  - The building was of reinforced concrete and concrete block construction and was originally left bare. Paint finishes on the external walls are a modern treatment.
  - Upper-level concrete block wall structures were clad with a light weight flat asbestos cement sheet or moulded asbestos cement panels over timber framing.
  - Fibre cement sheeting was used as cladding to cover previous openings, glazed

[13] Unknown, [unknown date], *DRWG 31150850.*

[14] Salmond Read Architects Ltd., October 2015, *University of Auckland: Maidment Theatre B313 Building Condition Assessment*. Prepared for University of Auckland – Property Services.

walls, and for the fire services room.

  - External window joinery was steel, some with copper sill flashing. External gutters and downpipes were originally copper.
  - Original roofing was Butynol over two layers of plycopyne sarking to all roof areas.
  - Former Site plans show an electric store on the ground floor at the northern side of the building (facing Alfred Street). A control box was also located above the foyer linking B313 to B311. A control room was also located above the entrance lobby in the southwest portion of the former building.
- An Asbestos Demolition Survey of the Maidment Theatre[15][15] (B313) identified ACM in both interior and exterior construction materials prior to demolition.
  - ACM was identified in a variety of locations and materials, including redundant fibre cement pipes, internal insulation board door linings, sealant to ducting, external fibre cement wall cladding and soffits.
  - The survey noted that a former service void on the ground floor was highly contaminated, as ACM (amosite) pipe lagging was damaged with visible debris on the floor.
- Asbestos clearance air monitoring undertaken on 25 and 27 March 2017 for the demolition of the Maidment Theatre showed measured concentrations of a maximum of < 0.01% fibres/ml of air.[16,17]
- Asbestos Management Plans for B311[18] and B312[19] indicate that ACM is present in some B311 and B312 building materials.
  - In B311, ACM was identified in gaskets, pipe lagging and pipe lagging encased in boxing, cement lining to wall, cement panel to skylights, asbestos vent pipes, and bitumen membrane to pop top roofs.
  - In B312, ACM was identified in insulation to pipework, insulation to pipe lagging and debris, and insulation to pipe penetrations. Other internal areas were inaccessible.

3.6 Council contamination enquiry

A site contamination enquiry (SCE) was requested from Auckland Council for the Site. Council records indicate that the Site has possibly been subject to:

- HAIL item E1 for asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition.
  - T+T note that this HAIL item likely relates to the asbestos finds in the service room of B301 associated with the construction of the Hiwa Recreation and Wellness Centre. The SCE references reports relating to the Hiwa Recreation and Wellness Centre.
- HAIL item I for any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment.

[15] Dowdell Associates Ltd., 28 November 2016, *Asbestos Demolition Survey of Maidment Theatre, University of Auckland*. Prepared for University of Auckland Property Services

[16]Clearsafe Environmental Solutions, 29 March, 2017. *Air Monitoring Certificate, Report Number 45-1650-01-AM*. Prepared for Ward Demolition Ltd

[17] Clearsafe Environmental Solutions, 29 March, 2017. *Air Monitoring Certificate, Report Number 45-1650-02-AM*. Prepared for Ward Demolition Ltd.

[18] The University of Auckland, 16 March 2026, *Asbestos Management Plan, The University of Auckland, 311 – Student Commons Blocks A-D.*

[19] The University of Auckland, 2 March 2026, *Asbestos Management Plan, The University of Auckland, 312 – Student Commons Block E*.

  - This HAIL item likely relates to finds of historical fill up to 1.5 m bgl associated with the Hiwa Recreation and Wellness Centre. This may relate to the Site given the similar timeframe when initial development occurred (1960s).

The SCE also notes:

- Records indicate the Site has been used as a university since the 1960s, and prior to this contained residential buildings.
- The SCE summarises the results of the T+T 2019 ground contamination assessment for the construction of the Hiwa Recreation and Wellness Centre[10] (Section 3.3). In particular, the SCE noted:
  - Fill was identified at the Site up to 1.5 m bgl.
  - The historical transformer room and boiler room in B312.
- The SCE references the results of a July 2020 validation letter, in particular noting that asbestos fibres in soil samples were identified up to Class B levels in the B301 basement.
- The SCE references the August 2024 Site Validation Report for the Hiwa Recreation and Wellness Centre. It is noted that asbestos in soil remains at concentrations which may present a risk to human health. Remaining contaminated soil was capped with a geotextile layer followed by a soft cap of at least 0.2 m bgl.
- The SCE notes that paints used on external parts of properties up until the mid-1970s routinely contained lead.

One property was identified as having been subject to unidentified HAIL activities at 20 Whitaker Place, downgradient and southwest of the Site. While the HAIL property is some 200 m from the property parcel, it is some 230 m from the Site boundary. The distance and gradient of the HAIL activity location does not suggest that the Site would be adversely affected from off-site contamination.

There are multiple discharge consents, water takes and water discharges within 200 m of the Site.

- One discharge consent is located within the property parcel, likely relating to the discharge of contaminants into air, water or land associated with the construction of the Hiwa Recreation and Wellness Centre.
- Other discharge and take consents within 200 m of the property parcel include discharge of contaminants, mostly associated with construction works. A legacy take consent relates to irrigation of Albert Park, some 50 m northwest of the Site. Seven bores are also noted some 200 m south and downgradient of the Site.

Several pollution incidents have also been noted within 200 m of the Site. All incidents were downgradient and unlikely to have resulted in migration of contaminants to the Site (Table 3.2).

Table 3.2: Pollution Incidents noted within 200 m of the Site

Incident	Site address	Distance from Site
Dry Weather Sewer Overflow	6-18 Symonds Street	Some 200 m east and downgradient.
Dry Weather Sewer Overflow	Symonds Street	Some 200 m east and downgradient.
Dry Weather Sewer Overflow	8 Grafton Road	Some 160 m east and downgradient.
Water blasting at UoA	Symonds Street/Grafton Road	Some 120 m east and downgradient.
Discharge to Land	33-43 Princes Street	Some 100 m west and downgradient.

4 Potential for ground contamination

There are a number of activities associated with the Site that have the potential to cause ground contamination. The inferred locations of these activities are presented on Figure 1 in Appendix A.

The activities, potential contaminants and an assessment of the potential magnitude of the effects are presented in Table 4.1 below.

Table 4.1: Potentially contaminating activities

Land use / activity	Potential contaminants	Magnitude, possible extent and likelihood of contamination	HAIL activity reference
Structures and buildings on site constructed prior to 2000.	ACM, lead	It is common for asbestos and lead-based paint to have been used in buildings constructed between 1930 and 1980. The residential buildings previously present on the Site were indicated to have been constructed prior to 1940. B311 and B312 were constructed between 1950s and 1960s. The Maidment Theatre (B313) was constructed by 1976 and redeveloped in 1996. The theatre was demolished by 2017. These contaminants can enter the soil over time through the weathering process or anthropogenic activities that degrade the materials. Asbestos building surveys for B311 and B312 indicate ACM is present within building materials. Asbestos was present in exterior and interior construction materials of B313. If contamination is present, it is most likely to reside near parts of the building in a deteriorated condition, or in the shallow soils immediately around the former buildings, unless mobilised by soil disturbance or runoff. Since the 1970s the site surface has been predominantly sealed around the buildings.	Potentially a HAIL (Activity I) if contaminants are present at concentrations that pose a risk to human health or the environment.
Potential filling from construction activities during site development.	Variable depending on source but typically ACM, heavy metals and PAH.	During construction, fill material of unknown origin can be placed under and around building footprints. If found to be present, contaminants are likely to be localised to areas where the fill was placed. Previous geotechnical investigations have noted fill materials in some areas south and east of the Site.	Potentially a HAIL (Activity I) if contaminants are present at concentrations that pose a risk to human health or the environment.

Land use / activity	Potential contaminants	Magnitude, possible extent and likelihood of contamination	HAIL activity reference
Boilers (including storage of fuel).	Variable depending on the type of fuel stored but typically BTEX, PAH and TPH.	Historical plans indicate an underground fuel storage tank was previously located in the central portion of the Site between B311 and B312. The tank was possibly drained and filled with slurry, however no decommissioning reports have been provided. A boiler room associated with the tank was located within B312 (southwest of the tank). Property files also show a boiler room at the southwest end of B312, and a transformer room at the west end. The T+T 2015 site inspection indicated the new boiler may be fuelled by natural gas. Although the remaining impact on the site is likely to be low, the HAIL item is still considered to apply to the decommissioned tank as a historical activity.	HAIL A17 (Storage tanks or drums for fuel, chemicals or liquid waste).
Historical and current transformers.	Polychlorinated biphenyls (PCBs) in historical transformer, metals and PAH in both.	Low concentrations possible in shallow soils beneath the historical transformer room at the western side of Building 312, however, concrete flooring is likely to greatly reduce the pathway for contaminant migration to soils. The current transformers appeared in good condition and are unlikely to have resulted in contamination.	Activity B2 (Electrical transformers).

5 Field investigations

5.1 Investigation rationale

Site specific ground contamination related soil sampling was undertaken concurrently with the geotechnical investigations in August and September 2026. Sampling was carried out to understand the nature of contamination (if any) within fill material where present and to characterise the underlying natural material, primarily for consenting and disposal purposes.

Soil samples were collected on 12 and 31 August and 3, 4, and 10 September 2026 from six (6) rotary core machine boreholes located throughout the Site (BH1 – BH6). The sampling locations are presented below in Table 5.1. The sampling locations were constrained due to the presence of buildings and existing services.

Samples were collected in general accordance with the MfE Contaminated Land Management Guidelines No. 5 and Asbestos in Soil Guidelines[20] using the following sampling procedure:

- Sampling locations were advanced using a rotary drill rig (coring). Soil samples were collected from each strata of retrieved core until natural ECBF rock was encountered, or a depth of 8 m was reached (the proposed deepest basement level of the future student centre).
- All samples were collected with a clean gloved hand and immediately placed into laboratory supplied sample jars.
- The materials encountered were logged in general accordance with the NZ Geotechnical Society guidance.
- Recovered material was visually inspected for the presence of suspected ACM fragments or visual indications of contamination e.g. staining, odour.
- Samples were stored in chilled containers and brought to Hill Laboratories, an International Accreditation New Zealand (IANZ) accredited laboratory, for analysis.

In total, 14 samples, including one duplicate sample, were selected for laboratory analysis as follows:

- 6 samples were tested for asbestos in soil using the NZ semi-quantitative method.
- 14 samples were tested for heavy metals; and
- 9 samples were tested for PAHs.

5.2 Data quality

A quality assurance and quality control (QA/QC) programme was implemented as part of field procedures to confirm data was fit for purpose and included:

- New gloves worn for collection and placement of each sample into laboratory supplied containers.
- Decontamination of any re-usable sampling equipment between sampling locations using Decon-90 (a phosphate-free detergent) and freshwater rinses.
- Soils encountered were logged in general accordance with the NZ Geotechnical Society guidance.
- Collection of duplicate soil samples.
- Preservation of samples with ice during transport from the field to the laboratory.
- Transportation of samples with accompanying chain of custody documentation.
- Compliance with sample holding times.

[20] BRANZ Ltd, 2024. *New Zealand Guidelines for Assessing and Managing Asbestos in Soil.*

The IANZ accredited laboratory has stated that standard laboratory QA/QC testing was conducted internally and reported by the lab to have passed within their control limits.

One duplicate sample was collected in the field, at sample location BH02-0.5-0.6, during this investigation. Both the duplicate and original sample were tested for heavy metals and PAHs. The relative percentage difference (RPD) was calculated for each parameter tested, presented in Table 5.1 below. RPD values for duplicate sample pairs that are less than 50% are generally considered acceptable. The RPDs between the duplicate sample and the primary sample were all below 30%. Based on this review the analytical data were considered representative of site conditions and suitable for interpretation.

Table 5.1: QA/QC analytical results

Sample	BH02-0.5-0.6	DUP_01	RPD
Date	12/08/2026	12/08/2026	
Metals			
Arsenic	< 2	< 2	<50
Cadmium	< 0.10	< 0.10	<50
Chromium	32	31	3
Copper	28	28	0
Lead	6.1	6.1	0
Nickel	33	31	6
Zinc	88	89	-1
PAHs			
Total of Reported PAHs in Soil	< 0.015	< 0.4	<50
1-Methylnaphthalene	< 0.015	< 0.015	<50
2-Methylnaphthalene	< 0.015	< 0.015	<50
Acenaphthylene	< 0.015	< 0.015	<50
Acenaphthene	< 0.015	< 0.015	<50
Anthracene	< 0.015	< 0.015	<50
Benzo[a]anthracene	< 0.015	< 0.015	<50
Benzo[a]pyrene (BAP)	< 0.036	< 0.015	<50
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES	< 0.036	< 0.036	<50
Benzo[a]pyrene Toxic Equivalence (TEF)	< 0.015	< 0.036	<50
Benzo[b]fluoranthene + Benzo[j]fluoranthene	< 0.015	< 0.015	<50
Benzo[e]pyrene	< 0.015	< 0.015	<50
Benzo[g,h,i]perylene	< 0.015	< 0.015	<50
Benzo[k]fluoranthene	< 0.015	< 0.015	<50
Chrysene	< 0.015	< 0.015	<50
Dibenzo[a,h]anthracene	< 0.015	< 0.015	<50
Fluoranthene	< 0.015	< 0.015	<50
Fluorene	< 0.015	< 0.015	<50
Indeno(1,2,3-c,d)pyrene	< 0.08	< 0.015	<50
Naphthalene	< 0.015	< 0.08	<50
Perylene	< 0.015	< 0.015	<50
Phenanthrene	< 0.015	< 0.015	<50
Pyrene	< 0.4	< 0.015	<50

5.3 Field observations

The subsurface material varied between boreholes across the Site. The geological profile of the Site, including a brief summary of each strata follows:

- Soil samples were generally collected from the surface to 8 m bgl, except for at BH02 located at the former Maidment Theatre basement near the northwest of the Site, where sampling was terminated after ECBF rock was encountered at 5.1 m bgl.
- Fill:
  - A surficial fill layer was encountered at all boreholes, generally ranging from approximately 0.2 m to 1.4 m thickness. Fill material generally comprised fine-coarse sub-angular-angular gravels with concrete and/or asphalt fragments. Surficial fill at BH06, located at the central turf area of the Site, was notably different, consisting of fibrous peat with minor gravel and brick fragments.

  - Cohesive fill was encountered at all boreholes generally underlying the surficial hardstand material and extended up to 6 m depth. Cohesive fill generally comprised of silt with varying proportions of clay, sand and gravel and was deepest at BH03, located on a steep driveway at the former Maidment Theatre Basement near the northwest of the Site.
- ECBF:
  - Natural soils generally consisted of clay with varying amounts of silt, or silt with various amounts of clay and were observed underlying cohesive fill materials across the Site.
  - ECBF siltstone and sandstone was encountered between 5.1 and 10.3 m depth at each borehole location and was highly weathered nearest the surface to unweathered at depth.
- Perched groundwater was encountered in the AVF at BH03 and a shallow piezometer was installed with the screen between 4.5 to 6.0 m bgl. Regional groundwater is present at depths below approximately 6.5 m bgl in the underlying ECBF residual soils and rock.

Further description of the Site soils can be found in the borehole logs (Appendix F).

5.4 Analytical results

The soil analysis results are discussed in Table 5.2 below and presented in Appendix F. The laboratory reports are provided in Appendix H.

Soil sample laboratory results were compared against criteria for the assessment of regulatory requirements, and the proposed redevelopment land use to meet the objectives of the investigation (refer Table 5.2). The adopted assessment acceptance criteria included:

- For the protection of human health:
  - NESCS criteria for commercial/industrial land use have been used as a proxy based on the future proposed development[2].
  - Human health soil guideline values presented in the NZ Asbestos in Soil Guidelines[21].
- For discharges to the environment:
  - The Auckland Unitary Plan (AUP) Permitted Activity (PA) criteria as defined by Standard E30.6.1.4.
- Background/cleanfill disposal criteria:
  - Published background ranges for volcanic soils in Auckland[22] based on the Site and surrounding geology.
  - For organic contaminants, the WasteMINZ, 2023. Technical Guidelines for Disposal to Land - Revision 3.1. Class 5 Waste Acceptance Criterion (WAC) for Clean Fill.

[21] BRANZ Ltd (2024). New Zealand Guidelines for Assessing and Managing Asbestos in Soil.
[22] Auckland Regional Council, Technical Publication 153, October 2001. Background Concentrations of inorganic elements in soils from the Auckland Region

Table 5.2: Results discussion

Contaminant	Comparison
Human health – Heavy metals	No exceedance of the NESCS SCS commercial/industrial human health guideline values.
Human health - Asbestos	Near surface samples collected from below hardstand, from each location, were analysed for asbestos. Trace asbestos in soil (< 0.001% w/w for fibrous asbestos [FA] and asbestos fines [AF]) was reported for surficial soils at BH01 from 0.0 – 0.4 m bgl, located at the western side of the central artificial turf area of site. Asbestos in soil was not reported for any other analysed sample.
Human health – PAH	PAHs were detected in two soil samples from 0.0 – 0.4 m bgl at BH01 and BH06, both located at the central brick paved area of the Site. However, concentrations did not exceed adopted commercial/industrial human health guideline values.
Environmental criteria	The lead concentration of 550 mg/kg for the sample from 0.0-0.4 m bgl at BH06, near the central artificial turf/brick paved portion of the Site, exceeded AUP PA criteria of 250 mg/kg for lead. The sample was of peat soil type. The lead concentration in underlying sample in clayey silt at 0.8-1.2 m was 18.2 mg/kg. All other samples had concentrations of heavy metals and PAHs below AUP PA criteria.
Cleanfill/background	Concentrations for lead in soil sampled from BH01 0.0 – 0.4 m bgl, and for copper and lead in soil at BH06 0.0 – 0.4 m bgl exceeded published background limits for volcanic soils in the Auckland Region. Similarly, a range of PAH compounds in both of these samples were above the laboratory limit of reporting. Total PAH concentrations were reported as 2.4 and 15.2 mg/kg, respectively. T+T note that the B(a)P toxic equivalence concentrations are below Waste Acceptance Criterion for Class 5 Clean Fill of 2 mg/kg (per the WasteMINZ Technical Guidelines for Disposal to Land – Revision 3.1).

6 Preliminary conceptual site model

A conceptual site model (CSM), as defined by MfE in the contaminated land management guidelines[23] sets out known and potential sources of contamination, potential exposure pathways, and potential receptors. For there to be an effect from the proposed activity there has to be a contamination source and a mechanism (pathway) for contamination to affect human health or the environment (receptor).

A preliminary CSM has been developed for the proposed activity as an update from the initial PSI, which considers the available information about the Site and results of preliminary soil sampling, and our understanding of the potential effects on human health and the environment. The model is presented below.

Potential **sources** of contamination at the Site include**:**

- Asbestos and lead in soil derived from construction, maintenance and/or demolition of structures.
- Historical fill containing PAHs, heavy metals and/or asbestos.
- Historical releases of hydrocarbons from underground storage of fuel for boilers; and
- Historical releases of hydrocarbons from historical and current transformers.

Receptors of contamination may include:

- Human health – Site users, adjacent Site users, Site re-development workers as well as the general public and disposal site operators (if soil is removed as part of any development works).
- Environment – terrestrial ecological receptors at the Site, at stormwater and groundwater discharge points, and ecological receptors at disposal site locations.

Pathways by which the contamination (if present) can affect the receptors are:

- Direct contact by workers undertaking development or maintenance works.
- Direct contact by the public or workers or disposal site operators during offsite transport/disposal of contaminated material.
- Inhalation via dust or fibres by onsite or offsite workers and Site users.
- Migration to the environment via leaching to groundwater, sediment entrainment in stormwater onsite or at disposal sites.
- Contaminant uptake by flora and fauna.

Based on the preliminary soil sampling results in the proposed development area, contamination is not present at levels that would adversely affect human health under the current or future commercial/industrial use, but may pose a potential risk to the environment during development works.

Lead was detected in shallow soil in one location (BH06) at a concentration exceeding the AUP PA criterion. The concentration in the underlying sample was within background ranges indicating that the risk to groundwater from leaching is low in the Site's current condition. Earthworks for the proposed development are anticipated to remove the impacted material.

Asbestos (as AF/FA) was present in shallow soil in one location (BH01) at a concentration below the human health limit for all land uses. As the preliminary sampling has been constrained by the presence of site buildings, additional soil sampling will be required to confirm asbestos controls

[23] Ministry for the Environment, updated 2021. Contaminated Land Management Guidelines No. 5 Site Investigation and Analysis of Soils

during soil disturbance for the proposed development. At present, Trace Asbestos Controls as described in the Asbestos in Soil Guidelines, in addition to standard earthworks controls, are considered to apply (Appendix K).

Additional soil sampling should be undertaken following demolition to confirm the condition of any fill materials beneath the buildings, the asbestos controls for bulk excavation, and associated soil disposal requirements. Validation sampling is also proposed at the location of the former UST after it is removed. As part of post-demolition sampling, delineation of the lead concentration at BH06 could be undertaken to inform offsite disposal volumes.

The CSM indicates the following ground contamination related aspects should be managed during the Site redevelopment:

- Earthwork management procedures such as dust, stormwater and erosion and sediment controls to mitigate the potential pathway to the receiving environment.
- Trace asbestos work controls are indicated to apply to future soil disturbance, subject to further testing to increase the sampling coverage.
- If excess soil is removed for offsite disposal, material will need to be disposed of to a facility appropriate to the contaminant content. For impacted fill, based on the current dataset, this is likely a licensed landfill (subject to approval of the receiving facility). The soil disposal requirements can be refined following post-demolition testing.

7 Regulatory implications

The key legislation and planning controls and associated assessment criteria related to the control of contaminated sites in the Auckland regions are specified in the NESCS and the AUP. The regulatory framework and its application to the Site is set out in detail in Appendix J.

7.1 NESCS

The NESCS applies to specific activities on land where a HAIL activity has, or is more likely than not, to have occurred. Activities covered under the NESCS include soil disturbance, soil sampling, fuel systems removal, subdivision, and land use change.

It is considered more likely than not that a HAIL activity has occurred on the Site given the former underground fuel storage and historical and current transformers. Uncontrolled filling and asbestos and lead from buildings are not a HAIL unless concentrations present a risk to human health or the environment. The NESCS will therefore apply to development of the Site.

Soil disturbance permitted activity requirements for the Site under the NESCS are summarised in Table 7.1 below.

Table 7.1: Relevant soil disturbance permitted activity requirements for the Site

HAIL activity area of the site	Some 6,000 m^2
Maximum permitted volume of disturbance	300 m^3
Maximum permitted volume of soil removed from site per year	120 m^3, assuming the works span two arbitrary years[24]
Maximum permitted duration of earthworks	Two months

Note: Soil volumes have been rounded to the nearest whole number.

Based on the extent of the proposed development, the development will not comply with the permitted activity requirements and a resource consent will be required. Furthermore, the Civil Infrastructure Report for the UoA Student Centre and Library indicates that the total cut volume for the redevelopment is understood to be over 34,000 m^3, which exceeds the maximum permitted activity volume for soil disturbance.

The preliminary sampling results do not indicate any exceedances of the NESCS SCS. However, a Detailed Site Investigation (DSI) has not been undertaken for the Site due to access restrictions presented by the existing buildings on Site. Therefore, consent has been sought as a discretionary activity under NESCS Regulation 11. This application is supported by this PSI and a Contaminated Site Management Plan (CSMP).

Due to the access restrictions presented by existing buildings on Site, we recommend further intrusive investigations are undertaken after building demolition and prior to construction. We anticipate this further investigation will be required as a condition of resource consent. A CSMP[25] has been prepared to support the consent application and outlines the requirements for the investigations to be completed prior to construction.

The removal of the decommissioned UST as part of the basement excavation is likely to meet the permitted activity criteria of up to 30 m^3 of soil disturbed or taken away, per Regulation 8(1) of the

[24] A year is not defined in the NESCS, so this volume can be disturbed or disposed of on two consecutive days, with each day considered as occurring in consecutive years, enabling thresholds to effectively be doubled.
[25] T+T, October 2026. UoA Student Centre and Library Project – Contamination Site Management Plan (CSMP). T+T ref: 1103046-RPT-CON-202 v 2.1.

NESCS. On this basis we consider that the presence of the UST should not alter the activity status of a consent application.

7.2 AUP

The contaminated land rules are set out in Section E30 of the AUP. Council applies them to activities involving soil disturbance or site redevelopment. As detailed further in Appendix J, Rule E.30.6.1.4 states that soil disturbance on sites with elevated levels of contaminants requires consent unless the conditions of rule E30.6.1.2 of the AUP can be met. These conditions include, but are not limited to, a maximum soil disturbance volume of 200 m^3 or less per site with the duration of soil disturbance lasting two months or less.

Results of preliminary soil sampling show soil at BH06 sampled from 0.0 – 0.4 m bgl contains lead exceeding AUP PA criteria. Based on the proposed extent of the redevelopment, we expect that the work is unlikely to comply with the permitted activity conditions. On this basis, a resource consent under Chapter E30 of the AUP is required. Due to access limitations presented by existing buildings on Site, a DSI has not been prepared, and consent is therefore required as a discretionary activity under E30.4.1(A7) as the application cannot comply with Standard E30.6.2.1.

Due to access limitations during the preliminary sampling, it is recommended that further soil sampling after building demolition and prior to construction. T+T has prepared a CSMP[25] outlining the investigations to be completed prior to construction as a condition of consent.

7.3 Asbestos regulations

Under the Health and Safety at Work (Asbestos) Regulations 2016 (Asbestos Regulations), asbestos building demolition surveys should be undertaken prior to the removal or demolition of buildings or structures constructed prior to January 2000. Removal of asbestos (if present) from the existing structures will likely need to occur under the supervision of an appropriately licensed removalist.

The Asbestos in Soil Guidelines[21] define the level of oversight and controls (including personal protective equipment, decontamination etc.) that are required to be implemented dependent on the concentration of asbestos fibres/fines or fragments. Trace asbestos was detected in surficial soils at one sampling location (BH01 sampled from 0.0 – 0.4 m bgl).

The current dataset indicates that controls for “Trace Asbestos Contamination” under the Asbestos in Soil Guidelines are required to be implemented above standard earthworks controls. Due to the limited nature of soil sampling conducted to date, it is recommended that pre-works testing is carried out after building demolition to determine the areas and level of controls required. For a site of 5,700 m^2, the Asbestos in Soil Guidelines indicate a minimum of 14 grid-based sampling locations. Six locations have been undertaken to date.

The recommended asbestos controls may be revised as a result of further soil sampling. The CSMP details further sampling requirements for the Site

8 Development implications

8.1 General handling requirements during earthworks

We consider that standard earthworks controls plus Trace Asbestos Contamination Controls should be adequate to mitigate any potential contamination effects associated with the proposed development of the new Student Centre and Library. The level of asbestos controls will be confirmed following pre-works sampling undertaken under the CSMP. Dust control, stormwater controls and erosion and sediment controls should be put in place.

A CSMP has been prepared to document the controls and procedures required during earthworks at the Site and to support contaminated land-related consent applications. The CSMP document details the additional sampling to confirm controls for earthworks and health and safety and provides contingency procedures should unexpected contamination be encountered. If further testing identifies contamination at levels which present a risk to human health or the environment, then additional health and safety and/or environmental controls are likely to be required during any future excavation/soil disturbance works

8.2 Offisite disposal of soils

Based on the available results, the following is expected to apply for the offsite disposal of soils:

- Shallow fill soils (to 0.4 m bgl) in the vicinity of BH01 will need to be disposed of to a managed fill facility that can accept trace levels of asbestos (< 0.001% for FA and AF).
- Shallow fill soils (to approximately 0.4 m bgl) in the vicinity of BH06 exceeded AUP PA criteria for lead and therefore exceed typical managed fill criteria. These soils would likely need to be disposed to a landfill facility licensed to accept contaminated soil.
- Shallow soils represented by other investigated locations may be able to be accepted as clean fill.
- Underlying natural strata is expected to be accepted as clean fill.

Further sampling is recommended post-demolition to better understand soil disposal requirements and re-use recommendations. Results will need to be provided to the facility operator(s), and acceptance will be subject to approval by the facility operator(s).

8.3 Onsite reuse of soils and residual contamination

Based on the current understanding of development plans, the retention of contaminated soil on-site is unlikely, however we note the following:

- Contaminated soil represented by BH06 could be retained onsite if capped. Capping generally involves a layer of geotextile being installed over contaminated material, followed by a layer of hardfill, cleanfill or concrete. A long-term CSMP may also be required if there were to be contamination remaining on site.
- The location of asbestos in soil (if remaining onsite) would need to be recorded on the property asbestos register.

This assessment has not identified any contamination conditions that would prevent ongoing operation of the Site under its current use.

9 Conclusions

Tonkin & Taylor Ltd has been commissioned by UoA to prepare an updated Contaminated Land Preliminary Site Investigation (PSI) for the Site on the corner of Princes Street and Alfred Street, Auckland Central. The objective of the investigation was to assess the potential for ground contamination to exist, with sampling undertaken concurrently with intrusive geotechnical investigations to assess whether potential contaminants are present.

The main findings of the desktop assessment are:

- The Site was initially in residential use, with dwellings constructed prior to the 1940s. Between the 1950s and 1960s, B311 and B312 were constructed. The Maidment Theatre (B313) was developed by 1976 and redeveloped in 1996. By 2017, B313 was demolished. The Site is currently in commercial use as a cafeteria area with student club offices in upper floors.
- Several HAIL activities were identified to have occurred on the Site:
  - HAIL A17 applies to the Site due to the underground diesel storage tank in the central portion of the Site between B311 and B312, associated with the historical boiler room. The tank is understood to have been filled with slurry and decommissioned. A new boiler room at the southwest end of B312 became operational in the 2000s.
  - HAIL B2 applies to the Site given there is evidence in plans of a historical transformer room at the west side of B312 and current transformers outside the west end of B312.
  - There is potential for uncontrolled filling during development and loss of asbestos and lead from building materials to ground have occurred over the Site's history. These activities could be considered a HAIL (Activity I) if contaminants are present at concentrations that pose a risk to human health or the environment.
- Preliminary sampling was undertaken from six borehole locations in accessible areas of the site. The sample locations were constrained by the presence of existing buildings. The results of preliminary soil sampling indicate that:
  - All results were below adopted human health criteria (SCS for commercial/industrial land use).
  - All results were below AUP PA criteria, with the exception of soil from BH06 sampled from 0.0 – 0.4 m bgl, which exceeded the AUP PA criteria for lead.
  - Some PAH concentrations in shallow fill material were found to exceed background concentrations (BH01 and BH06).
  - Trace asbestos (< 0.001% w/w FA and AF) was detected in shallow fill material at BH01, near the western site boundary. Asbestos was not detected in any other samples tested.
- Consents related to soil disturbance are required under the NESCS and the AUP for the re-development of the Site:
  - NESCS
    - The NESCS Regulations applies to the proposed site redevelopment, and the proposed development is unlikely to comply with the permitted activity requirements for soil disturbance. Therefore, the proposed redevelopment works require consent under the NESCS.
    - A discretionary consent under the NESCS is required as a DSI has not been undertaken, due to access limitations presented by existing buildings.

    - A CSMP has been prepared to support the consent application. The CSMP sets out additional pre-works sampling to be undertaken post-demolition.
  - AUP:
    - Surficial fill material at BH06 exceeded AUP PA criteria for lead. As a DSI has not been undertaken due to access limitations presented by existing buildings, consent would be required as a discretionary activity. The CSMP has been prepared to support the consent application.
  - Asbestos regulations:
    - Trace asbestos controls as set out in the Asbestos in Soil Guidelines are indicated for future soil disturbance based on the preliminary sampling. The pre-works sampling set out in the CSMP will confirm asbestos controls.
    - Asbestos building surveys will be required prior to the removal or demolition of buildings or structures onsite that were constructed prior to January 2000.
- Based on the available results, standard earthwork controls, plus trace asbestos controls, should be adequate to mitigate any potential contamination effects associated with the proposed development of a new Student Centre and Library.
- The surficial fill material represented by BH06 can be re-used onsite, if capped. The location of asbestos in soil (if remaining onsite) would need to be recorded on the property asbestos register.
- The following is expected to apply for the offsite disposal of soils based on the sampling to date (subject to confirmation from the disposal facility operator).
  - Shallow fill soils (to 0.4 m bgl) in the vicinity of BH01 will need to be disposed of to a managed fill facility that can accept trace levels of asbestos (< 0.001% for FA and AF).
  - Shallow fill soils (to approximately 0.4 m bgl) in the vicinity of BH06 would likely need to be disposed to a landfill facility licensed to accept contaminated soil.
  - Shallow soils represented by other investigated locations may be able to be accepted as clean fill.
  - Underlying natural strata is expected to be accepted as clean fill.

  Off-site disposal recommendations will be updated following the pre-works investigation set out in the CSMP.

10 Applicability

This report has been prepared for the exclusive use of our client Waipapa Taumata Rau The University of Auckland, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement. We understand and agree that our client will submit this report as part of an application under the Fast-track Approvals Act 2024 and that an Expert Panel as the consenting authority will use this report for the purposes of assessing that application.

Recommendations and opinions contained in this report are based on a desktop review and our visual observations within the proposed works area.

Compliance with the Environment Court Practice Note 2023

I, Natalie Linda O'Rourke, confirm that, in my capacity as technical reviewer of this report, I have read and abided by the Environment Court of New Zealand's Code of Conduct for Expert Witnesses contained in the Practice Note 2023.

I am a Senior Contaminated Land Consultant at T+T. I have worked at T+T since 2019. I have 17

years' experience in the assessment and management of contaminated land and groundwater. I am a Certified Environmental Practitioner Site Contamination Specialist (CEnvP SC), awarded in 2021.

Recent relevant projects and services that I have been involved with include:

Fast-track application for the Beachlands South project, which comprises a staged mixed use development of over 300 hectares of land.

Expert witness relating to contaminated land for the plan change for the Beachlands South project.

Contamination lead and technical reviewer for consent inputs for Watercare's South Auckland (Hingaia) wastewater servicing scheme.

Tonkin & Taylor Ltd

Environmental and Engineering Consultants

Report prepared by:	Authorised for Tonkin & Taylor Ltd by:
T. Mather	
.....	.....
Talia Mather	Chris Freer
Environmental Consultant	Project Director

Report certified by a suitably qualified and experienced practitioner as prescribed under the NESCS Users' Guide (April 2012).

N. L. O'Rourke

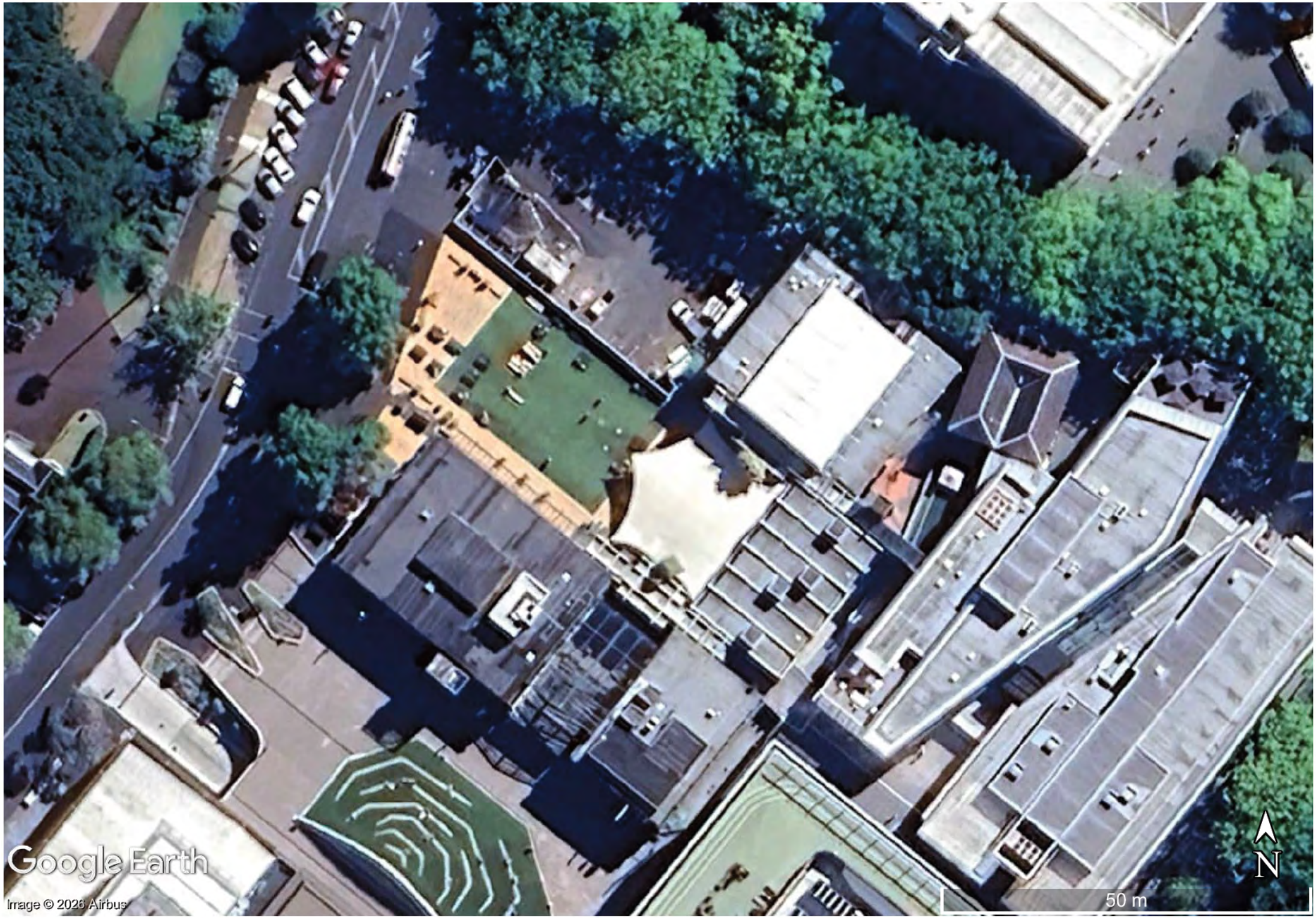
.....

Natalie O'Rourke

Senior Contaminated Land Consultant, CEnvP SC

\\ttgroup.local\corporate\auckland\projects\1103046\issueddocuments\1103046-rpt-con-201-v2.1_uoa_student_centre_psi.docx

Appendix A Site Feature Plan


Google Earth
Image © 2026 Airbus
N
50 m

Appendix B Site photographs

Note: Bracketed numbers relate to the key shown on the site feature plan in Appendix A.



Photograph Appendix B.1: Western Elevation of B312 and transformers in the garden area (1). Looking east.



Photograph Appendix B.2: Transformers on concrete slabs in garden area, located at the southwest corner of Site (1). Looking north.



Photograph Appendix B.3: Transformers on asphalt pavement at the western side of the Site (2). Looking east.



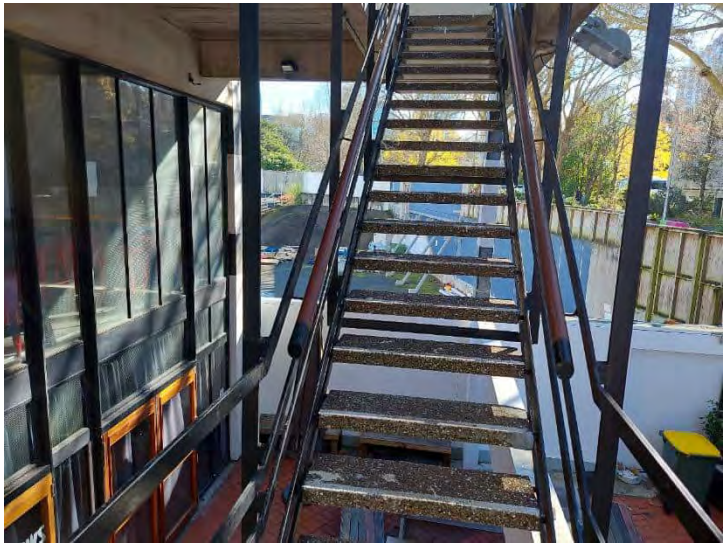
Photograph Appendix B.4:Transformers on asphalt pavement (2) and cables leading into B312. Looking east.



Photograph Appendix B.5: Paved area and artificial turf in central portion of Site (3). Looking east.



Photograph Appendix B.6: Alfred Street on eastern side of Site. Former Maidment Theatre footprint construction area on right, UoA General Library on left. Looking east.



Photograph Appendix B.7: View to former Maidment Theatre footprint construction area from B311 stairs. Looking northwest.



Photograph Appendix B.8: Patched cracks in asphalt pavement on Alfred St footpath outside B311 (4).



Photograph Appendix B.9: Western side of B311. Looking southwest.



Photograph Appendix B.10: Eastern side of Site (area inaccessible from ground level). Looking southwest.



Photograph Appendix B.11: Eastern side of B311. Looking northeast.



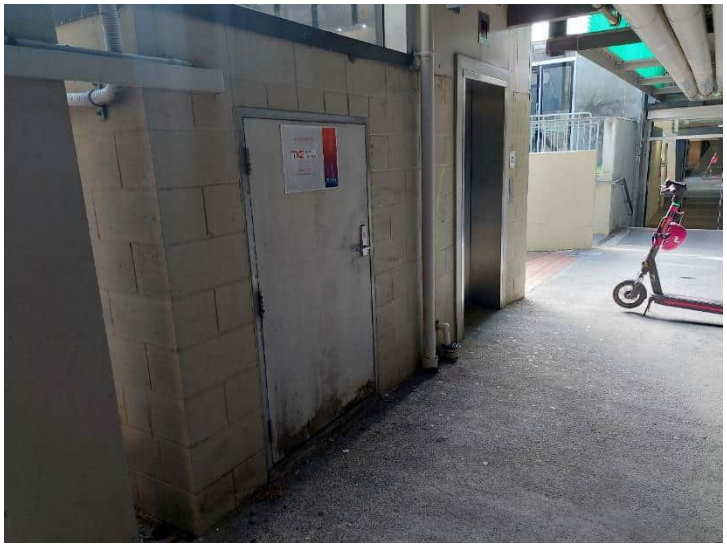
Photograph Appendix B.12: Indicative location of underground diesel storage tank under pavers (5). Looking northwest.



Photograph Appendix B.13: Buidling housing possible electrical equipment on right (6). Looking northwest.



Photograph Appendix B.14: Interior undercover area between B311 and B312. Looking northeast.



Photograph Appendix B.15: Lift motor room at B311 (7). Pipes shown in top right corner under bridge between B311 and B315 (8). Looking east.



Photograph Appendix B.16: Exterior of B312 with large ventilation structure. Looking northwest.

Appendix C Historical aerial photographs



Figure Appendix C.1: 1940s aerial. Indicative site boundaries shown in blue. Source: Auckland Council GeoMaps.



Figure Appendix C.2: 1950s aerial. Indicative site boundaries shown in blue. Source: Auckland Council GeoMaps.



Figure Appendix C.3: 1960s aerial. Indicative site boundaries shown in blue. Source: Auckland Council Geomaps.

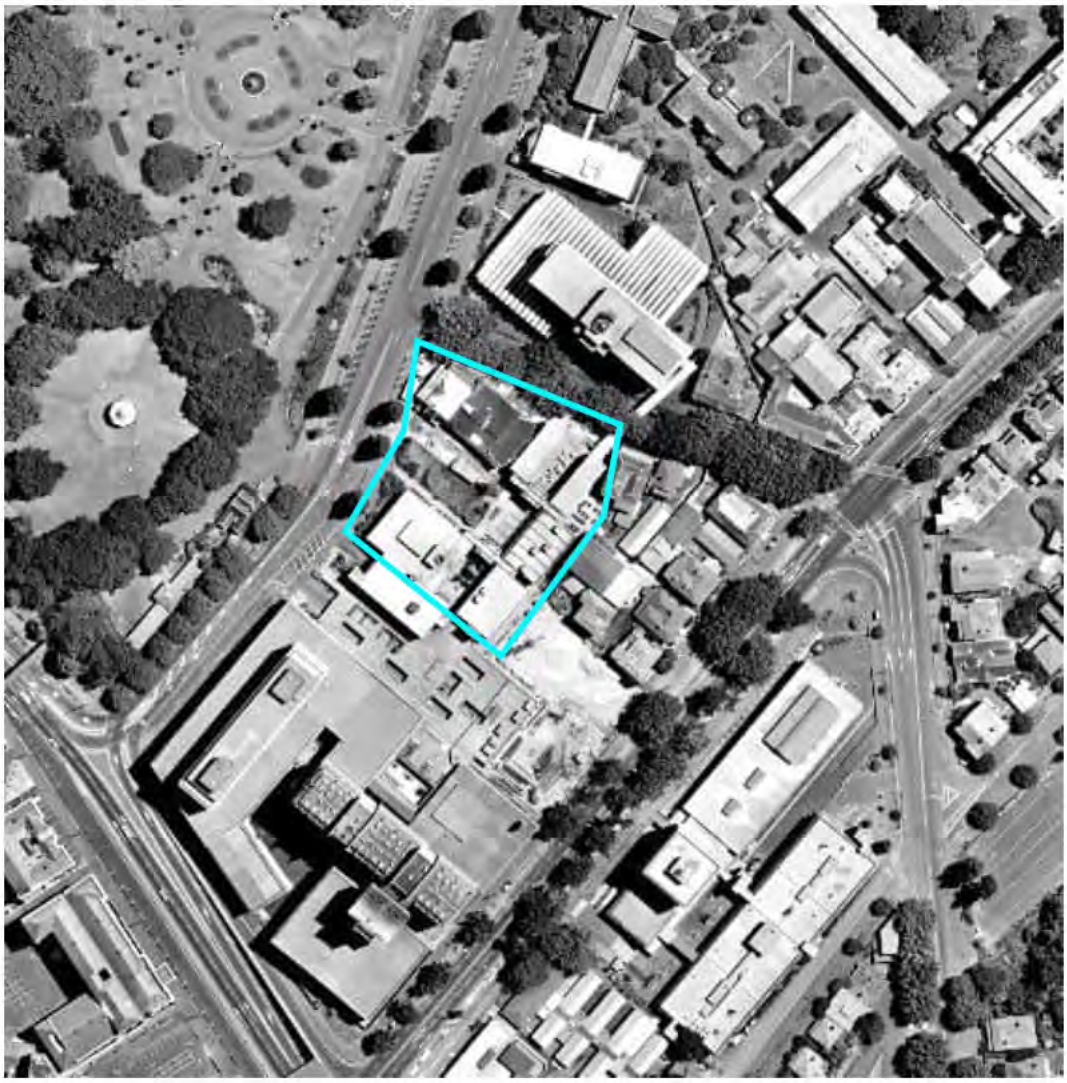


Figure Appendix C.4: 1970s aerial. Indicative site boundaries shown in blue. Source: Auckland Council Geomaps.

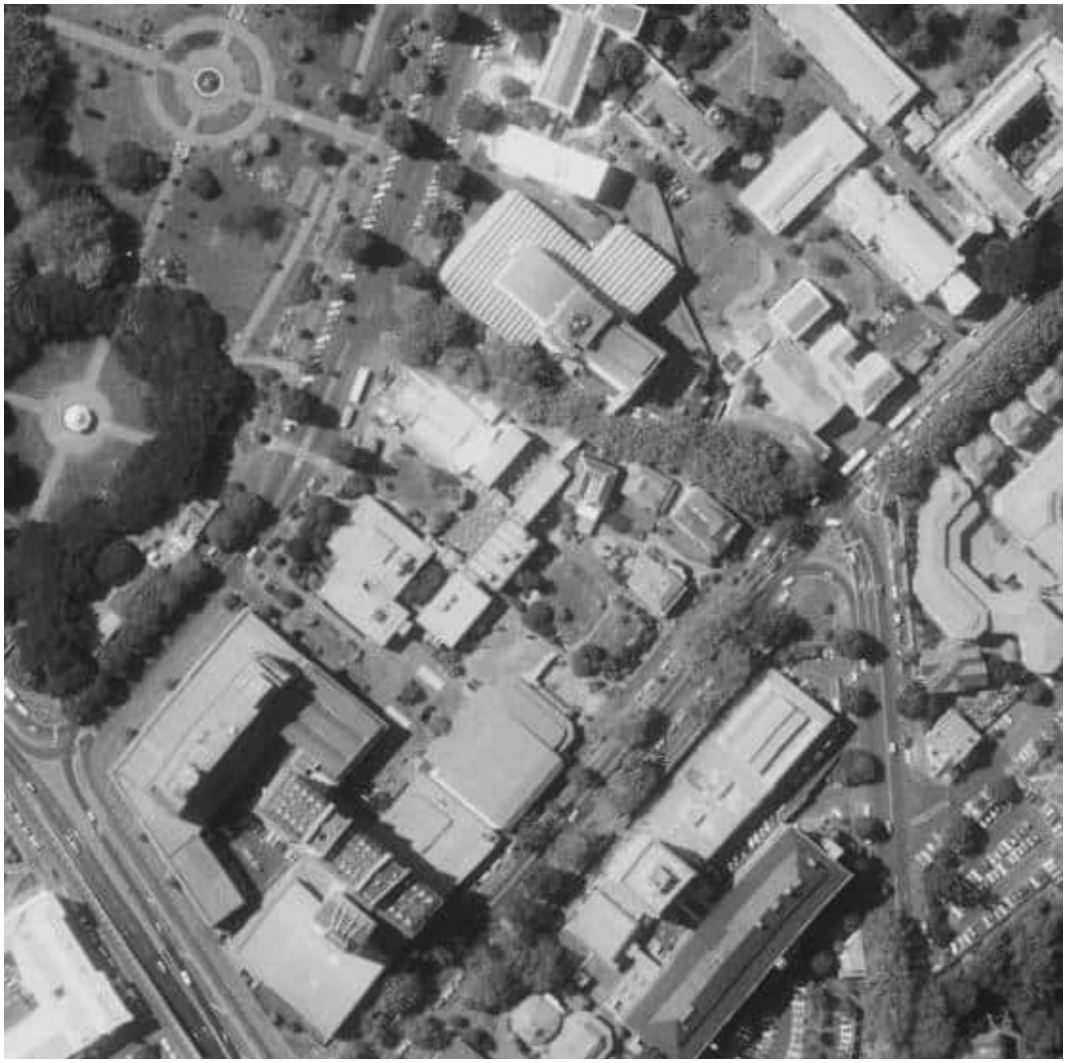


Figure Appendix C.5: 1980s aerial. Indicative site boundaries shown in blue. Source Retrolens.

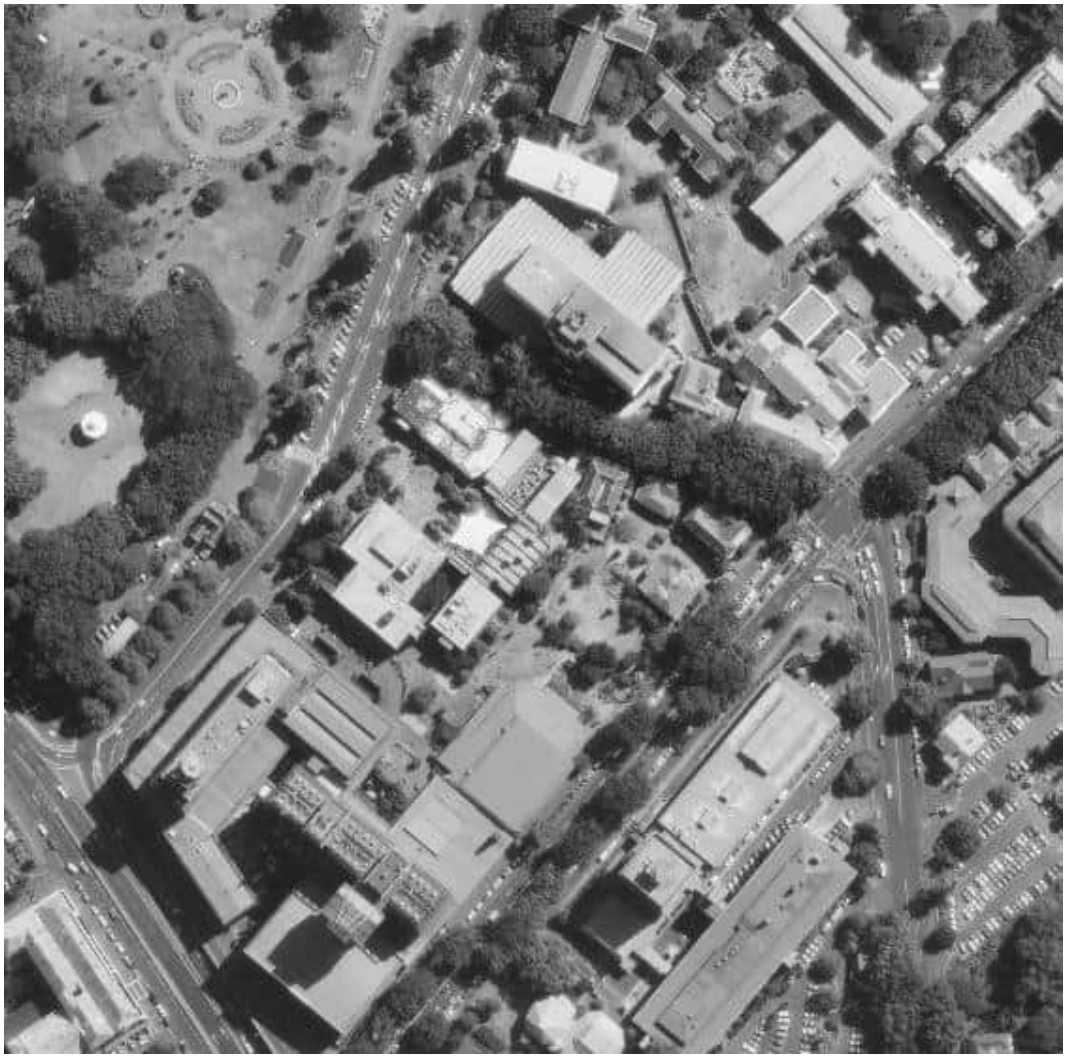


Figure Appendix C.6: 1990s aerial. Indicative site boundaries shown in blue. Source: Auckland Council Geomaps.



Figure Appendix C.7: 2000-2005 aerial. Indicative site boundaries shown in blue. Source: Auckland Council Geomaps.



Figure Appendix C.8: 2015-2016 aerial. Indicative site boundaries shown in blue. Source: Auckland Council Geomaps.



Figure Appendix C.9: 2024-2025 aerial. Indicative site boundaries shown in blue. Source: Auckland Council Geomaps.

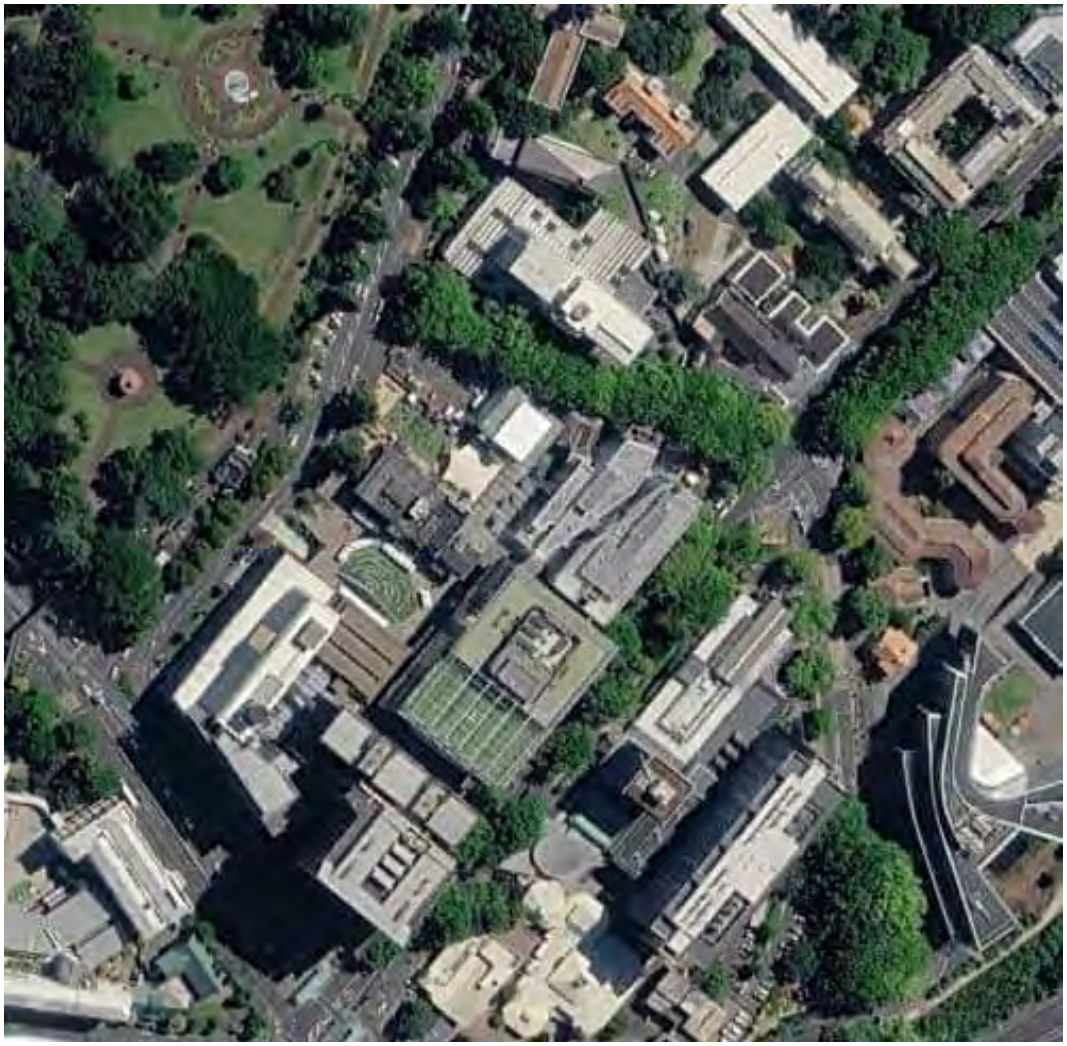


Figure Appendix C.10: 2026 imagery. Indicative site boundaries shown in blue. Source: Google Earth Pro.

Appendix D Key Site History Documents



NOTES :

1. All dimensions are in millimetres unless noted otherwise.
2. Base drawing sourced from Auckland University.

LEGEND:

BH 1 — Ministry of Works Machine drilled borehole (1962, 1963)

BH 1 — Tonkin & Taylor Ltd Machine drilled borehole (2009)

BH 1 — Tonkin & Taylor Ltd Percussion drilled environmental borehole (2009)

--?--39 inferred rock head contours (SPT N>50)

REVISION	DESCRIPTION	BY	DATE
0	First Issue		
DESIGNED :		SVB	May.09
DRAWN :		AGI	May.09
DESIGN CHECKED :			
DRAFTING CHECKED :			
REFERENCE :			

CADFILE : \\25668.300-F2.dwg

APPROVED :

NOT FOR CONSTRUCTION

This drawing is not to be used for construction purposes unless signed as approved

COPYRIGHT ON THIS DRAWING IS RESERVED

Tonkin & Taylor
Environmental & Engineering Consultants
Auckland 105 Carlton Gore Rd. Newmarket
Tel. (09) 355 6000 Fax. (09) 307 0265
Email : auck@tonkin.co.nz
www.tonkin.co.nz

THE UNIVERSITY OF AUCKLAND

GEOTECHNICAL & ENVIRONMENTAL INVESTIGATION

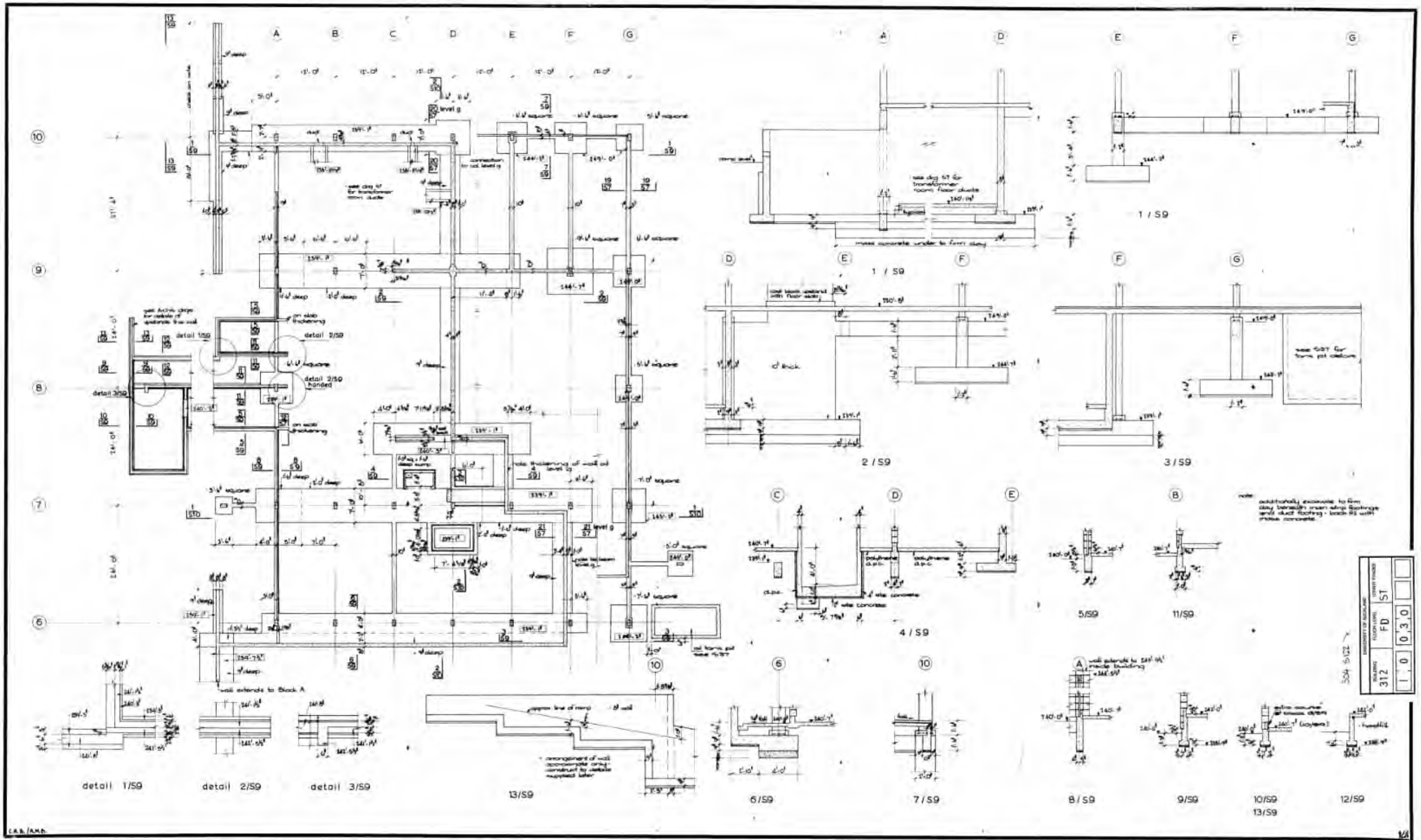
SECTOR 300
SCHOOL OF SCIENCE

BOREHOLE LOCATION PLAN

SCALES (AT A3 SIZE) 1: 750

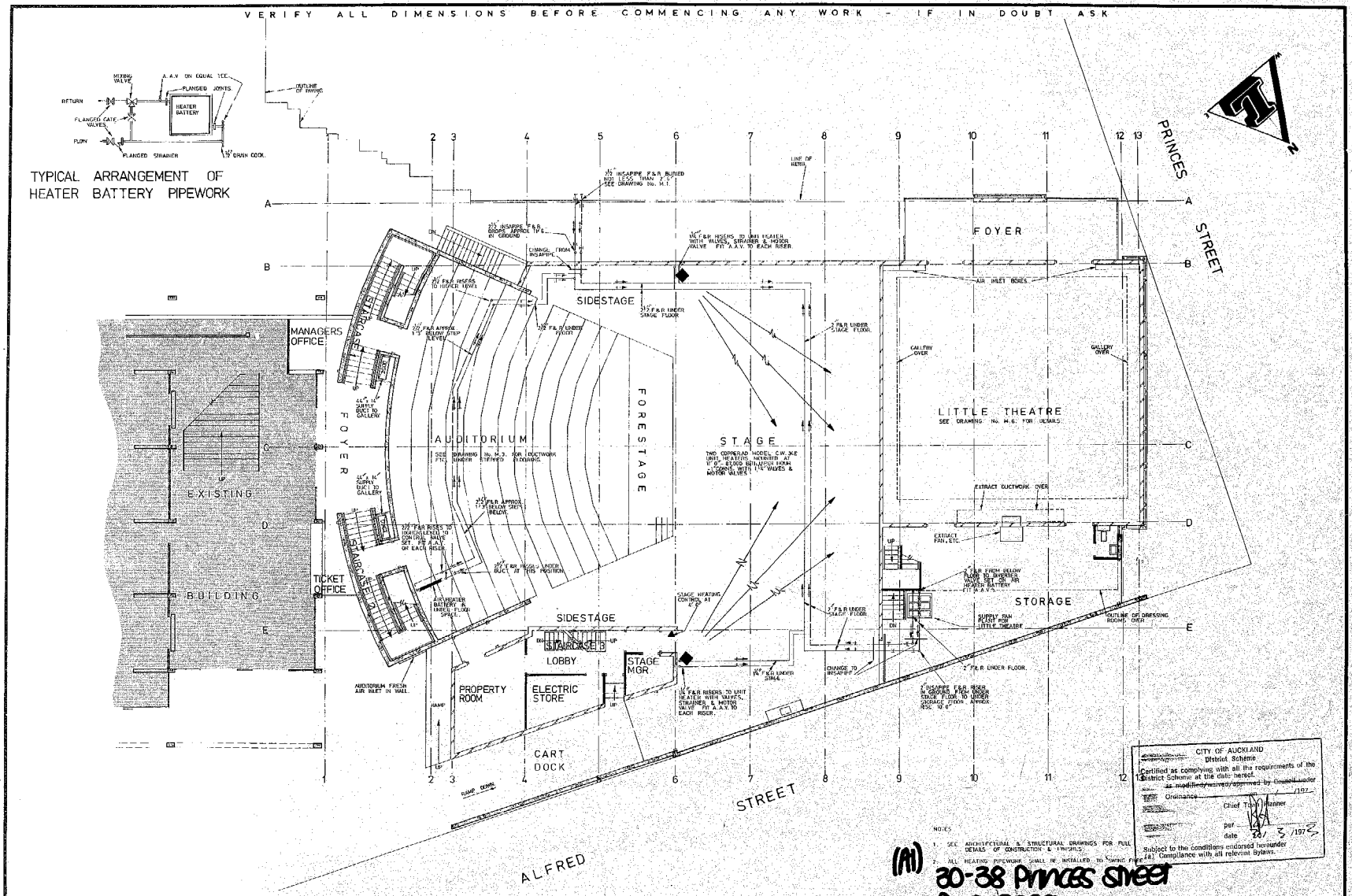
DWG. No. Figure 2 | REV. 0

P:\25668\25668.300 Science\WorkingMaterial\CAD\25668.300-F2.dwg, F2, 27/05/2009 9:52:28 a.m., agi, 1:1



WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	I. L. HOLMES CONSULTING ENGINEER CHRISTCHURCH	LEFEBVRE & LOVATT CONSULTING ENGINEER CHRISTCHURCH	RUSSELL DRYSDALE & THOMAS QUANTITY SURVEYORS CHRISTCHURCH	THE UNIVERSITY OF AUCKLAND STUDENT BUILDING	FOUNDATION PLAN CAFETERIA BLOCK E	207	S9	58

VERIFY ALL DIMENSIONS BEFORE COMMENCING ANY WORK - IF IN DOUBT ASK



NOTES

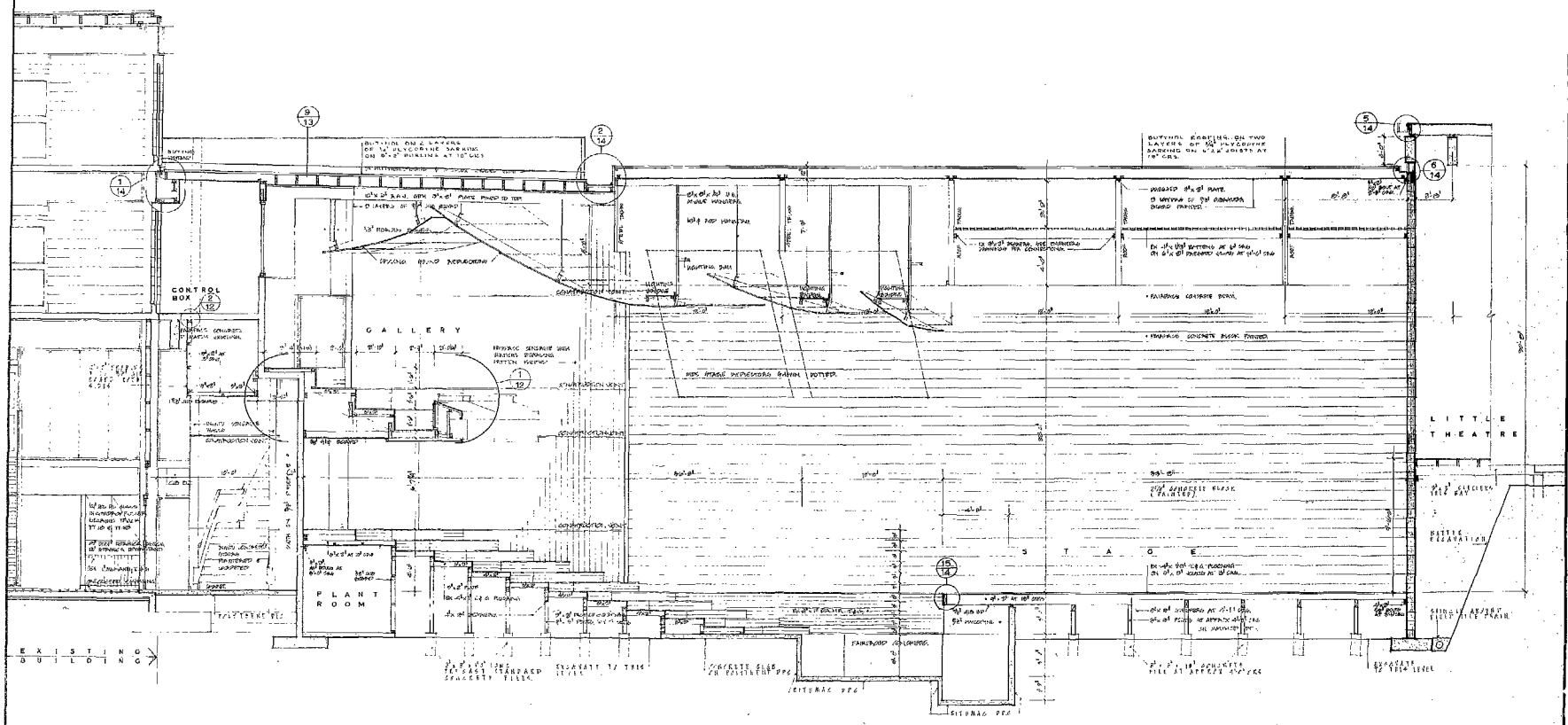
1. SEE ARCHITECTURAL & STRUCTURAL DRAWINGS FOR FULL DETAILS OF CONSTRUCTION & FINISHES.
2. ALL HEATING PIPEWORK SHALL BE INSTALLED TO SWING FREE.

CITY OF AUCKLAND
District Scheme
Certified as complying with all the requirements of the District Scheme at the date hereof.
as modified/waived/approved by Council under Ordinance ___ /197__
Chief Town Planner
per
date 20/3/1973
Subject to the conditions endorsed hereunder
(a) Compliance with all relevant Bylaws.

(A1) 30-38 Princes Street
P.no.12089

2 of 70

H. L. LEFEBVRE REGISTERED CONSULTING ENGINEER CHRISTCHURCH	WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	AMENDMENTS	SCALE 1/8" TO 12" DATE AUGUST 1972	MECHANICAL SERVICES FLOOR PLAN	FILE No. 273	DRAWING No. M.2



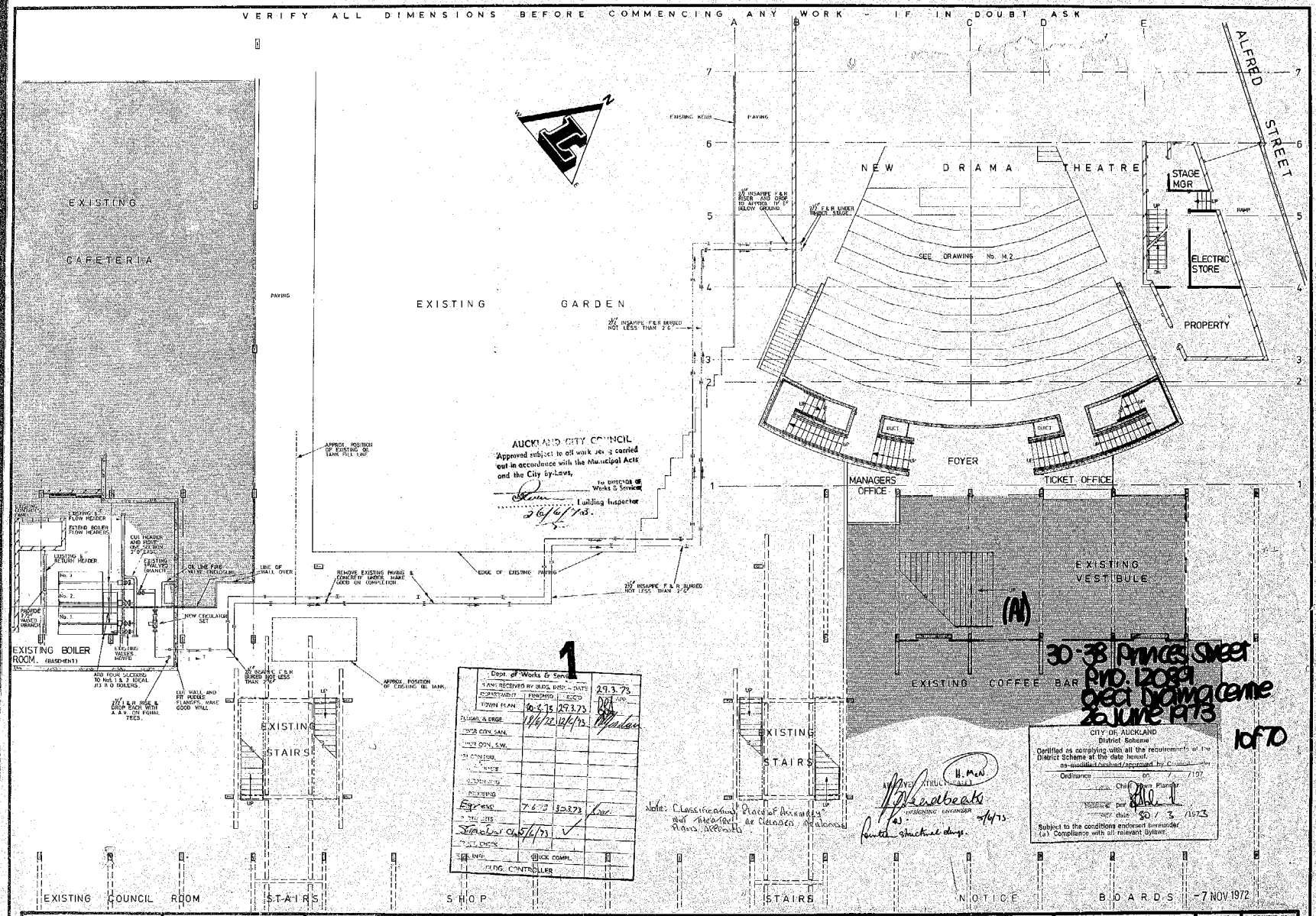
SECTION 1/1

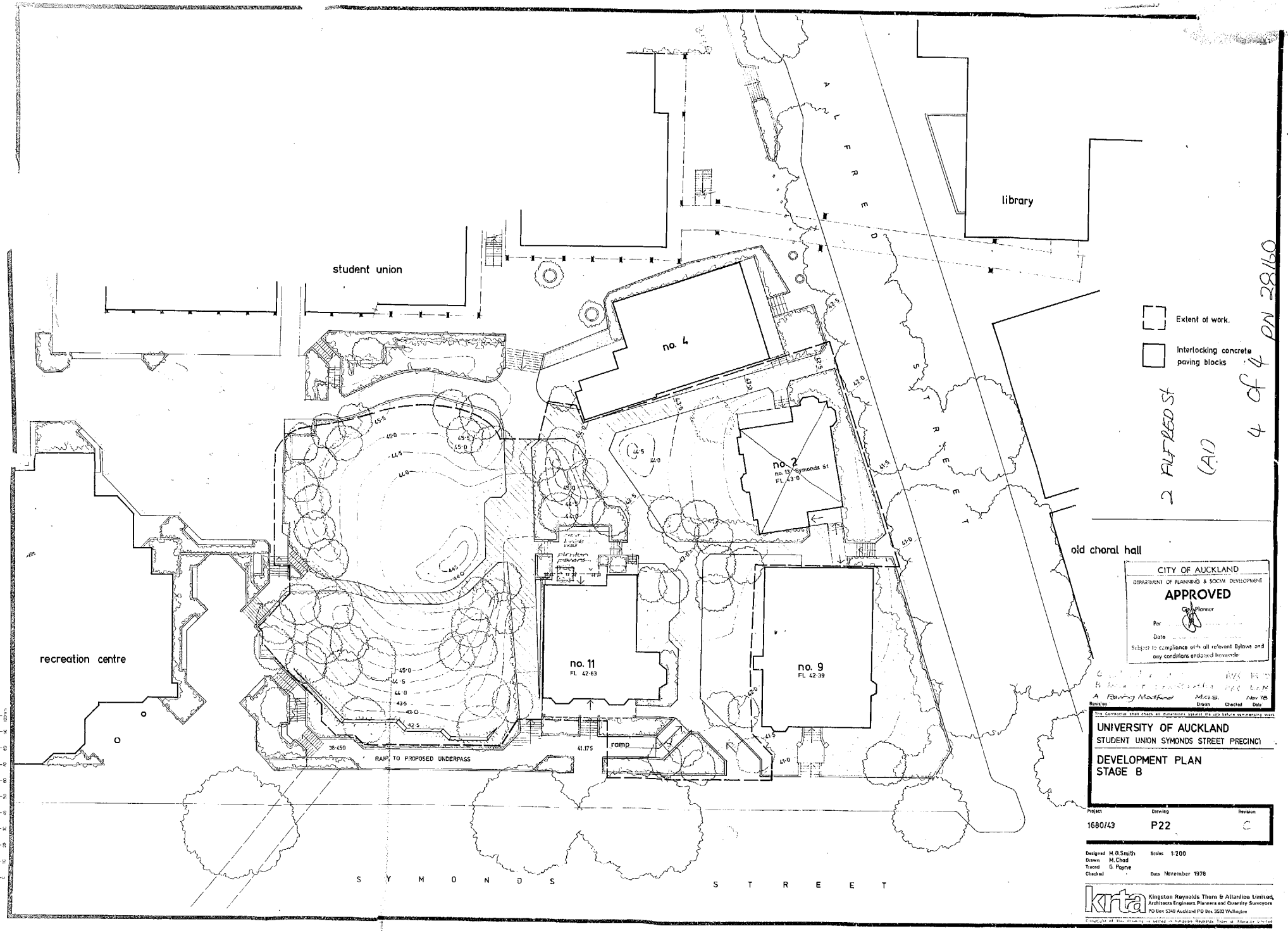
(M)
30-38 Princes Street
P.no. 12089

18 of 70

WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	HOLMES, WOOD & POOLE — CONSULTING STRUCTURAL ENGINEERS R. L. LEFEBVRE — CONSULTING MECHANICAL ENGINEERS MAINDONALD & ASSOCIATES — CONSULTING ELECTRICAL ENGINEERS RUSSELL DRYSDALE & THOMAS — QUANTITY SURVEYORS	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	DESIGN: DRN: TRD: CHD: APD:	SCALES: 1/4"=1'-0"	DATE: AUG 72	SECTION 1/1	FILE	DRAWING: 7

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK.


VERIFY ALL DIMENSIONS BEFORE COMMENCING ANY WORK - IF IN DOUBT ASK
ALFRED STREET
NEW DRAMA THEATRE
STAGE MGR
ELECTRIC STORE
PROPERTY
SEE DRAWING No. M.2
EXISTING CAFETERIA
EXISTING GARDEN
PAVING
FOYER
MANAGERS OFFICE
TICKET OFFICE
EXISTING VESTIBULE
EXISTING COFFEE BAR
EXISTING BOILER ROOM. (BASEMENT)
EXISTING STAIRS
EXISTING COUNCIL ROOM
STAIRS
SHOP
NOTICE BOARDS
AUCKLAND CITY COUNCIL
Approved subject to all work being carried out in accordance with the Municipal Acts and the City by-laws,
Building Inspector
26/6/73.
Dept. of Works & Services
BLDG. CONTROLLER
CITY OF AUCKLAND
District Scheme
Certified as complying with all the requirements of the District Scheme at the date hereof.
Subject to the conditions endorsed hereunder
(a) Compliance with all relevant Bylaws.
30-38 Princes Street
Pno. 12089
Direct Drama Centre
26 June 1973
1 of 70
-7 NOV 1972
R. L. LEFEBVRE
REGISTERED CONSULTING ENGINEER
CHRISTCHURCH
WARREN & MAHONEY
REGISTERED ARCHITECTS
CHRISTCHURCH
THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE
AMENDMENTS
SCALE 1/8" TO 12"
DATE AUGUST 1972
MECHANICAL SERVICES SITE PLAN
FILE No. 273
DRAWING No. M.1



2 ALFRED ST (A1) 4 of 4 PN 2846

CITY OF AUCKLAND
DEPARTMENT OF PLANNING & SOCIAL DEVELOPMENT
APPROVED
City Planner
Per
Date
Subject to compliance with all relevant Bylaws and any conditions endorsed hereunder

Revision	Drawn	Checked	Date
A Paving Modified	M.G.S.		Nov 78

The Contractor shall check all dimensions against the job before commencing work

UNIVERSITY OF AUCKLAND
STUDENT UNION SYMONDS STREET PRECINCT

DEVELOPMENT PLAN
STAGE B

Project	Drawing	Revision
1680/43	P22	C

Designed M.G.Smith
Drawn M. Chad
Traced G. Payne
Checked
Scales 1:200
Date November 1978

krta Kingston Reynolds Thom & Allardice Limited, Architects Engineers Planners and Quantity Surveyors
PO Box 5348 Auckland PO Box 3532 Wellington

Copyright of this drawing is vested in Kingston Reynolds Thom & Allardice Limited

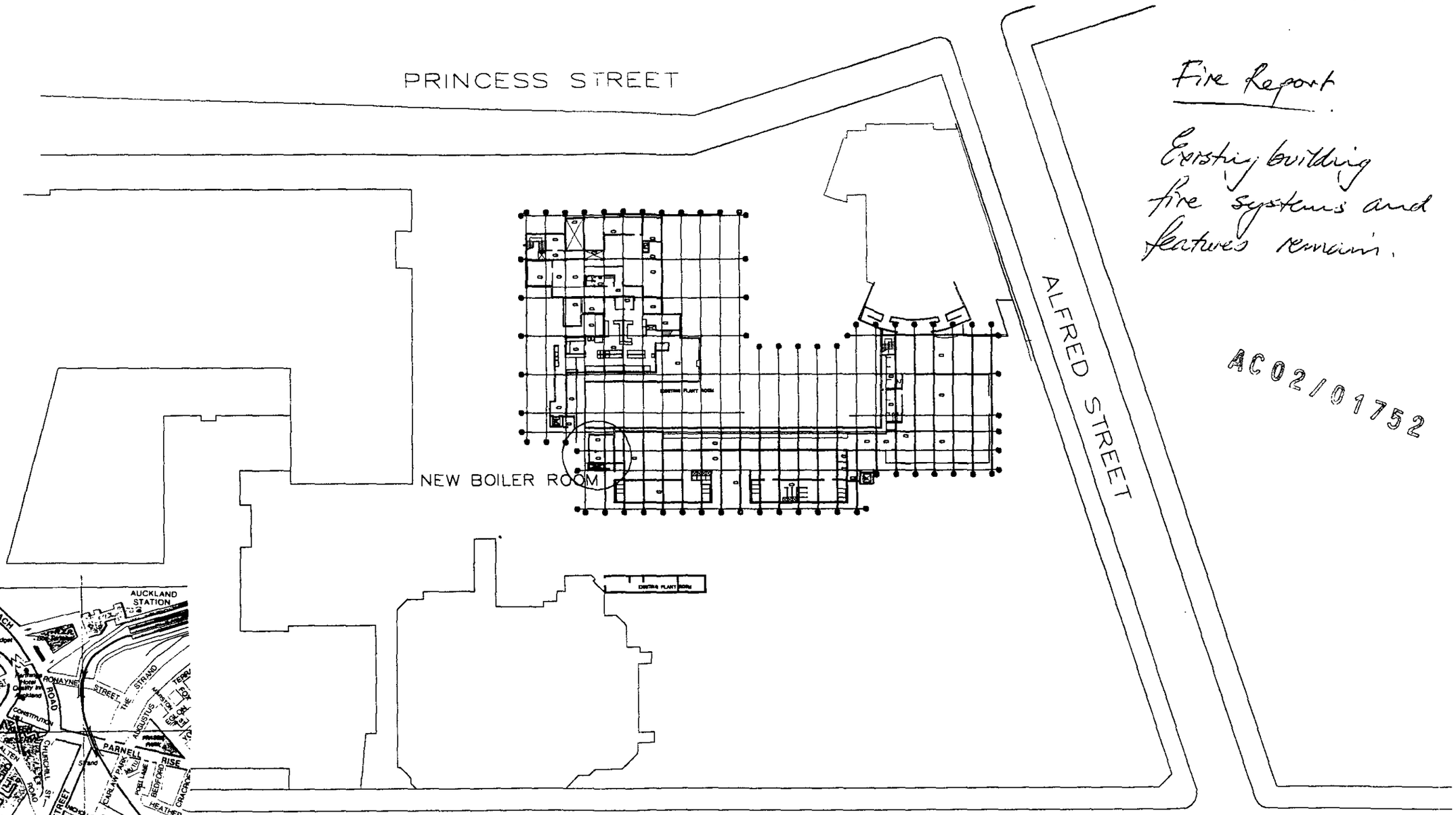
Original size

INCHES 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
CENTIMETRES

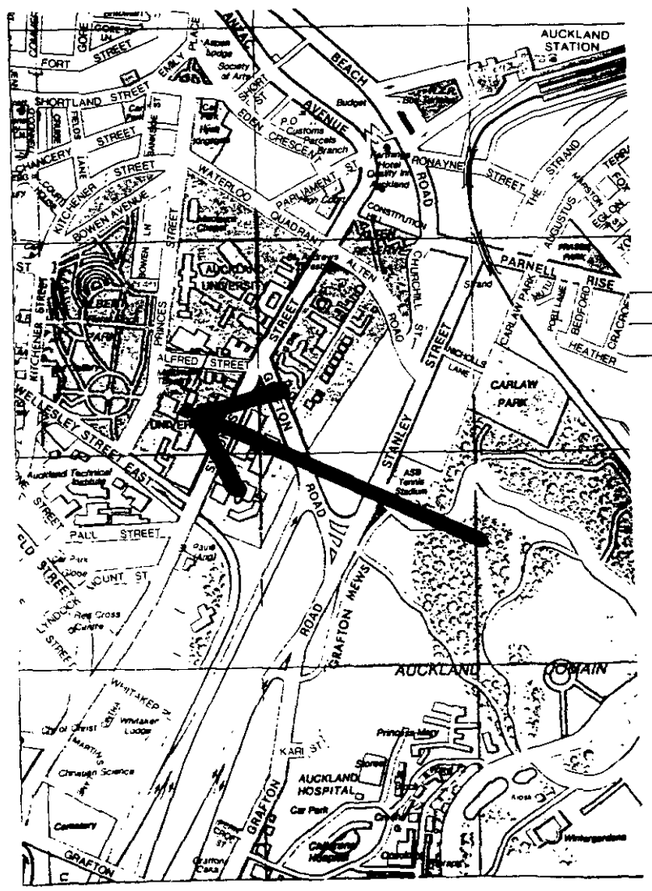
Fire Report

Existing building fire systems and features remain.

AC02/01752

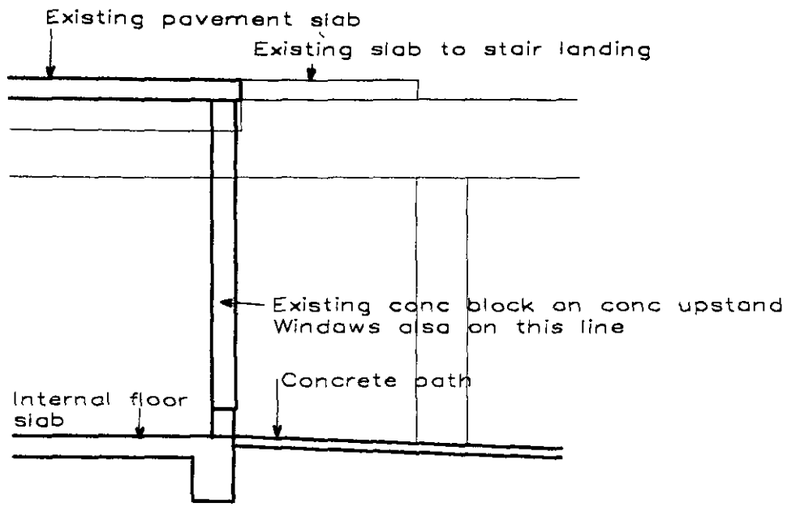


1: 2000 SITE PLAN

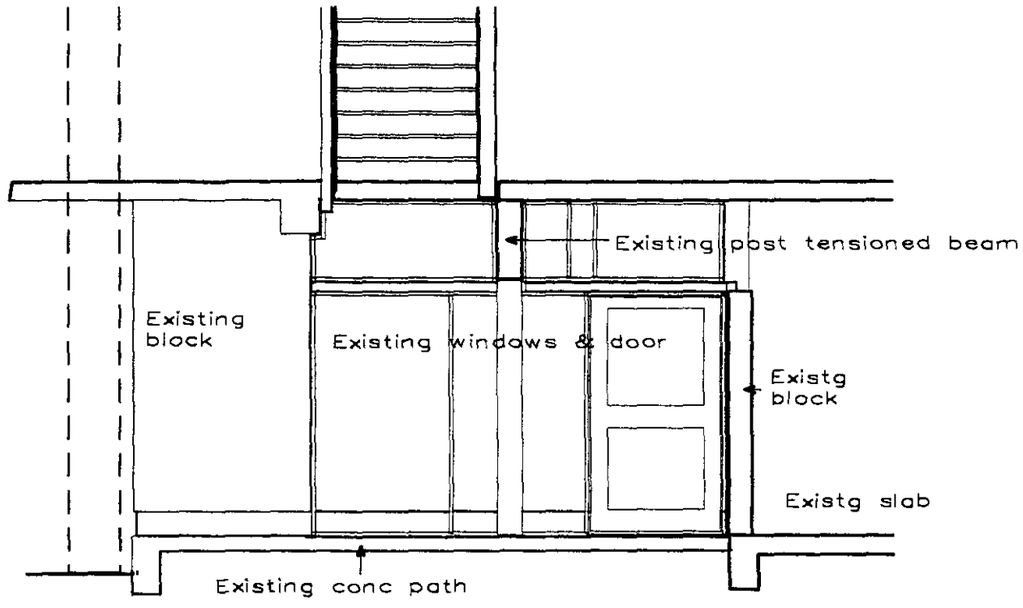


LOCATION PLAN

UNIVERSITY OF AUCKLAND	
NEW BOILER ROOM FOR STUDENT ASSOC. BDG	
GULF DESIGN LTD	Drawn RDC
REGISTERED ARCHITECTS	Checked
115 Queen Street, Auckland, 9	Date JAN 02
Northcote Point, Telephone 480 9890	SCALE As shown
	Dwg No A01
	File 1496



1: 50 SECTION A



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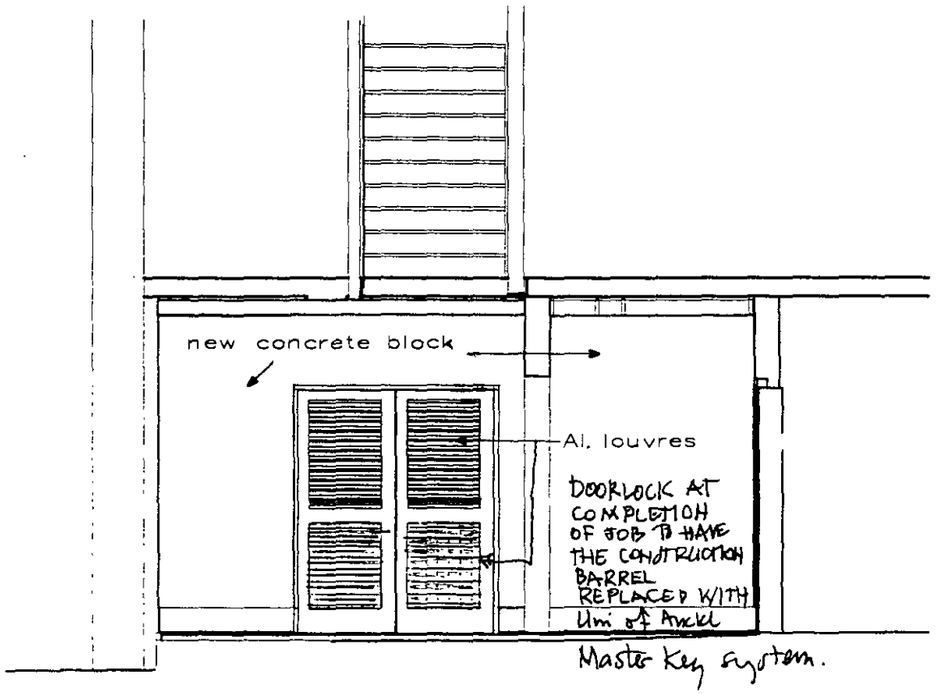


1: 50 NEW FRONT ELEVATION

UNIVERSITY OF AUCKLAND
NEW BOILER ROOM FOR STUDENT ASSOC. BDG

GULF DESIGN LTD
REGISTERED ARCHITECTS
115 Queen Street, Auckland, 9
Northcote Point
Telephone 480 9890

Drawn RDC
Checked
Date MAR 02
SCALE As shown

Dwg No A03
File 1496

Appendix E Client- provided Information

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

Asbestos Management Plan

The University of Auckland

311 - STUDENT COMMONS BLOCKS A-D

34 PRINCES ST
AK CNTRL
AUCKLAND
1010

Date : 16th of March, 2026, 11:55 pm

Contents

1. Asbestos Management Plan 3
2. Plan Preparation and Review 4
2.1 Plan Preparation 4
2.2 Plan Review 4
3. Identification of Asbestos Containing Materials and Management Decisions 4
3.1. How asbestos containing material was identified 5
3.2 How identified asbestos items are indicated 6
3.3 Decisions and reasons for decisions about how asbestos materials are managed 6
3.4 Asbestos Work Records 8
3.5 Asbestos Items identified in 311 - STUDENT COMMONS BLOCKS A-D 9
3.6 Building Notes 20
4. Procedures for managing incidents or emergencies involving asbestos materials 21
4.1 First response Actions 21
4.2 Follow up Actions 21
4.3 Investigation Information and Record Keeping 22
5. Workers carrying out work involving asbestos – information and training 23
6. Worker health monitoring 23

1. Asbestos Management Plan

This document is a building-specific asbestos management plan for 311 - STUDENT COMMONS BLOCKS A-D. It includes information about asbestos containing material identified in the building and asbestos management decisions, including processes for incidents and emergencies involving asbestos, worker roles and responsibilities and any health monitoring.

This asbestos management plan is a live document and can be updated by University at any time. Once printed it is an uncontrolled version.

To access the latest version of this plan:

- Contractors and staff with official asbestos management roles (e.g. facilities, HS&W, building project and operations managers): access the University's online asbestos management system BMIS.
- Wider University Community: request a copy from their Faculty or Service Division technical manager.

Asbestos containing materials identified in 311 - STUDENT COMMONS BLOCKS A-D are listed in the table in section 3.5 and the figures in this plan. Appendix 1 provides detailed information for each item.

Limitations

This plan is not intended to identify asbestos items concealed in the building that require breaking or disassembling the building to discover. In some cases, concealed items may be included where a refurbishment-type asbestos survey has been required ahead of works.

This plan does not apply to equipment that is separate from the building (e.g. oven mitts or Bunsen burner mats) or building plant internals (e.g. inside switchboards or ducting).

This plan does not remove the need for contractors to comply with their obligation to identify and manage asbestos in the workplace under the Health and Safety at Work Act and Health and Safety at Work (Asbestos) Regulations.

2. Plan Preparation and Review

2.1 Plan Preparation

This plan has been prepared in keeping with Health and Safety at Work (Asbestos) Regulations 2016 and the University of Auckland Asbestos Standard and Overarching Asbestos Management Plan.

Baseline asbestos information was collected during a systematic asbestos management survey of University Buildings and assessment of historic asbestos information. The survey was undertaken by independent specialist asbestos surveyors, peer reviewed, assessed by Property Services, and discussed with operational managers of the Faculties, Service Divisions, and tenants who occupy the buildings.

This building specific asbestos management plans was published from BMIS, the asbestos information system used by the University. Asbestos containing materials are registered in BMIS along with their risk, location, photo, and follow up actions. Asbestos containing materials are scheduled for re-inspection at least annually and after a known disturbance like planned maintenance or removal. Following re-inspection BMIS is updated and the electronic version of this plan is automatically updated.

2.2 Plan Review

University will review this plan whenever:

- an asbestos control measure is modified that affects this workplace
- asbestos material in this plan is removed, disturbed, sealed or enclosed
- five years have passed since the plan was last reviewed
- the plan is no longer adequate for managing the asbestos risks, for example, if new asbestos is identified or a previously inaccessible area is now accessible; and
- a worker representative requests a review when there is a change of circumstance as under the requirements of regulation 14 of the Health and Safety at Work (Asbestos) Regulations 2016.

3. Identification of Asbestos Containing Materials and Management Decisions

The table and figures in section 3.5 list the Asbestos containing materials identified in 311 - STUDENT COMMONS BLOCKS A-D. Appendix 1 provides detailed information.

3.1. How asbestos containing material was identified

An asbestos survey is the primary means of identifying asbestos materials and collecting asbestos information at University. At University, must be completed by a competent surveyor with training and experience in undertaking asbestos surveys. Asbestos information may be identified and updated by the following assessment types:

- **Asbestos Management Survey:** A survey of all building items likely to be disturbed during routine use of a property. Excluded: spaces only discoverable by breaking or disassembling the building, equipment, and plant internals;
- **Asbestos Demolition or Refurbishment Survey:** An invasive asbestos survey where refurbishment or demolition work will be undertaken;
- **Localized asbestos inspection:** A localized small-scale management or refurbishment survey prior to small scale works or in response to the reporting of suspect material;
- **Contamination investigation:** on discovery of poor condition asbestos material to determine asbestos risk and controls;
- **Clearance inspection:** an independent inspection following asbestos work. For licensed asbestos removal work; and
- **Re-inspection survey:** Scheduled condition reassessment of known asbestos containing materials.

What a University asbestos management survey inspects

Unless this plan states otherwise for a specific space in the table and figures that follow, a University of Auckland management survey includes the inspection of:

- All in-use accessible building areas. That is, areas that can be accessed without breaking or disassembling parts of the building. It includes risers with doors; ceiling voids with moveable ceiling tiles; solid ceilings with access hatches; most roofs and external facades; lift shafts;
- Beneath carpet in representative locations. E.g. in the corner of a room or under a carpet tile. That is, most under carpet area is not inspected;
- Sampling of vinyl, waterproof membranes, and linings if this does not compromise waterproofing or other functional integrity and it is not an item of special significance like an artwork;
- Surfaces of building plant E.g. pipe lagging, the outside of ducts;
- External building envelope including roofs; and
- External built environment including driveways, poles, fences, but excluding gardens and lawn.

Spaces that could not be accessed during the survey (e.g. due to height or lock-out) are recorded as “inaccessible”. Very rarely only a part of a space is inaccessible, and this is noted next to the item (e.g. a locked cupboard, or a ceiling hatch that was slightly too small to access) fit in to inspect but maybe not). Inaccessible spaces are presumed to contain asbestos until verified otherwise.

3.2 How identified asbestos items are indicated

Records are the primary way of indicating the presence and location of asbestos containing items at University. Records for indicating asbestos:

- BMIS (University’s asbestos information system) is the primary record. BMIS includes the latest version of this plan and a searchable database for materials, their location, risk, and photos. Access to BMIS is available for contractors and staff with asbestos management roles (like faculty technical service managers, health and safety managers, building project and assets managers).
- The information in this plan. Staff can request a copy of this plan from their Faculty or Service Division technical or service manager;
- Staff intranet – the asbestos pages include a high-level summary of asbestos materials in University buildings;
- Maximo (building asset management software) generated work orders for contractors include asbestos information for the assigned workplace.

Supplementary ways to indicate asbestos containing materials may be used from time to time. Supplementary means are registered by Property Services and reviewed regularly to ensure they are up to date. Supplementary ways include:

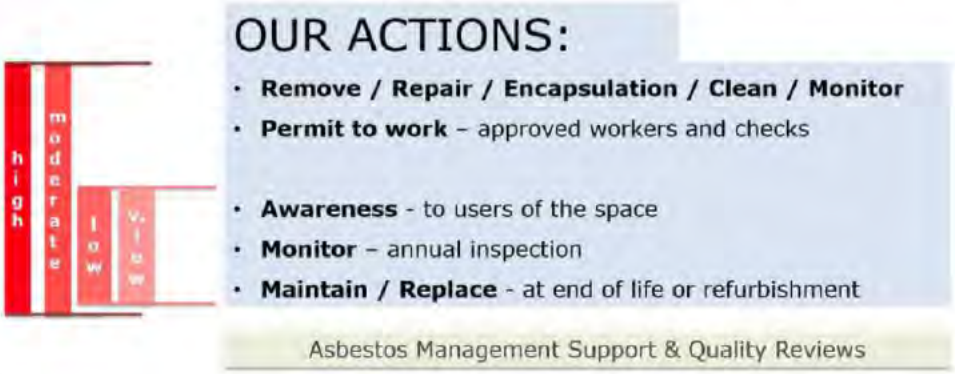
- Signs (e.g. “Permit to work required to enter”);
- Labels (e.g. an asbestos warning on plant room pipe lagging or gaskets);
- Colour coding (e.g. red paint to porous surfaces like concrete to indicate minor traces of asbestos residue may be beneath);
- Instructions for specific work areas provided at induction or through the Permit to Work process.

3.3 Decisions and reasons for decisions about how asbestos materials are managed

Asbestos management decisions are listed in the table of section 3.3.2 and noted in BMIS, the asbestos information system. Asbestos management decisions fall into two broad categories: remove items or manage-in-place. Manage-in-place materials are scheduled for re-inspection and review. Manage-in-place options include repair, seal, encapsulate, label, install lockout or barrier, instruction/training, or permit to work.

Reasons for asbestos management decisions are based on each materials asbestos Risk Rating (see below), a review by Property Services asbestos specialists and asset team, and discussion with faculty and service division operational mangers who represent occupants in the building.

Summary of actions based on the asbestos Risk Rating:



3.3.1 Asbestos Risk Rating

The asbestos risk rating is a sum of the asbestos Material Score (how readily a material can release asbestos fibre) and the Priority Score (which reflects in-use factors like occupant activity, maintenance activity, and likelihood of disturbance). Possible risk rating categories are high, moderate, low, very low.

List of Risk Rating categories for asbestos containing items:

Material Risk Rating
High
Moderate
Low
Very Low

3.3.2 Decisions for working with or near asbestos items by Risk Rating:

Asbestos Risk Rating	Scenario	Decision
All ratings	Work that requires **disturbing** an asbestos containing item	Asbestos Permit to Work required*
Moderate and High	Work **near** asbestos containing materials with moderate or high risk scores	Asbestos Permit to Work required*
Very low and low	All	Ok to work if unlikely to disturb asbestos
All ratings	NA	Annual re-inspection

* Notes:
(i) **In an emergency** a Permit to Work may not be practicable and other steps should be taken to ensure risks are identified, communicated, and managed. Also see procedures for managing incidents and emergencies below.

(ii) **Blanket Permits to Work** that apply to a task that is repeated long-term are not issued. For repeated minor maintenance and refurbishment project work an approved Standard Operating Procedure may be requested in place of a Permit to Work.

University's Asbestos Permit to Work system is managed as part of Property Services Restricted Work Permit system. The asbestos permit includes checks for worker competency and supervision, safe work method, communication, inspections, disposal of asbestos waste to an approved location, and the updating of asbestos records.

3.4 Asbestos Work Records

Asbestos work records are appended to the relevant building in BMIS and are visible to those with "manager view". Records include maintenance and project records like asbestos removal control plans, safe work methods, permit to work forms, air monitoring results, clearance certificates, waste disposal receipts.

3.5 Asbestos Items identified in 311 - STUDENT COMMONS BLOCKS A-D

The following table and figures list the Asbestos containing materials identified in 311 - STUDENT COMMONS BLOCKS A-D. Appendix 1 provides detailed information.

Table: Summary of asbestos items identified in 311 - STUDENT COMMONS BLOCKS A-D with actions

Room	Item	Risk Rating	Recommended action	Frequency	Completion / review date
1A					
311-169	Gasket To Pump pipe	Low	Inspect	Annually	31-03-2024
311-169	Pipe Lagging To Pipes	Low	Inspect	Annually	31-03-2024
311-167	Pipe Lagging To Pipes	Low	Label	One off	27-01-2020
			Encapsulate / seal	One off	27-01-2020
			Inspect	Annually	31-03-2024
311-170	Cement Lining to Wall	Low	Label	One off	27-01-2020
311-170	Gaskets to pipes	Very Low	Inspect	Annually	31-03-2024
311-143	Pipe Lagging To Pipes	Low	Label	One off	27-01-2020
			Encapsulate / seal	One off	27-01-2020
			Inspect	Annually	31-03-2024
1B					
311-170	Encapsulated asbestos lagging to pipes behind black polythene & plywood barrier	Low	Label	One off	16-03-2026
1					

311-1.External	Pipe lagging Encased in Boxing	Low	Inspect	Annually	31-03-2024
311-1.External	Pipe Lagging #1 To Pipes	Low	Inspect	Annually	31-03-2024
311-1.External	Pipe Lagging #2 To Pipes	Low	Inspect	Annually	31-03-2024
2					
311-219A	No access To Room	Inaccessible	Survey when accessible	One off	31-03-2028
311-200C1	No access To Room	Inaccessible	Survey when accessible	One off	31-03-2028
311-2.External	Pipe lagging Encased in Boxing	Low	Inspect	Annually	31-03-2024
311-2.External	pipe lagging encased in steel pipe	Low	Inspect	Quarterly	01-07-2023
3					
311-319G	No access To Room	Inaccessible	Survey when accessible	One off	31-03-2028
311-319H	No access To Room	Inaccessible	Survey when accessible	One off	31-03-2028
311-314	No access To Room	Inaccessible	Survey when accessible	One off	31-03-2028
311-312	No access To Room	Inaccessible	Survey when accessible	One off	31-03-2028
311-3.External	Pipe lagging Encased in Casing	Low	Inspect	Annually	31-03-2024
4A					
311-446	Cement Panel To High Level Skylight	Low	Inspect	Annually	31-03-2024
4B					
311-420	No access To Balcony	Inaccessible	Survey when accessible	One off	31-03-2028
311-401	No access To Room	Inaccessible	Survey when accessible	One off	31-03-2028

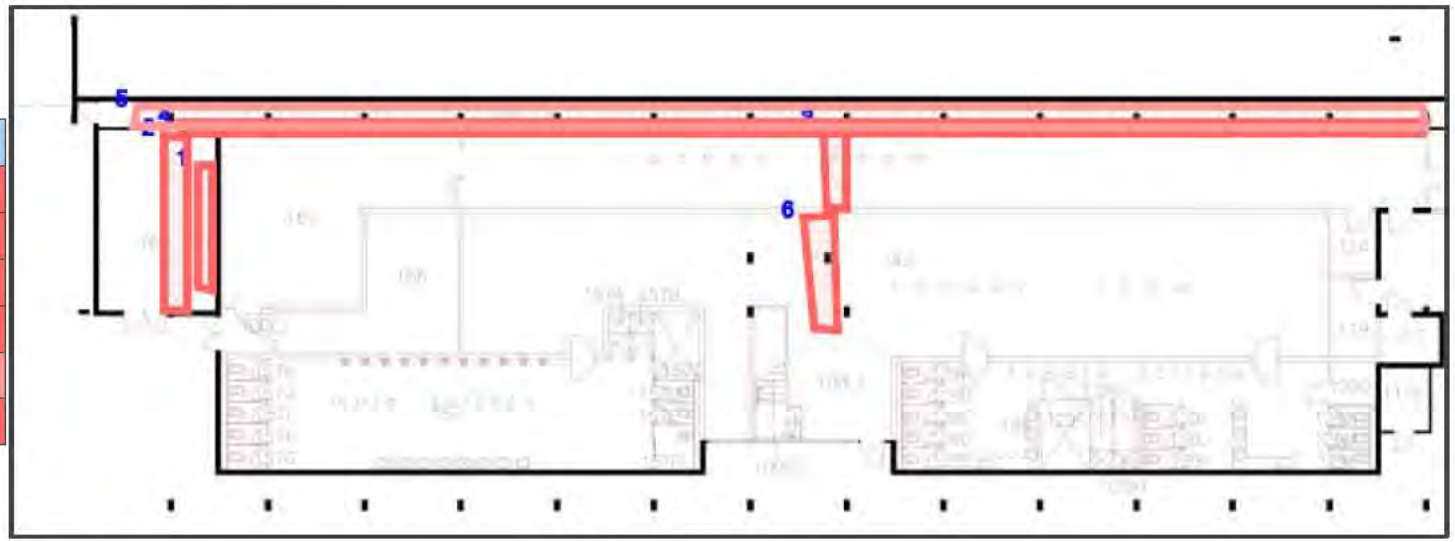
311-403	No access To Room	Inaccessible	Survey when accessible	One off	31-03-2028
		4			
311-4.External	Pipe lagging Encased in Casing	Low	Inspect	Annually	31-03-2024
311-4.Roof	Bitumen membrane to pop top roof (1)	Very Low	Inspect	Annually	31-03-2024
311-4.Roof	Bitumen membrane to pop top roof (2)	Very Low	Inspect	Annually	31-03-2024
311-4.Roof	Bitumen membrane to pop top roof (3)	Very Low	Inspect	Annually	31-03-2024
311-4.Roof	Bitumen membrane to pop top roof (4)	Very Low	Inspect	Annually	31-03-2024
311-4.Roof	Asbestos vent pipe	Very Low			
311-4.Roof	Asbestos vent pipe	Low	Inspect	Annually	31-03-2024

"1A" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 12 [Positive : 6, Inaccessible : 0, Negative : 6]

#	Item	Room
1	Gasket To Pump pipe	311-169
2	Pipe Lagging To Pipes	311-169
3	Pipe Lagging To Pipes	311-167
4	Cement Lining to Wall	311-170
5	Gaskets to pipes	311-170
6	Pipe Lagging To Pipes	311-143



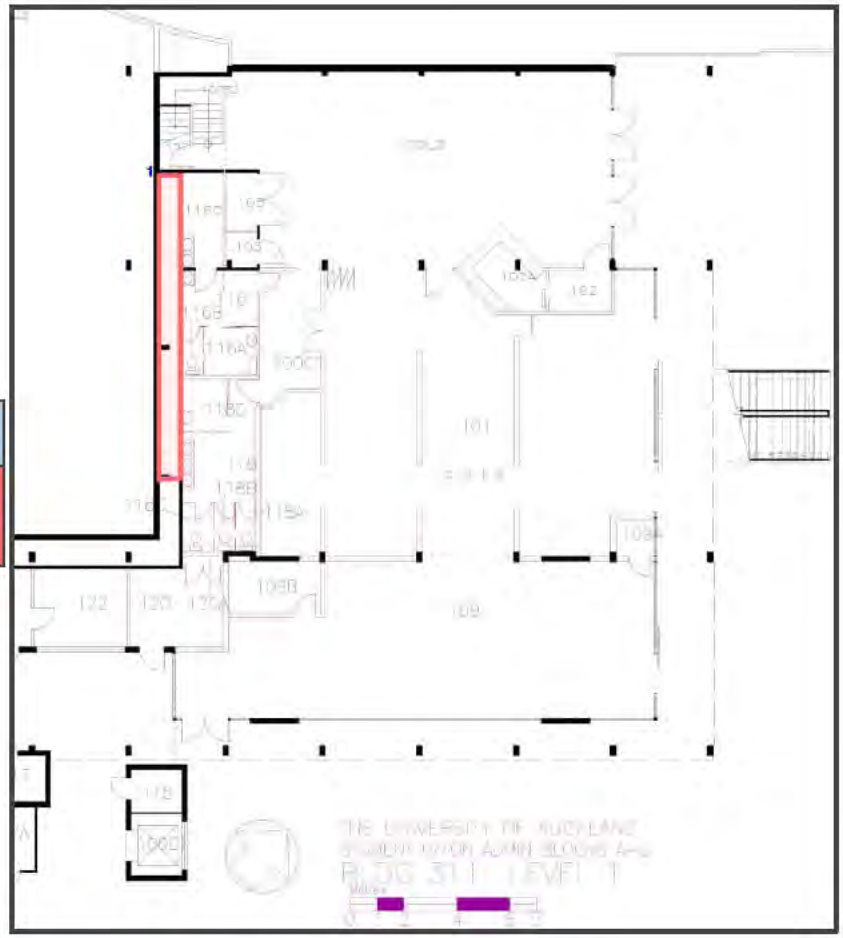
The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"1B" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 4 [Positive : 1, Inaccessible : 0, Negative : 3]

#	Item	Room
1	Encapsulated asbestos lagging to pipes behind black polythene & plywood barrier	311-170



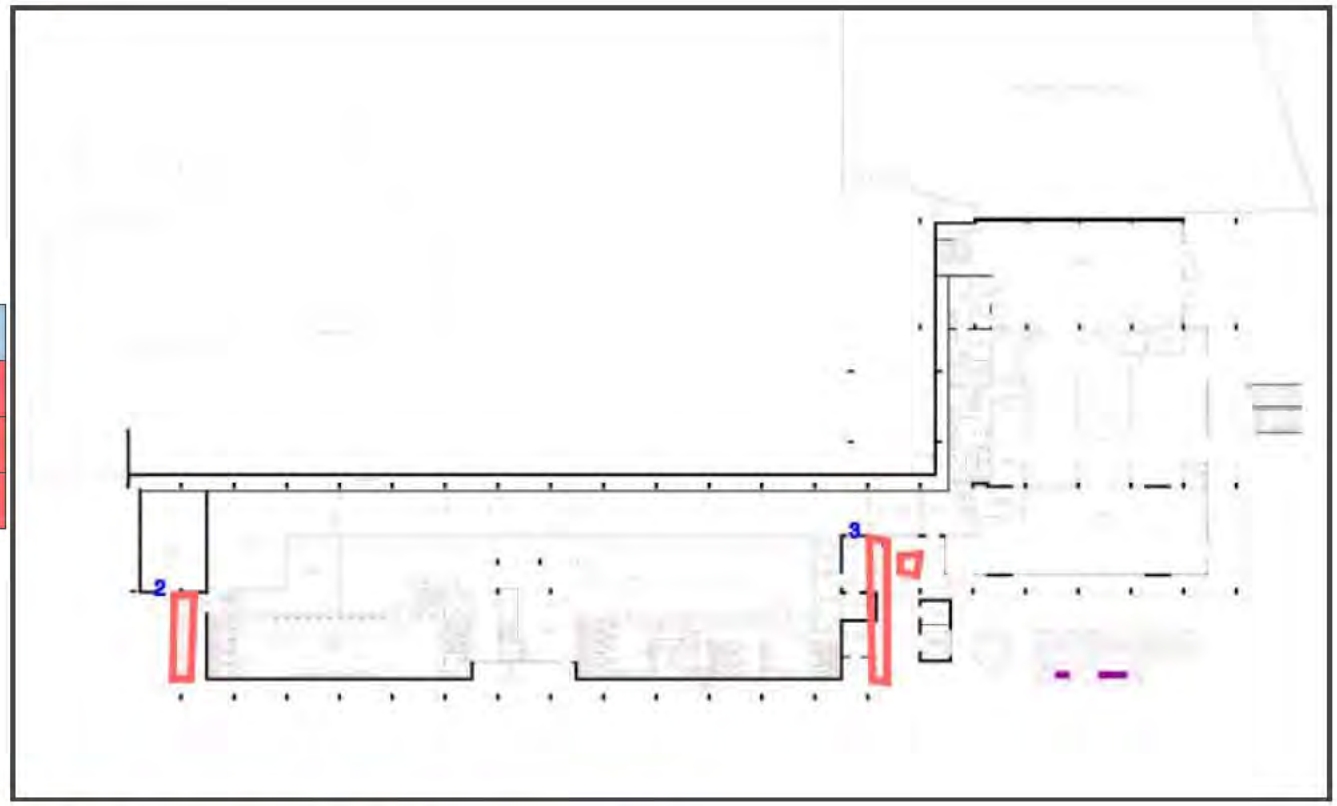
The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"1" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 4 [Positive : 3, Inaccessible : 0, Negative : 1]

#	Item	Room
1	Pipe lagging Encased in Boxing	311-1.External
2	Pipe Lagging #1 To Pipes	311-1.External
3	Pipe Lagging #2 To Pipes	311-1.External



The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"2" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 10 [Positive : 2, Inaccessible : 2, Negative : 6]

#	Item	Room
1	No access To Room	311-219A
2	No access To Room	311-200C1
3	Pipe lagging Encased in Boxing	311-2.External
4	pipe lagging encased in steel pipe	311-2.External



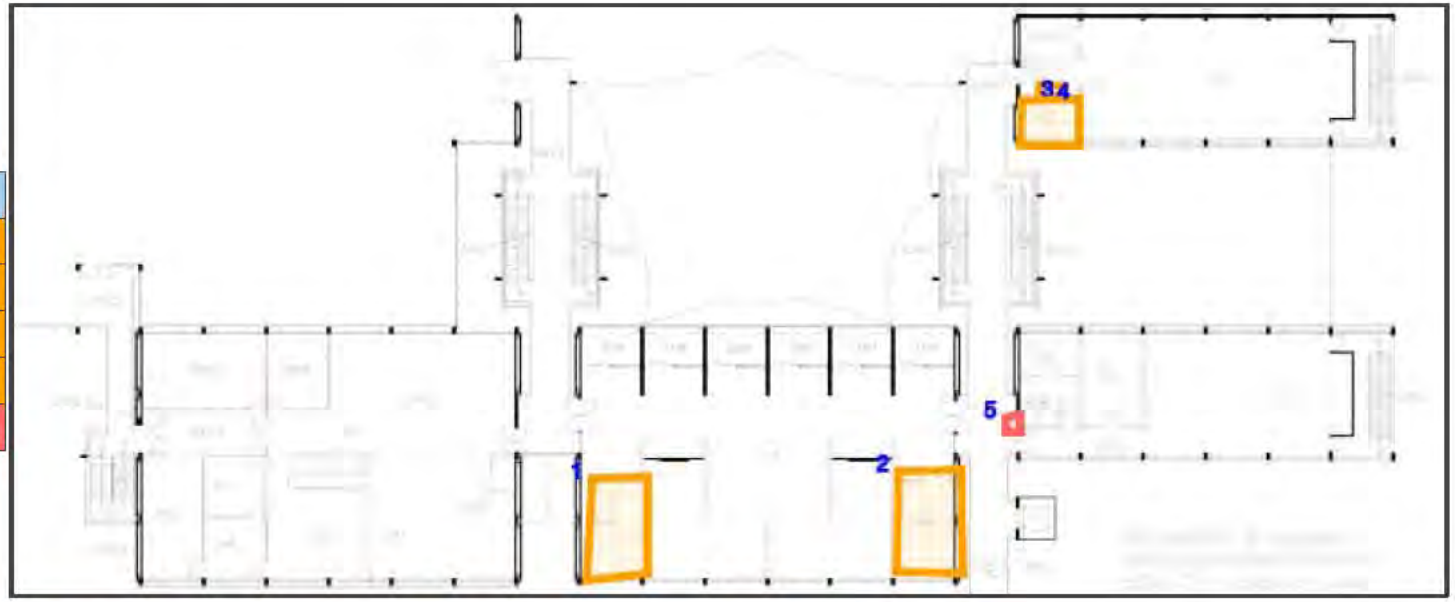
The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"3" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 6 [Positive : 1, Inaccessible : 4, Negative : 1]

#	Item	Room
1	No access To Room	311-319G
2	No access To Room	311-319H
3	No access To Room	311-314
4	No access To Room	311-312
5	Pipe lagging Encased in Casing	311-3.External



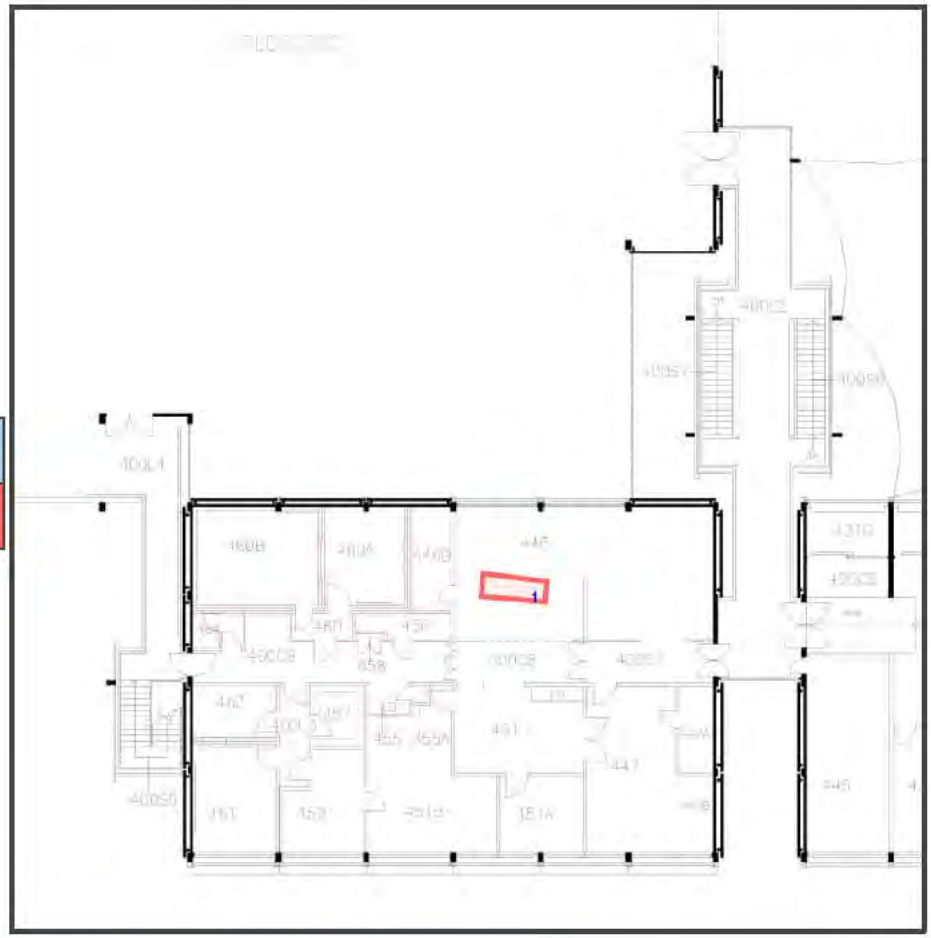
The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"4A" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 1 [Positive : 1, Inaccessible : 0, Negative : 0]

#	Item	Room
1	Cement Panel To High Level Skylight	311-446



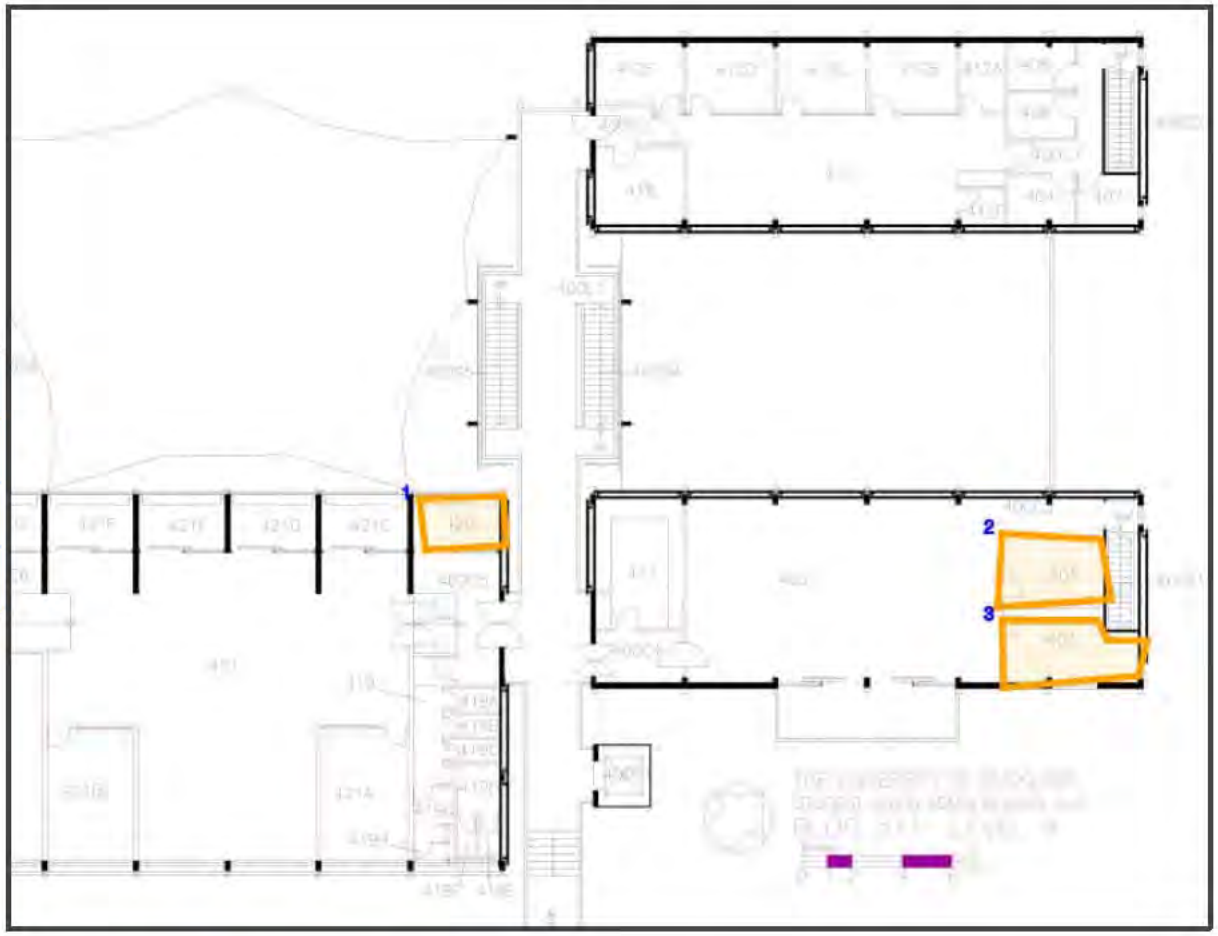
The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"4B" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 5 [Positive : 0, Inaccessible : 3, Negative : 2]

#	Item	Room
1	No access To Balcony	311-420
2	No access To Room	311-401
3	No access To Room	311-403



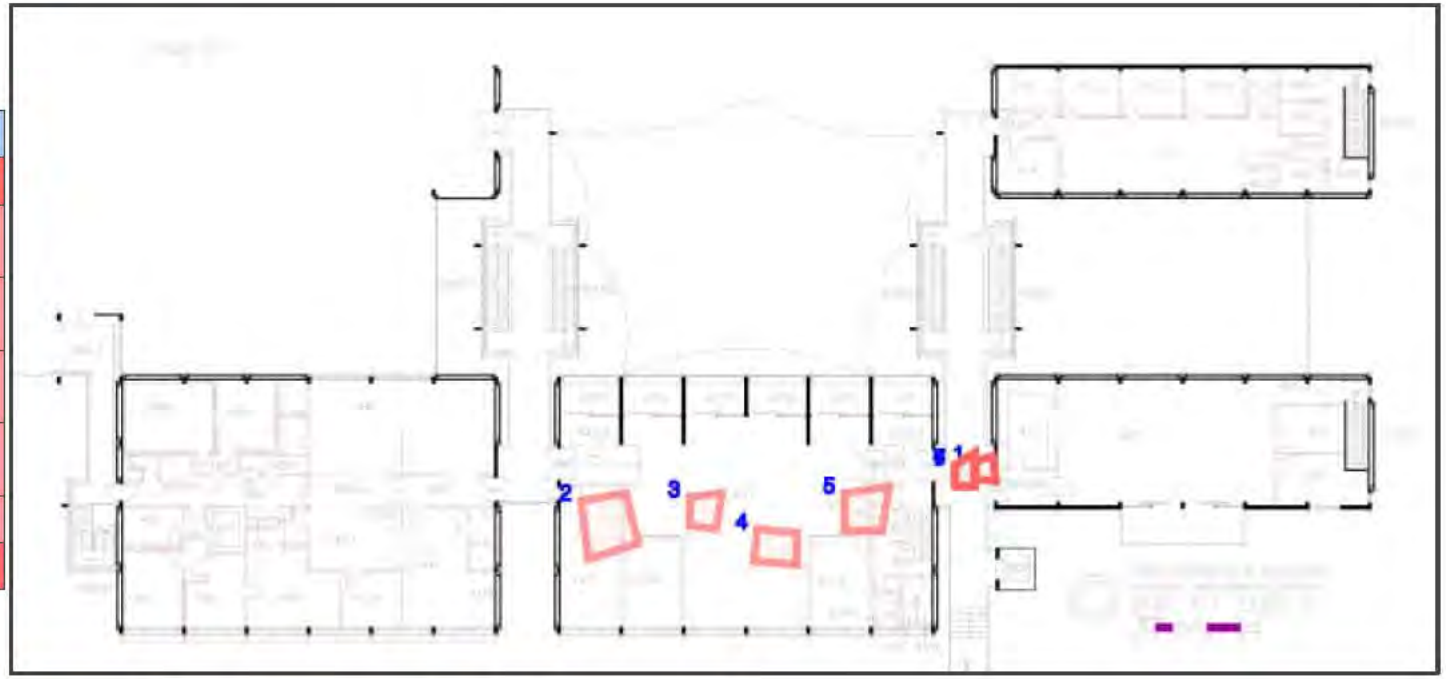
The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"4" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 11 [Positive : 7, Inaccessible : 0, Negative : 4]

#	Item	Room
1	Pipe lagging Encased in Casing	311-4.External
2	Bitumen membrane to pop top roof (1)	311-4.Roof
3	Bitumen membrane to pop top roof (2)	311-4.Roof
4	Bitumen membrane to pop top roof (3)	311-4.Roof
5	Bitumen membrane to pop top roof (4)	311-4.Roof
6	Asbestos vent pipe	311-4.Roof
7	Asbestos vent pipe	311-4.Roof



The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

3.6 Building Notes

Interior

General no accesses: above fixed ceilings, within wall cavities, to live electrical equipment and high voltage areas, mechanical plant equipment, within metal encased pipework, behind fixed boxing, within lift shafts and lift pits, to areas requiring working at height controlsMastic sampled present throughout ventilation on level 1

4. Procedures for managing incidents or emergencies involving asbestos materials

For an asbestos incident or emergency, the primary University contact is the Staff Service Center, or afterhours Campus Security, who will escalate the incident. Additionally, contractors must follow the incident and emergency procedure in job-specific asbestos work plans.

Primary University Contact for an Asbestos Incident:

- **Staff Service Center (7:30am to 6pm) ext. 86000; 09 923 6000**
- **Security (after hours 6:00pm to 7:30am) ext. 85000; 09 923 5000**

Also inform your manager and if you are a contractor your University contact person as soon as practicable.

4.1 First response Actions

If there is an asbestos incident (e.g. where asbestos fibre is released or presumed to have been released without the required controls):

1. Stop work and clear the affected area of all personnel immediately. Leave contaminated items if safe to do so;
2. Immediately contact the Staff Service Centre, or if after hours Security, who will escalate the incident. Inform your manager, and if a contractor your main University contact person as soon as practicable;
3. Restrict access to the area. If safe,
    - Erect temporary signs and barriers
    - Restrict air flow closing doors, windows and turning off air conditioning if possible
    - Notify those near the immediate area of the incident and restriction
4. Personal decontamination: If any dust or debris is on a person or their clothing they should,
    - Remove contaminated clothing, damp it down, and wash themselves as soon as possible (don’t wash the clothing which risks spreading contamination).
    - Keep clothing in an airtight securely closed container for assessment and advice. Clearly label the container with an asbestos warning and store in a secure place.

4.2 Follow up Actions

Follow-up actions are incident dependent. Follow-up is managed and reviewed between the University Asbestos Group, Facilities, the Health Safety and Wellbeing Office, and by application of the Coordinated Incident Management System (CMIS). CMIS allows scaling and co-ordination with external agencies such as Fire and Emergency Services. For more information refer to the University Overarching Asbestos Management Plan. As part of the response:

- Complete the University incident form within 24 hrs. Available on the staff intranet or for contractors from your University manager.
- The Staff Service Center, or if after hours Security, will escalate the response which links to the University's Coordinated Incident Management System (CMIS).
- Property Services and/or the Health Safety and Wellbeing Office will arrange a risk assessment that involves an approved asbestos specialist. The assessment will confirm the extent of any contamination and exposure, remediation steps and actions before the area is re-occupied, lessons learnt and recommended improvement actions. It will review first-responder interim controls and communication and ensure access is appropriately restricted so that only suitable trained and qualified people enter the area with appropriate PPE. Material sample collection, air monitoring for lab analysis, and relaying information about potential exposure may be required.
- Re-entry: The area may only be re-entered when instructed by Property Services on advice from an approved asbestos specialist and as applicable the incident management team.
- Support and Health Monitoring as relevant (see below).

4.3 Investigation Information and Record Keeping

Asbestos incident investigations use the same investigation, reporting procedures, and recording systems as for general University incidents. Additionally, any building-related records (e.g. clearances, laboratory results, changes in asbestos condition) are uploaded to BMIS University's asbestos information system by Property Services.

Procedures and forms for University incident reporting and recording are available on the staff intranet. Contractors can request this from their University manager. Completed incident reports are submitted to managers or heads of department or service divisions for review before submission to the Health Safety and Wellbeing Office. The primary repository for incident reports and records is Vault, University's main Health and Safety information system.

Incident recommendations and lessons learnt are sent to operational managers with responsibility for the persons affected (e.g. Director of Faculty Operations; Service Manager) and to Property Services to inform asbestos management continuous improvement. Lessons learnt are considered for distribution to other groups as appropriate e.g. for contractor toolbox meetings or communities of practice.

5. Workers carrying out work involving asbestos – information and training

University requires all workers to demonstrate suitable competency and training before undertaking work near moderate and high-risk asbestos materials, or if disturbing or potentially disturbing lower risk materials. The information and training workers require is task specific. Information and training is checked through the Asbestos Permit to work system and contractor onboarding procedure. Inductions and guidance material provide general and basic asbestos instruction.

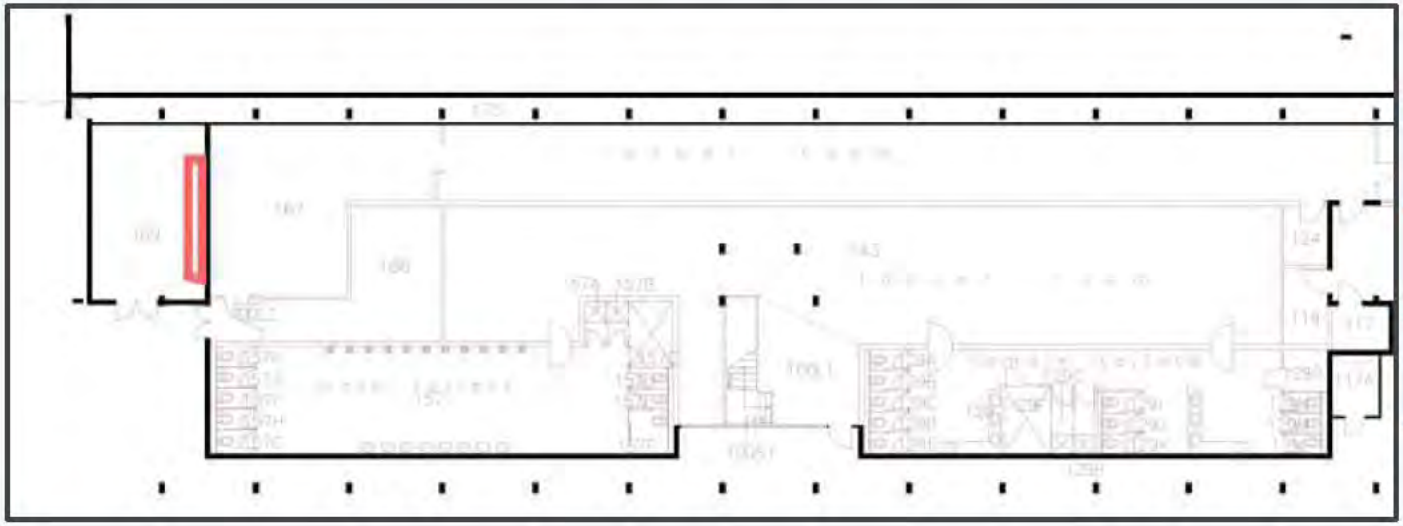
6. Worker health monitoring

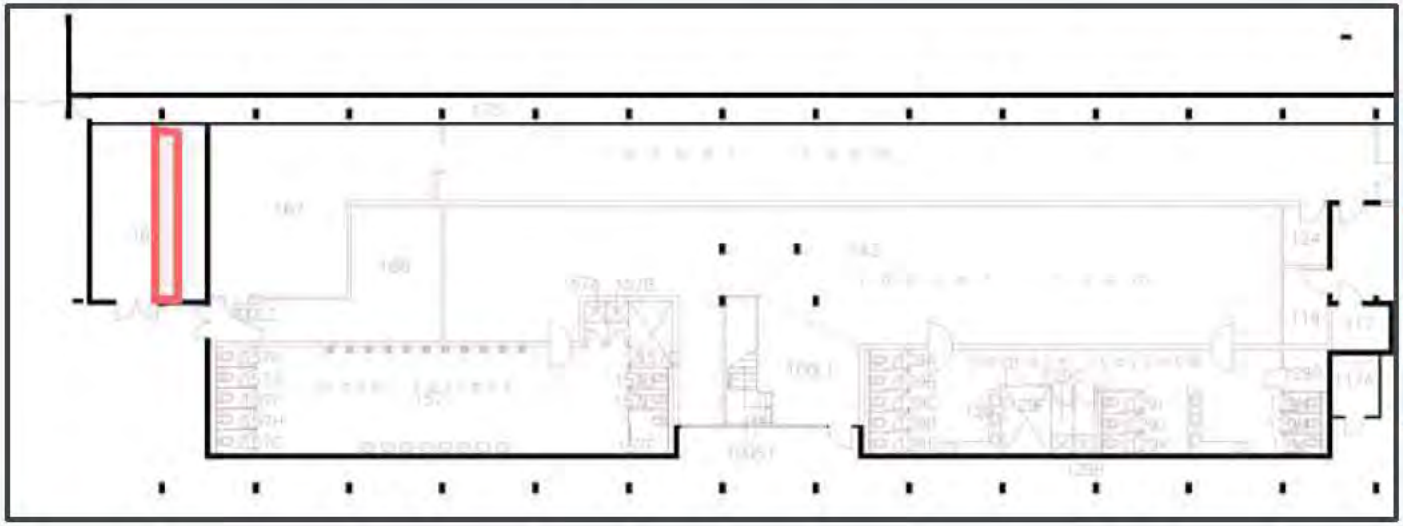
University employees should not carrying out work that requires them to disturb asbestos material. Therefore, asbestos related health monitoring is not be conducted as part of default health monitoring. If unintended exposure occurs that exceeds the workplace contamination standard for asbestos health monitoring and education will be offered to employees.

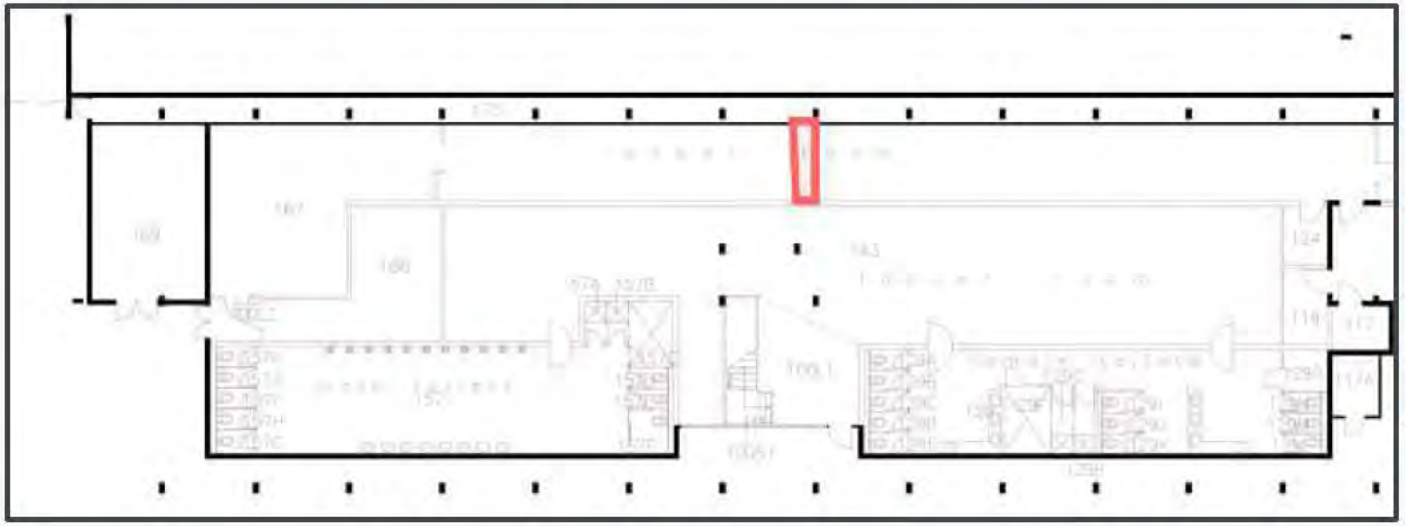
Appendix 1

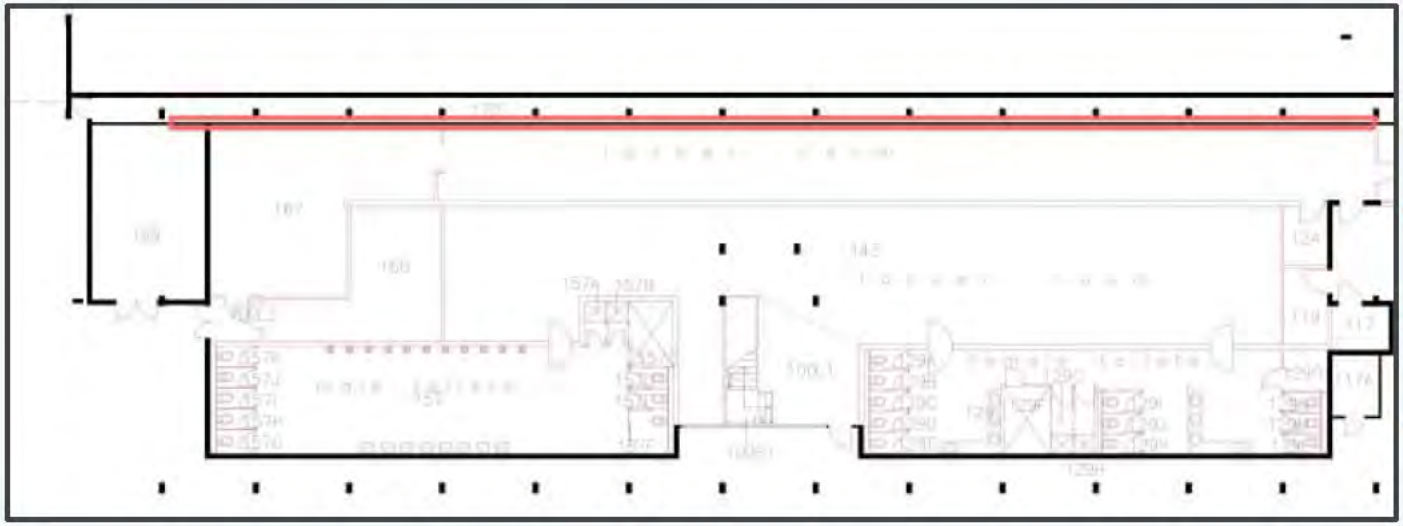
Detailed Material Information - Positive and Presumed items

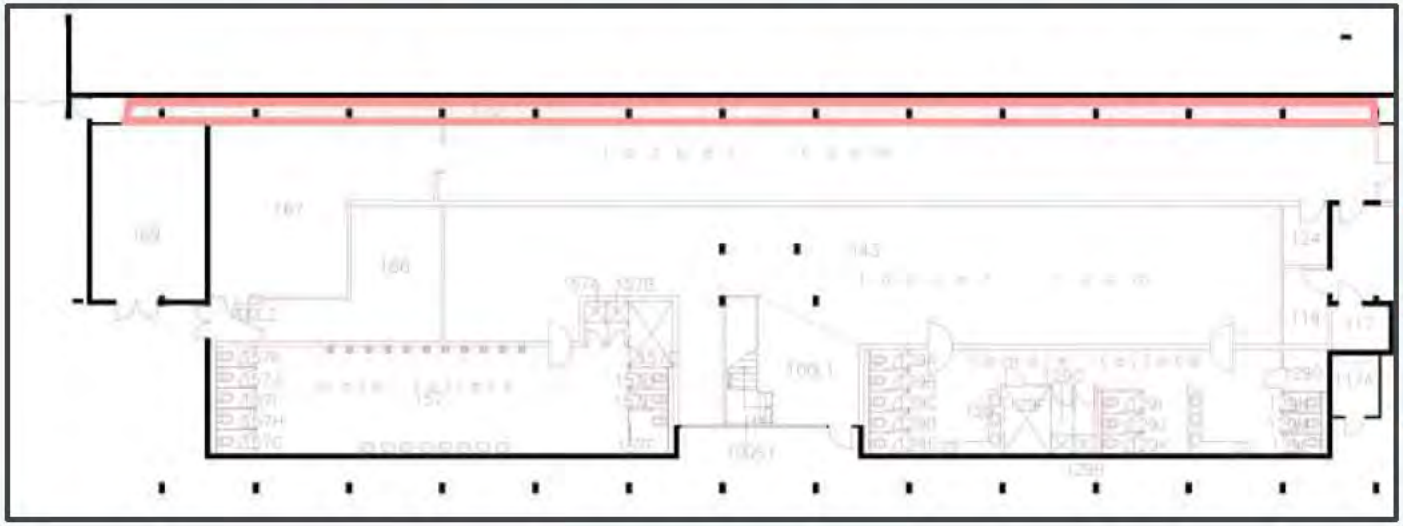
Level - "1A"

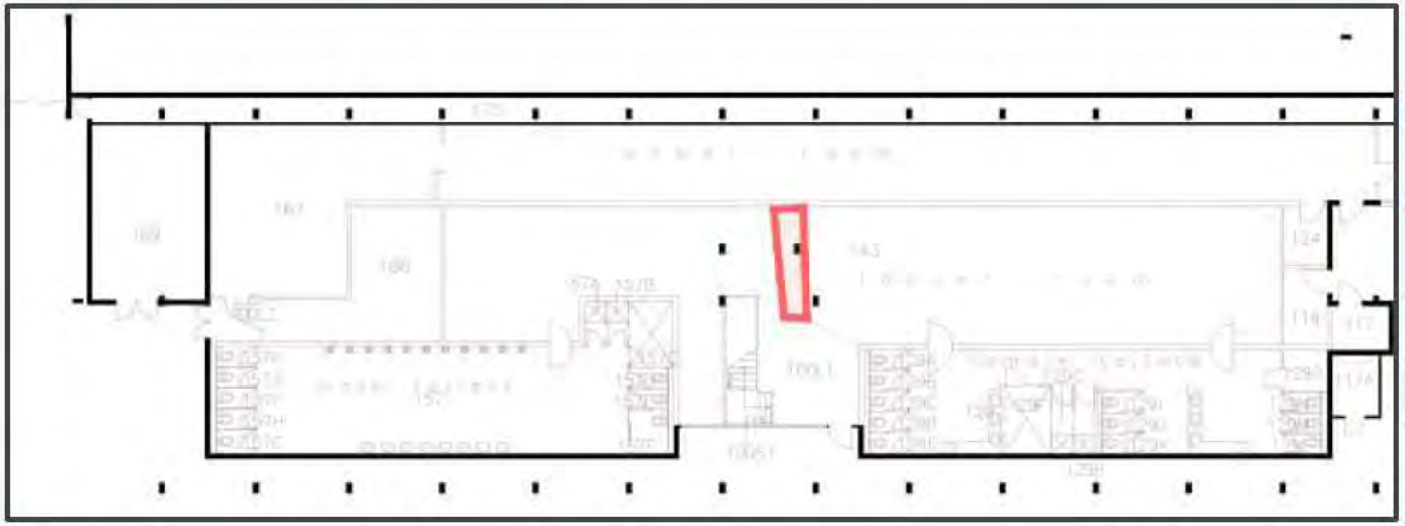
Related Images Item & Floor plan for Level - 1A	Item Details
	**Item Name**
	Gasket To Pump pipe
	Room
	311-169
	Risk Rating
	Low
	Action
	Inspect

Related Images Item & Floor plan for Level - 1A	Item Details
	**Item Name**
	Pipe Lagging To Pipes
	Room
	311-169
	Risk Rating
	Low
	Action
	Inspect

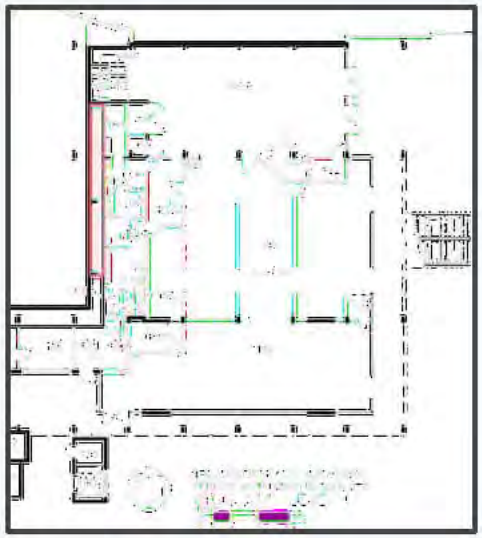
Related Images Item & Floor plan for Level - 1A	Item Details
	**Item Name**
	Pipe Lagging To Pipes
	Room
	311-167
	Risk Rating
	Low
	Action
	Label, Encapsulate / seal, Inspect,

Related Images Item & Floor plan for Level - 1A	Item Details
	**Item Name**
	Cement Lining to Wall
	Room
	311-170
	Risk Rating
	Low
	Action
	Label

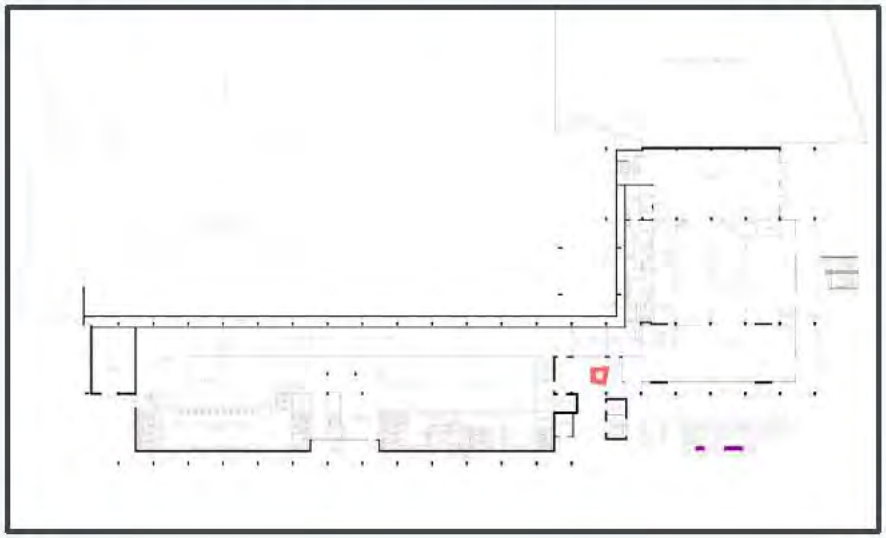
Related Images Item & Floor plan for Level - 1A	Item Details
	**Item Name**
	Gaskets to pipes
	Room
	311-170
	Risk Rating
	Very Low
	Action
	Inspect

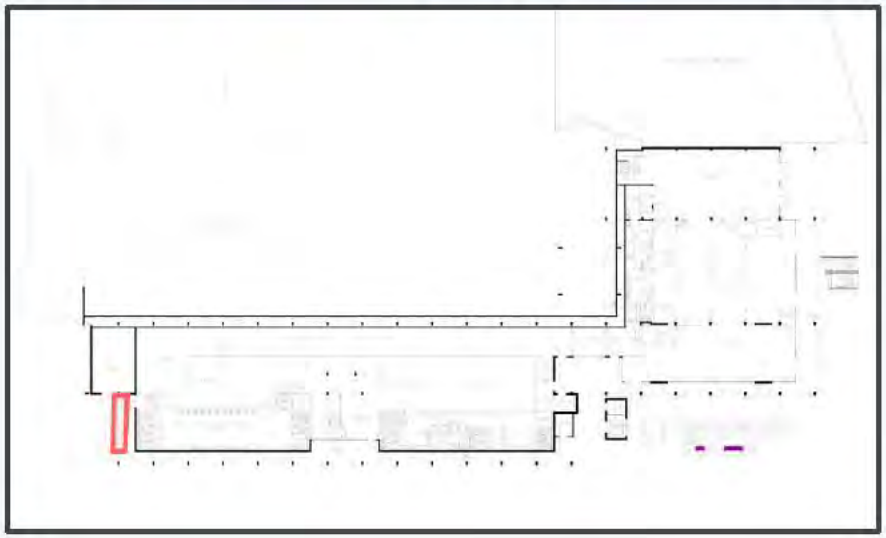
Related Images Item & Floor plan for Level - 1A	Item Details
	**Item Name**
	Pipe Lagging To Pipes
	Room
	311-143
	Risk Rating
	Low
	Action
	Label, Encapsulate / seal, Inspect,

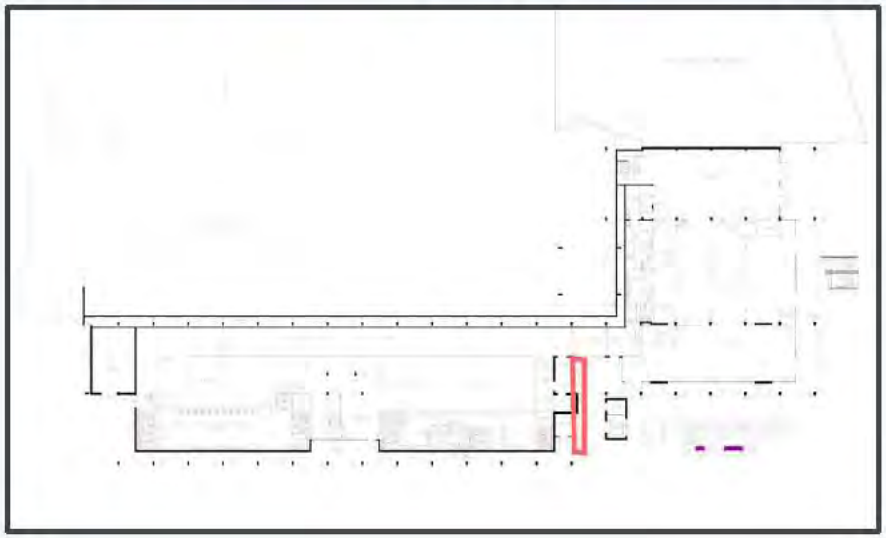
Level - "1B"

Related Images Item & Floor plan for Level - 1B	Item Details
	**Item Name**
	Encapsulated asbestos lagging to pipes behind black polythene & plywood barrier
	Room
	311-170
	Risk Rating
	Low
	Action
	Label

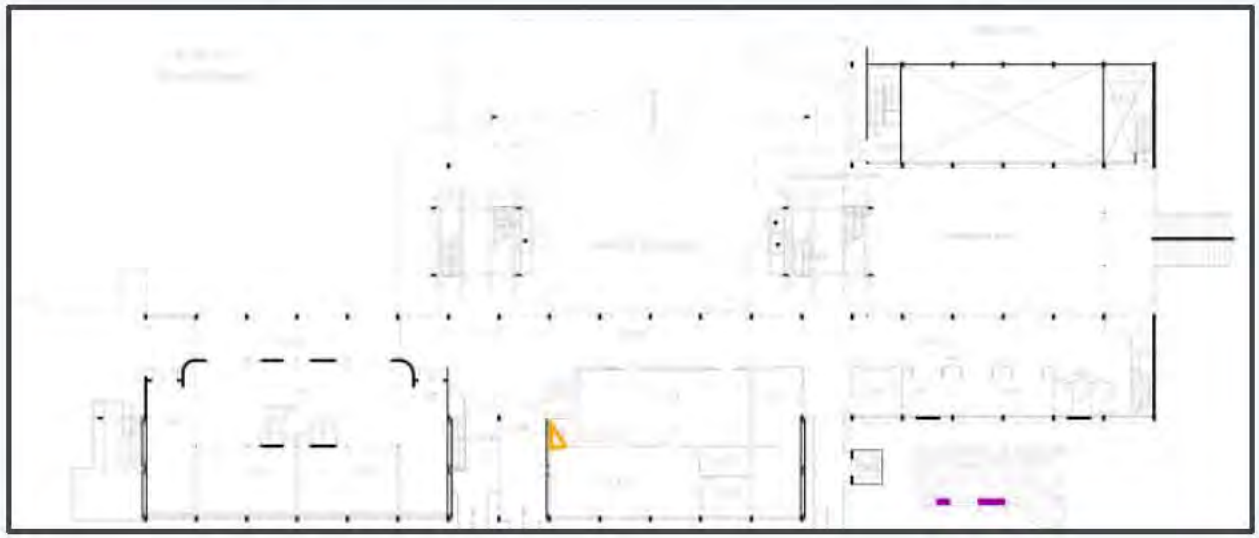
Level - "1"

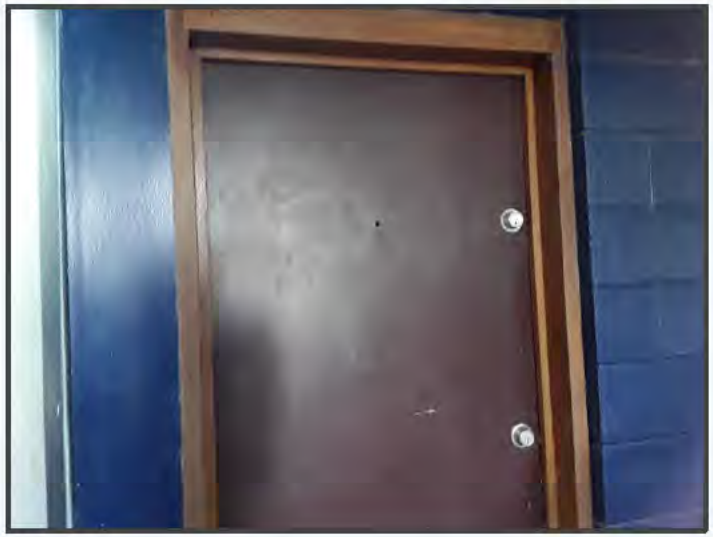
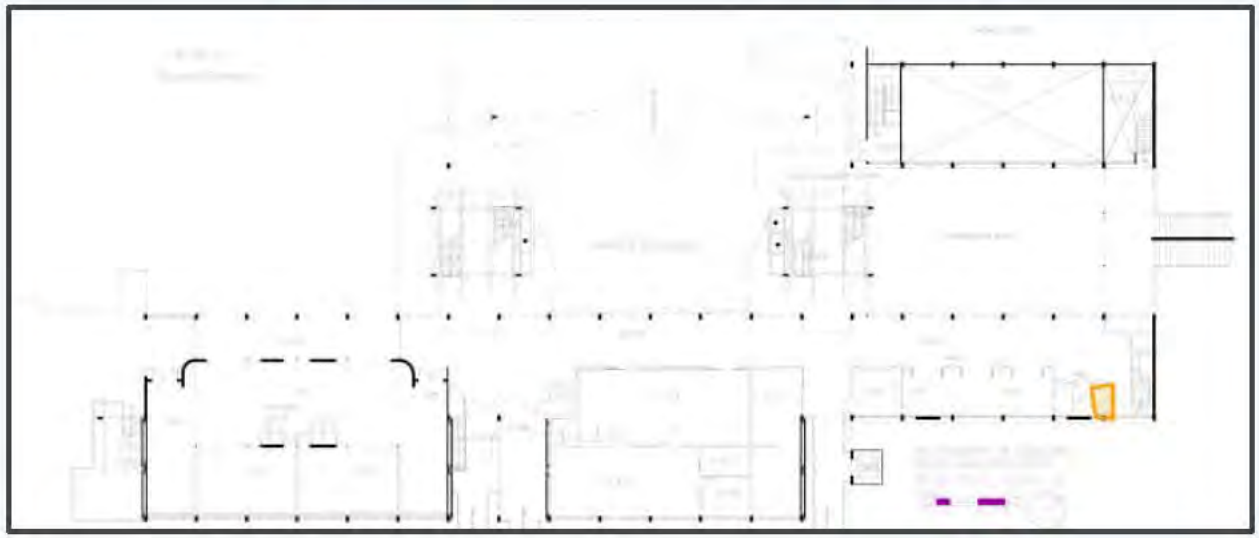
Related Images Item & Floor plan for Level - 1	Item Details
	**Item Name**
	Pipe lagging Encased in Boxing
	Room
	311-1.External
	Risk Rating
	Low
	Action
	Inspect

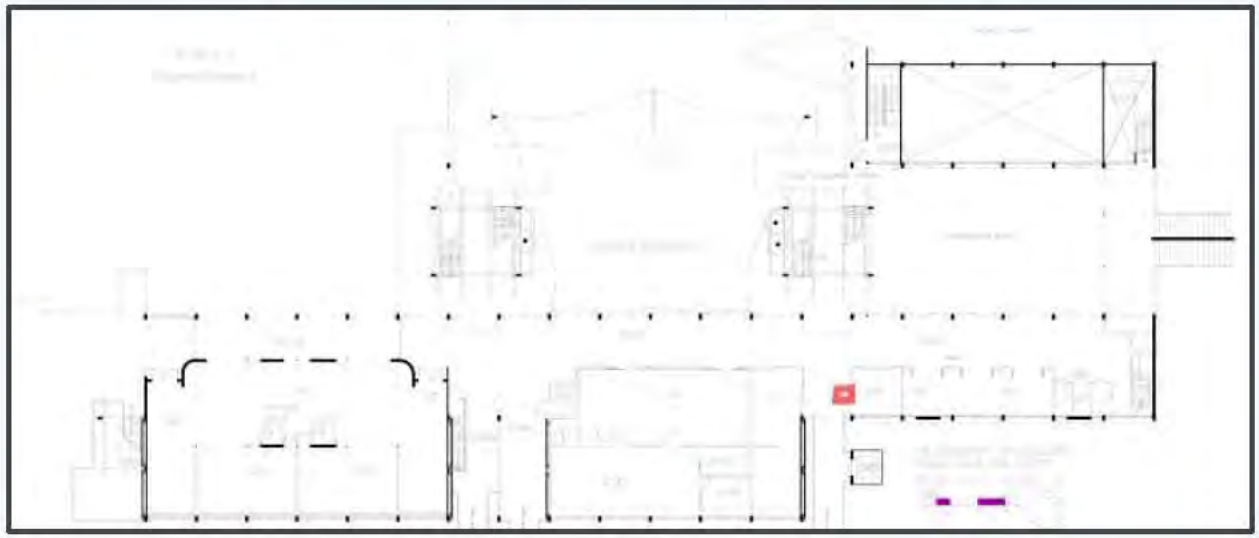
Related Images Item & Floor plan for Level - 1	Item Details
	**Item Name**
	Pipe Lagging #1 To Pipes
	Room
	311-1.External
	Risk Rating
	Low
	Action
	Inspect

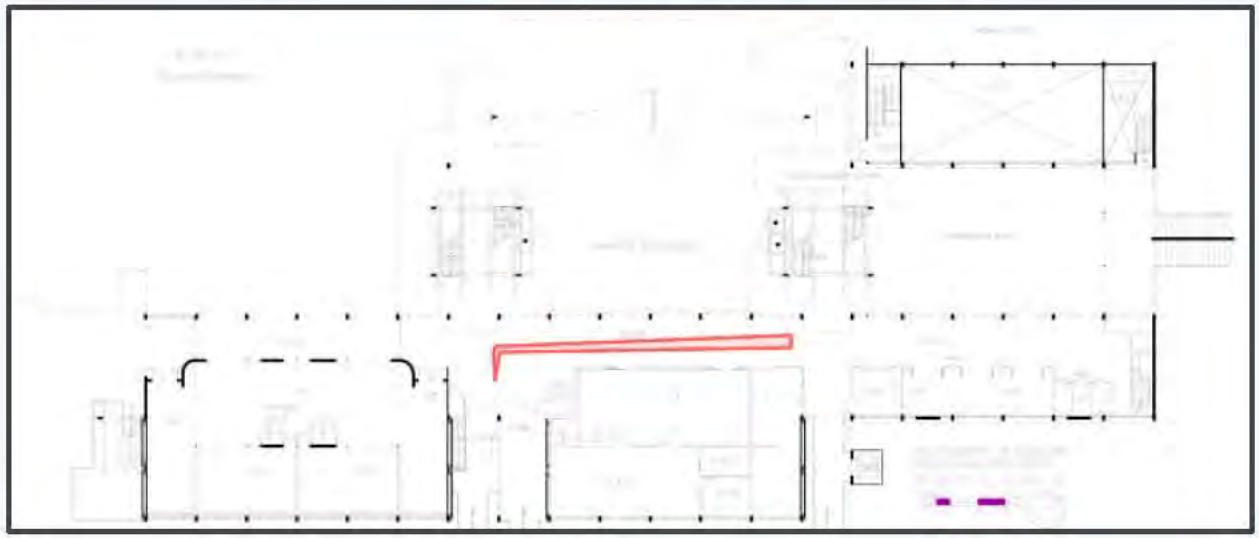
Related Images Item & Floor plan for Level - 1	Item Details
	**Item Name**
	Pipe Lagging #2 To Pipes
	Room
	311-1.External
	Risk Rating
	Low
	Action
	Inspect

Level - "2"

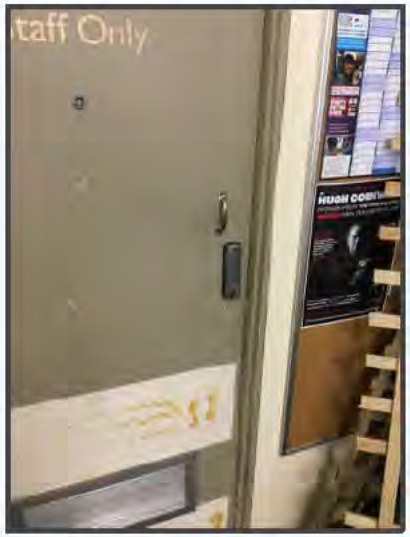
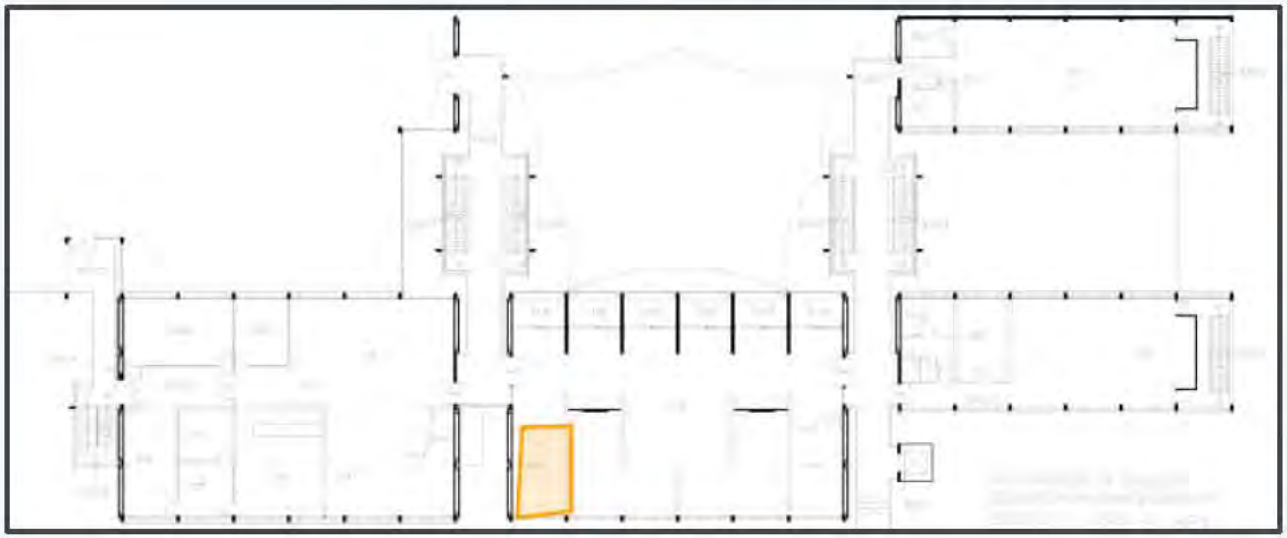
Related Images Item & Floor plan for Level - 2	Item Details
	**Item Name**
	No access To Room
	Room
	311-219A
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

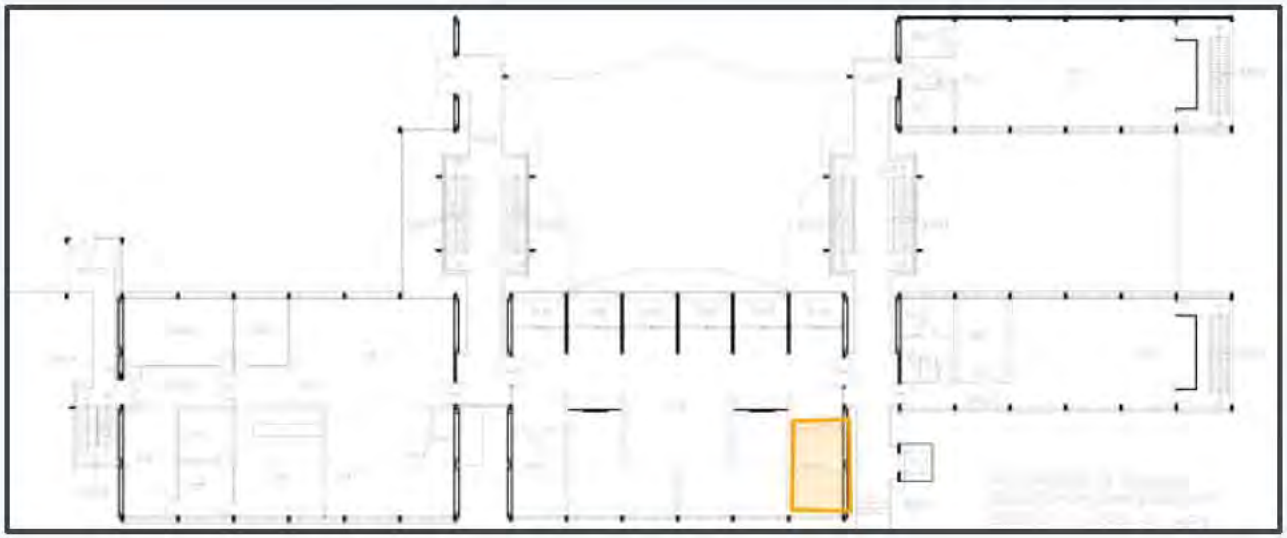
Related Images Item & Floor plan for Level - 2	Item Details
	**Item Name**
	No access To Room
	Room
	311-200C1
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

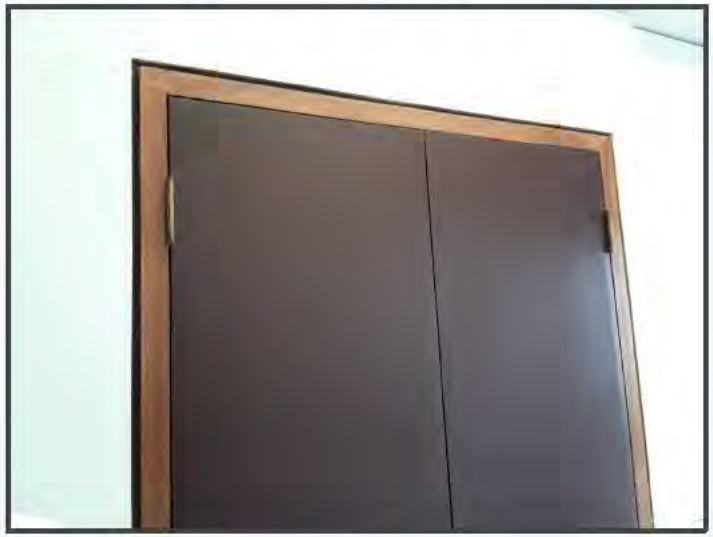
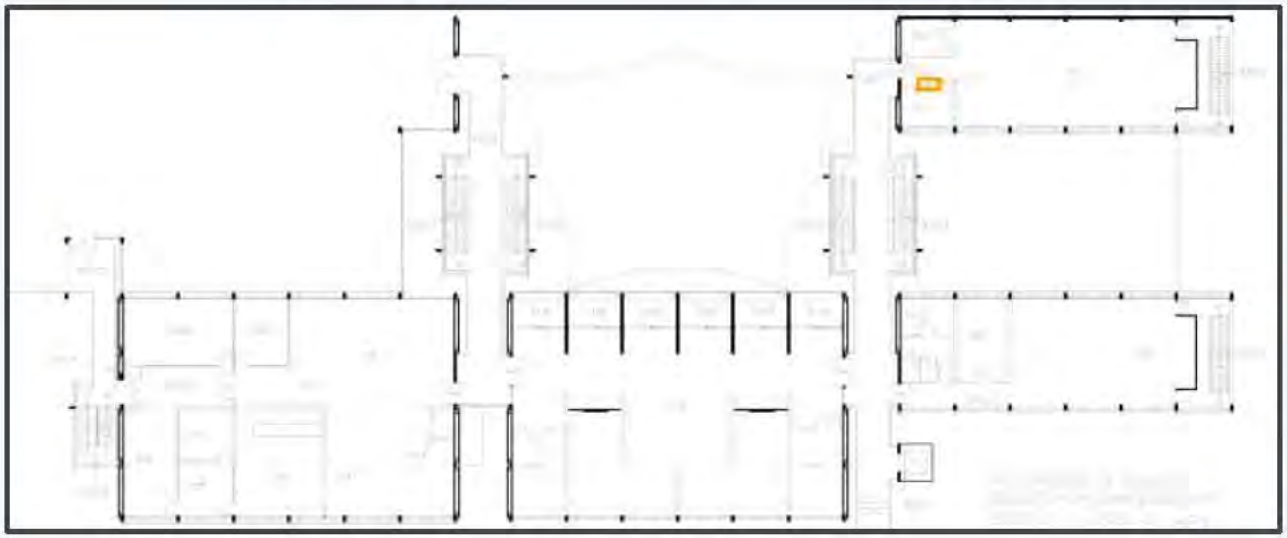
Related Images Item & Floor plan for Level - 2	Item Details
	**Item Name**
	Pipe lagging Encased in Boxing
	Room
	311-2.External
	Risk Rating
	Low
	Action
	Inspect

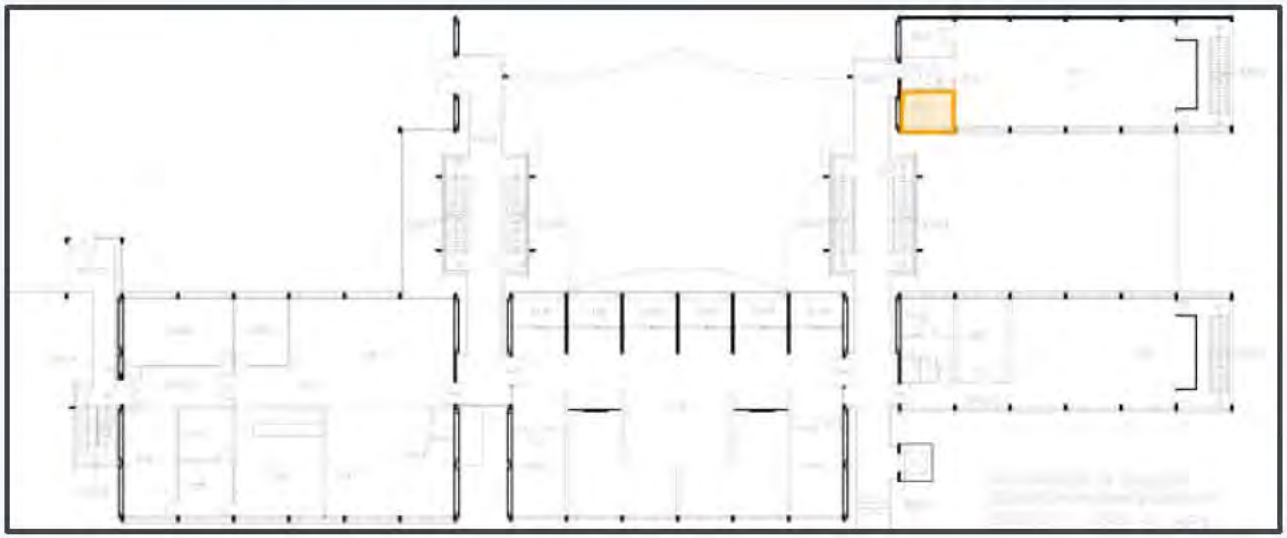
Related Images Item & Floor plan for Level - 2	Item Details
	**Item Name**
	pipe lagging encased in steel pipe
	Room
	311-2.External
	Risk Rating
	Low
	Action
	Inspect

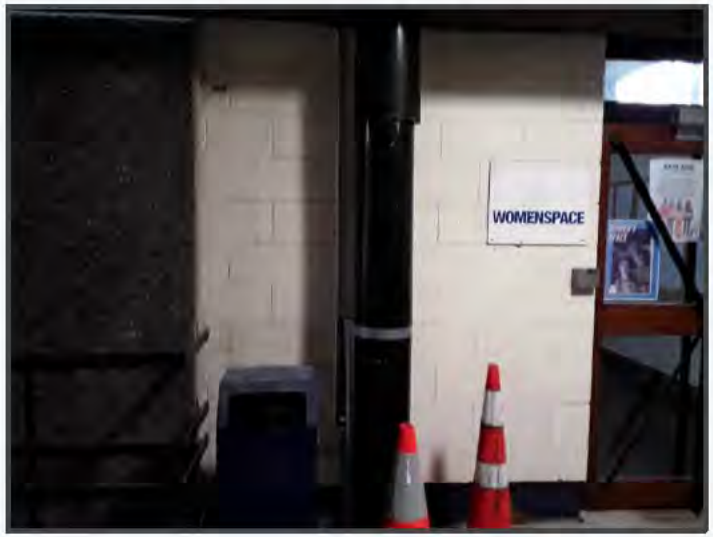
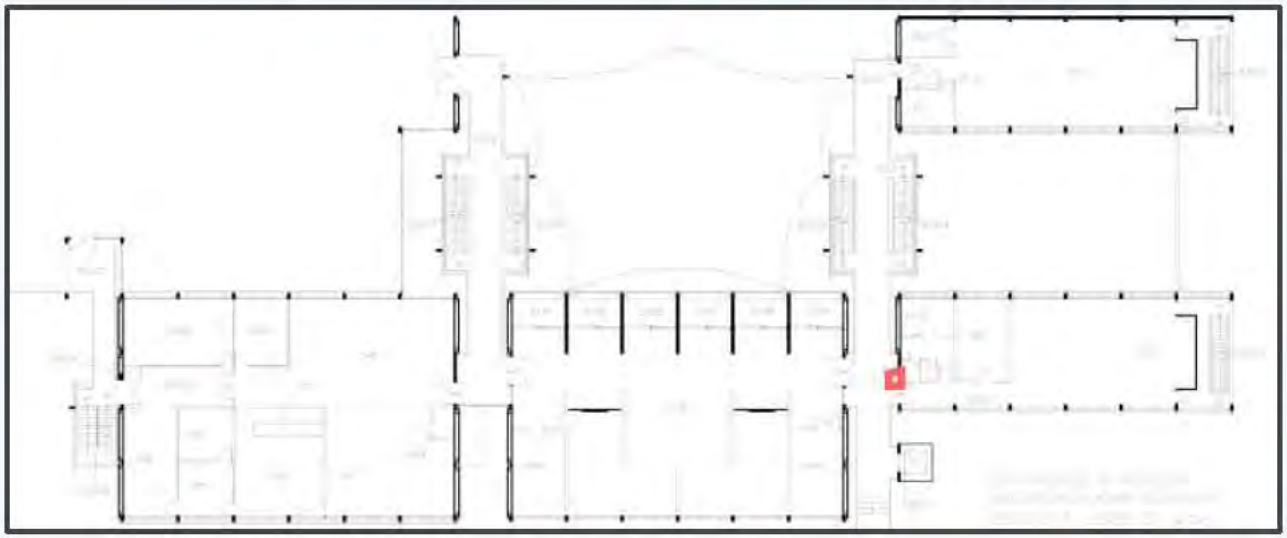
Level - "3"

Related Images Item & Floor plan for Level - 3	Item Details
	**Item Name**
	No access To Room
	Room
	311-319G
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

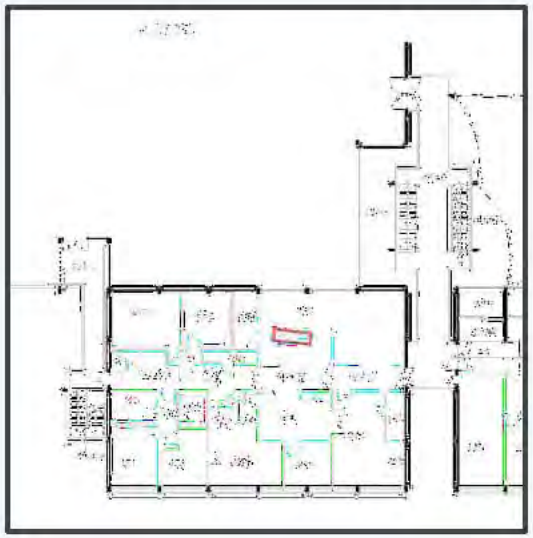
Related Images Item & Floor plan for Level - 3	Item Details
	**Item Name**
	No access To Room
	Room
	311-319H
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

Related Images Item & Floor plan for Level - 3	Item Details
	**Item Name**
	No access To Room
	Room
	311-314
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

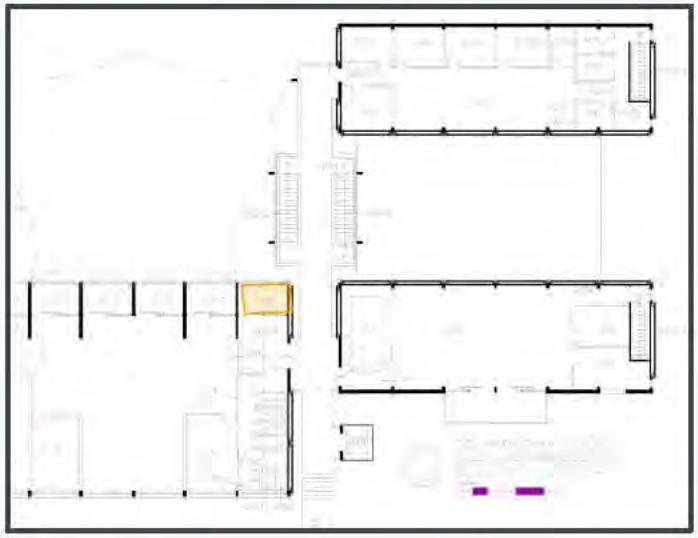
Related Images Item & Floor plan for Level - 3	Item Details
	**Item Name**
	No access To Room
	Room
	311-312
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

Related Images Item & Floor plan for Level - 3	Item Details
	**Item Name**
	Pipe lagging Encased in Casing
	Room
	311-3.External
	Risk Rating
	Low
	Action
	Inspect

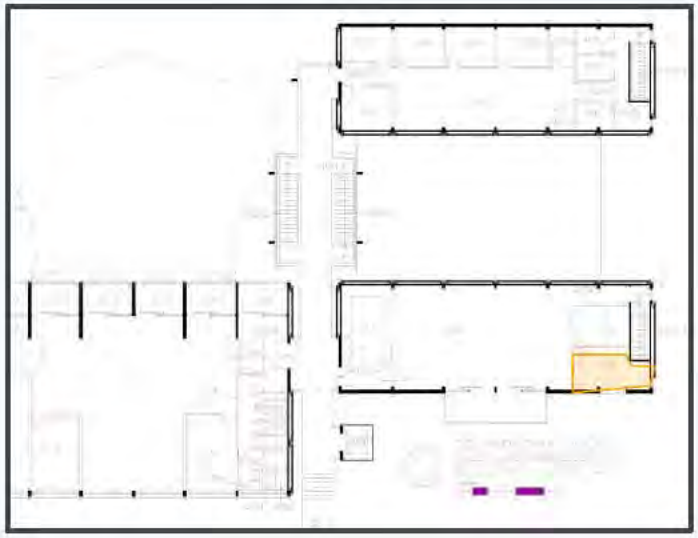
Level - "4A"

Related Images Item & Floor plan for Level - 4A	Item Details
	**Item Name**
	Cement Panel To High Level Skylight
	Room
	311-446
	Risk Rating
	Low
	Action
	Inspect

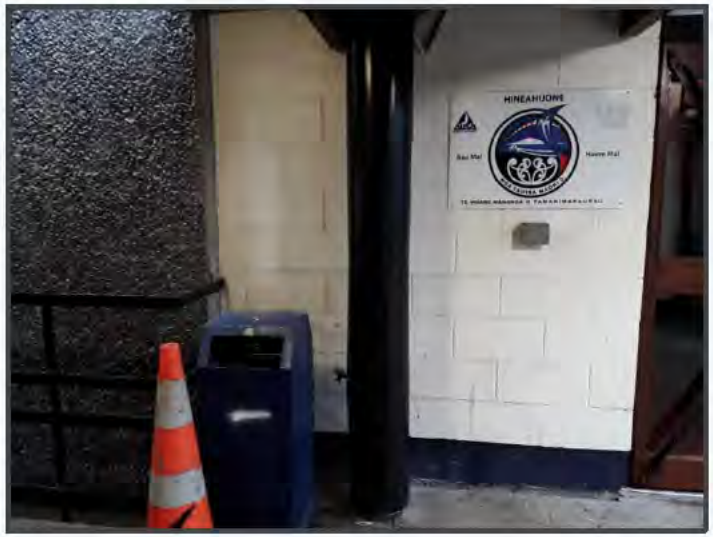
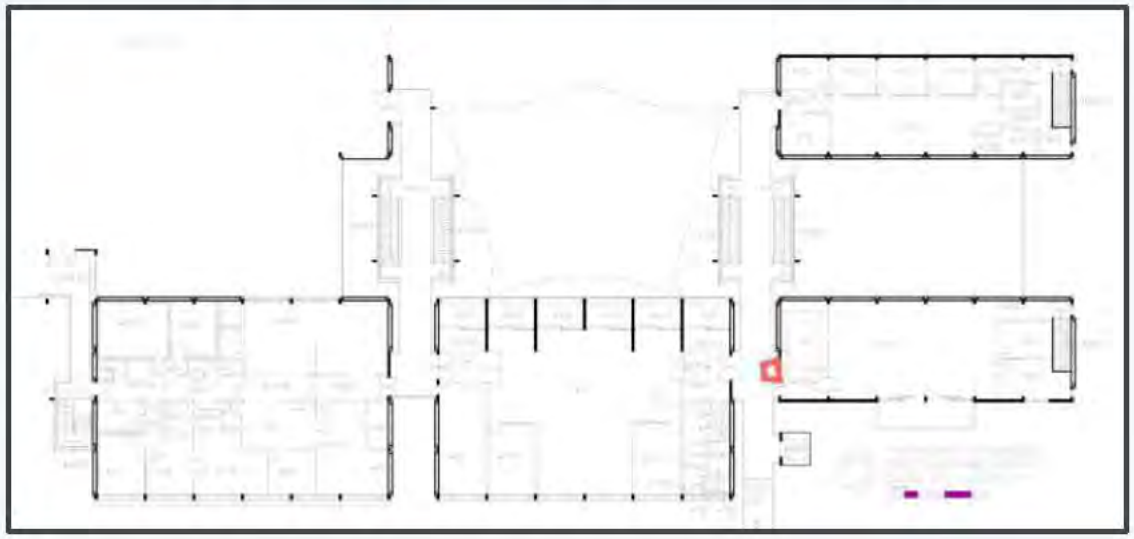
Level - "4B"

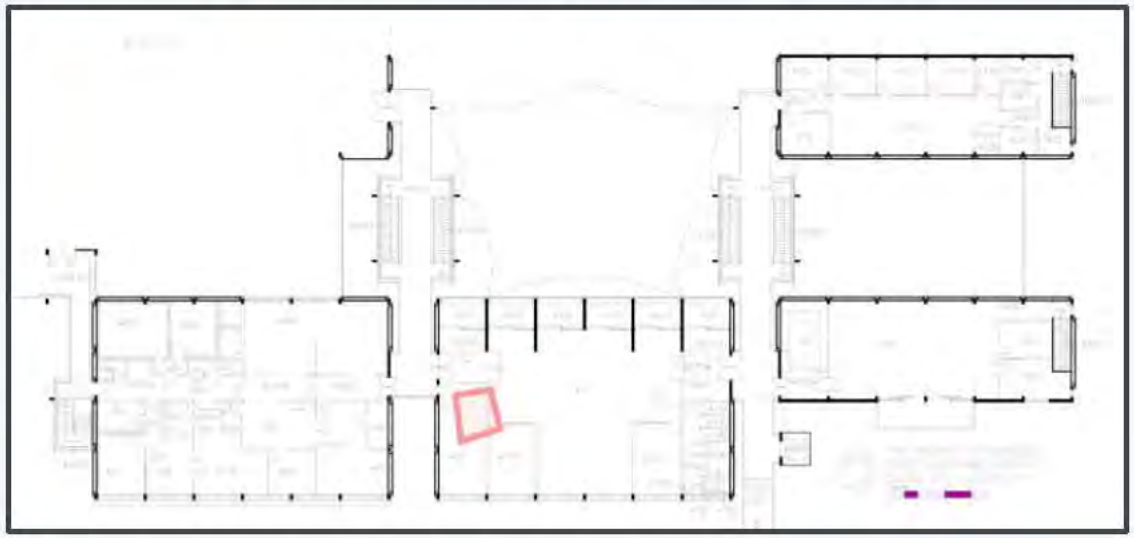
Related Images Item & Floor plan for Level - 4B	Item Details
No Item Image	**Item Name**
	No access To Balcony
	Room
	311-420
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

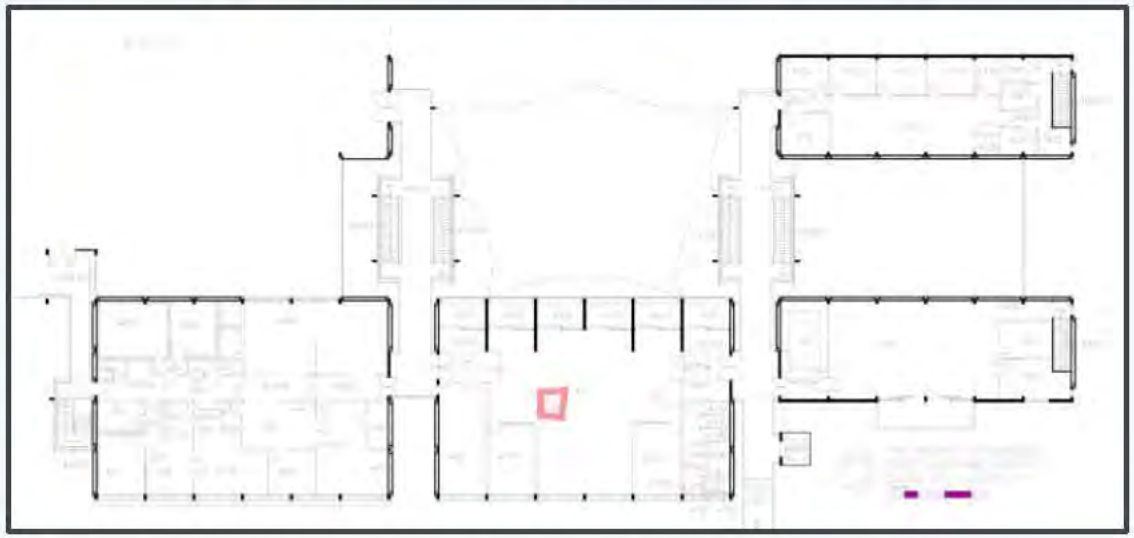
Related Images Item & Floor plan for Level - 4B	Item Details
No Item Image	**Item Name**
	No access To Room
	Room
	311-401
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

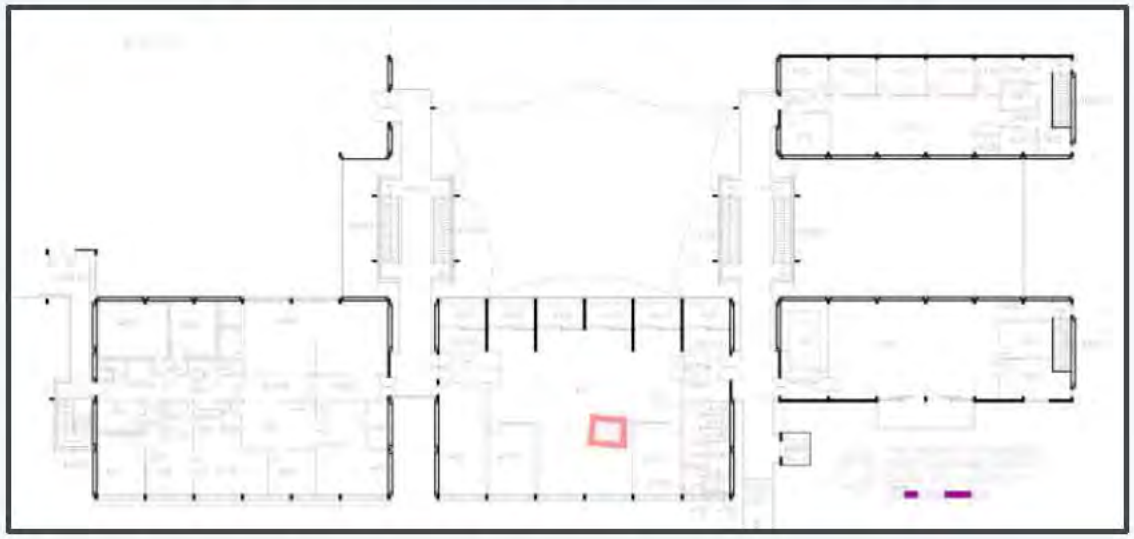
Related Images Item & Floor plan for Level - 4B	Item Details
No Item Image	**Item Name**
	No access To Room
	Room
	311-403
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

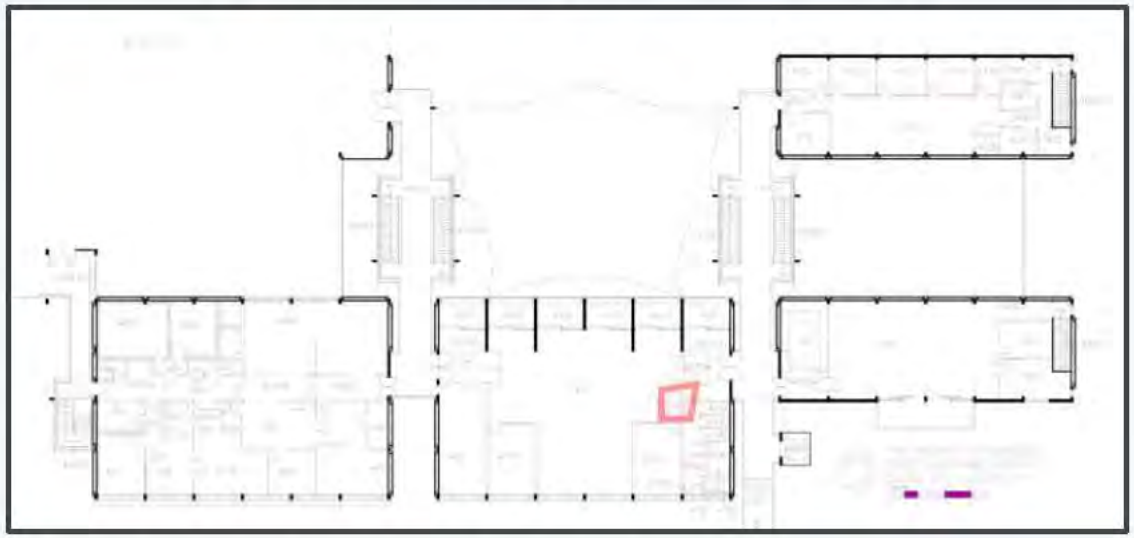
Level - "4"

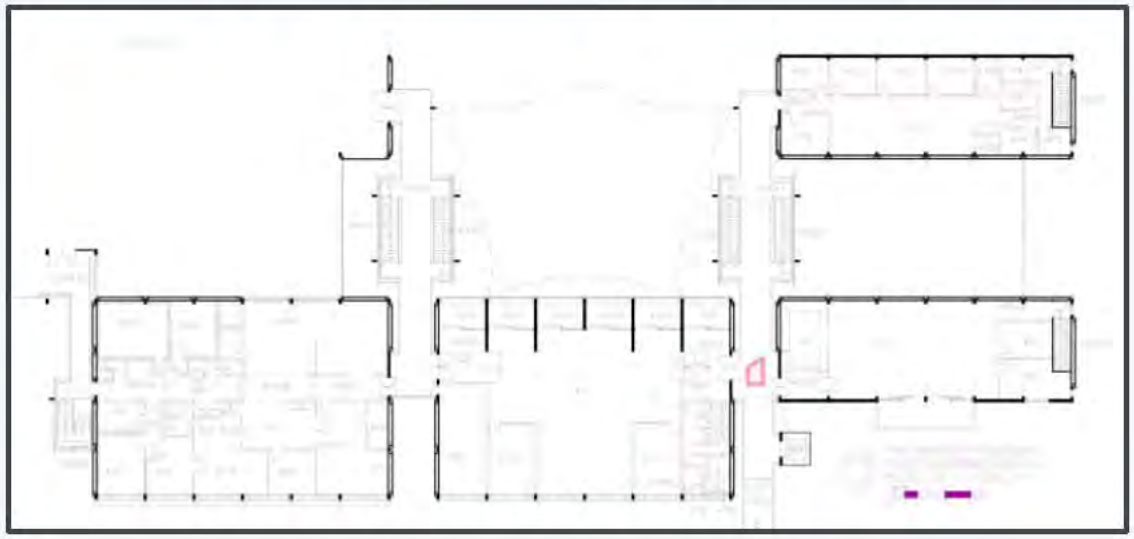
Related Images Item & Floor plan for Level - 4	Item Details
	**Item Name**
	Pipe lagging Encased in Casing
	Room
	311-4.External
	Risk Rating
	Low
	Action
	Inspect

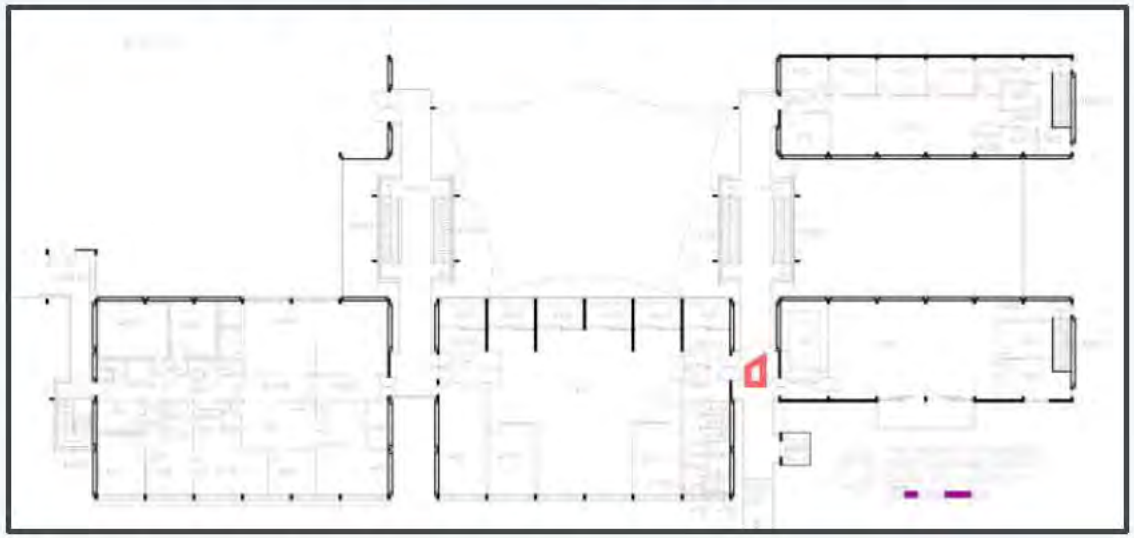
Related Images Item & Floor plan for Level - 4	Item Details
	**Item Name**
	Bitumen membrane to pop top roof (1)
	Room
	311-4.Roof
	Risk Rating
	Very Low
	Action
	Inspect

Related Images Item & Floor plan for Level - 4	Item Details
	**Item Name**
	Bitumen membrane to pop top roof (2)
	Room
	311-4.Roof
	Risk Rating
	Very Low
	Action
	Inspect

Related Images Item & Floor plan for Level - 4	Item Details
	**Item Name**
	Bitumen membrane to pop top roof (3)
	Room
	311-4.Roof
	Risk Rating
	Very Low
	Action
	Inspect

Related Images Item & Floor plan for Level - 4	Item Details
	**Item Name**
	Bitumen membrane to pop top roof (4)
	Room
	311-4.Roof
	Risk Rating
	Very Low
	Action
	Inspect

Related Images Item & Floor plan for Level - 4	Item Details
	**Item Name**
	Asbestos vent pipe
	Room
	311-4.Roof
	Risk Rating
	Very Low
	Action
	Nil

Related Images Item & Floor plan for Level - 4	Item Details
	**Item Name**
	Asbestos vent pipe
	Room
	311-4.Roof
	Risk Rating
	Low
	Action
	Inspect

Appendix 2

Record of Asbestos Items Removed from this Plan

#	Floor Level/Building Area	Item	Room	Location	Removal Date	Removal Notes
20503	4A	Fibre Cement To Mezzanine Wall		--	16-07-2021	work completed by APS 10.07.2021
39964	2	pipe lagging encased in steel pipe	2.ext	2.ext	23-11-2021	clearance report to follow
54084	1B	Asbestos pipe lagging debris to floor	311-170	311-170	16-02-2026	4 Stage Asbestos Clearance Inspection Report Relating to the removal of asbestos insulation, encapsulation of pipe insulation and environmental clean of surfaces

THE UNIVERSITY OF AUCKLAND
Te Whare Wānanga o Tāmaki Makaurau
NEW ZEALAND

Asbestos Management Plan

The University of Auckland

312 - STUDENT COMMONS BLOCK E

34 PRINCES ST
AK CNTRL
AUCKLAND
1010

Date : 2nd of March, 2026, 11:55 pm

Contents

1. Asbestos Management Plan 3
2. Plan Preparation and Review 4
2.1 Plan Preparation 4
2.2 Plan Review 4
3. Identification of Asbestos Containing Materials and Management Decisions 4
3.1. How asbestos containing material was identified 5
3.2 How identified asbestos items are indicated 6
3.3 Decisions and reasons for decisions about how asbestos materials are managed 6
3.4 Asbestos Work Records 8
3.5 Asbestos Items identified in 312 - STUDENT COMMONS BLOCK E 9
4. Procedures for managing incidents or emergencies involving asbestos materials 16
4.1 First response Actions 16
4.2 Follow up Actions 16
4.3 Investigation Information and Record Keeping 17
5. Workers carrying out work involving asbestos – information and training 18
6. Worker health monitoring 18

1. Asbestos Management Plan

This document is a building-specific asbestos management plan for 312 - STUDENT COMMONS BLOCK E. It includes information about asbestos containing material identified in the building and asbestos management decisions, including processes for incidents and emergencies involving asbestos, worker roles and responsibilities and any health monitoring.

This asbestos management plan is a live document and can be updated by University at any time. Once printed it is an uncontrolled version.

To access the latest version of this plan:

- Contractors and staff with official asbestos management roles (e.g. facilities, HS&W, building project and operations managers): access the University’s online asbestos management system BMIS.
- Wider University Community: request a copy from their Faculty or Service Division technical manager.

Asbestos containing materials identified in 312 - STUDENT COMMONS BLOCK E are listed in the table in section 3.5 and the figures in this plan. Appendix 1 provides detailed information for each item.

Limitations

This plan is not intended to identify asbestos items concealed in the building that require breaking or disassembling the building to discover. In some cases, concealed items may be included where a refurbishment-type asbestos survey has been required ahead of works.

This plan does not apply to equipment that is separate from the building (e.g. oven mitts or Bunsen burner mats) or building plant internals (e.g. inside switchboards or ducting).

This plan does not remove the need for contractors to comply with their obligation to identify and manage asbestos in the workplace under the Health and Safety at Work Act and Health and Safety at Work (Asbestos) Regulations.

2. Plan Preparation and Review

2.1 Plan Preparation

This plan has been prepared in keeping with Health and Safety at Work (Asbestos) Regulations 2016 and the University of Auckland Asbestos Standard and Overarching Asbestos Management Plan.

Baseline asbestos information was collected during a systematic asbestos management survey of University Buildings and assessment of historic asbestos information. The survey was undertaken by independent specialist asbestos surveyors, peer reviewed, assessed by Property Services, and discussed with operational managers of the Faculties, Service Divisions, and tenants who occupy the buildings.

This building specific asbestos management plans was published from BMIS, the asbestos information system used by the University. Asbestos containing materials are registered in BMIS along with their risk, location, photo, and follow up actions. Asbestos containing materials are scheduled for re-inspection at least annually and after a known disturbance like planned maintenance or removal. Following re-inspection BMIS is updated and the electronic version of this plan is automatically updated.

2.2 Plan Review

University will review this plan whenever:

- an asbestos control measure is modified that affects this workplace
- asbestos material in this plan is removed, disturbed, sealed or enclosed
- five years have passed since the plan was last reviewed
- the plan is no longer adequate for managing the asbestos risks, for example, if new asbestos is identified or a previously inaccessible area is now accessible; and
- a worker representative requests a review when there is a change of circumstance as under the requirements of regulation 14 of the Health and Safety at Work (Asbestos) Regulations 2016.

3. Identification of Asbestos Containing Materials and Management Decisions

The table and figures in section 3.5 list the Asbestos containing materials identified in 312 - STUDENT COMMONS BLOCK E. Appendix 1 provides detailed information.

3.1. How asbestos containing material was identified

An asbestos survey is the primary means of identifying asbestos materials and collecting asbestos information at University. At University, must be completed by a competent surveyor with training and experience in undertaking asbestos surveys. Asbestos information may be identified and updated by the following assessment types:

- **Asbestos Management Survey:** A survey of all building items likely to be disturbed during routine use of a property. Excluded: spaces only discoverable by breaking or disassembling the building, equipment, and plant internals;
- **Asbestos Demolition or Refurbishment Survey:** An invasive asbestos survey where refurbishment or demolition work will be undertaken;
- **Localized asbestos inspection:** A localized small-scale management or refurbishment survey prior to small scale works or in response to the reporting of suspect material;
- **Contamination investigation:** on discovery of poor condition asbestos material to determine asbestos risk and controls;
- **Clearance inspection:** an independent inspection following asbestos work. For licensed asbestos removal work; and
- **Re-inspection survey:** Scheduled condition reassessment of known asbestos containing materials.

What a University asbestos management survey inspects

Unless this plan states otherwise for a specific space in the table and figures that follow, a University of Auckland management survey includes the inspection of:

- All in-use accessible building areas. That is, areas that can be accessed without breaking or disassembling parts of the building. It includes risers with doors; ceiling voids with moveable ceiling tiles; solid ceilings with access hatches; most roofs and external facades; lift shafts;
- Beneath carpet in representative locations. E.g. in the corner of a room or under a carpet tile. That is, most under carpet area is not inspected;
- Sampling of vinyl, waterproof membranes, and linings if this does not compromise waterproofing or other functional integrity and it is not an item of special significance like an artwork;
- Surfaces of building plant E.g. pipe lagging, the outside of ducts;
- External building envelope including roofs; and
- External built environment including driveways, poles, fences, but excluding gardens and lawn.

Spaces that could not be accessed during the survey (e.g. due to height or lock-out) are recorded as “inaccessible”. Very rarely only a part of a space is inaccessible, and this is noted next to the item (e.g. a locked cupboard, or a ceiling hatch that was slightly too small to access) fit in to inspect but maybe not). Inaccessible spaces are presumed to contain asbestos until verified otherwise.

3.2 How identified asbestos items are indicated

Records are the primary way of indicating the presence and location of asbestos containing items at University. Records for indicating asbestos:

- BMIS (University’s asbestos information system) is the primary record. BMIS includes the latest version of this plan and a searchable database for materials, their location, risk, and photos. Access to BMIS is available for contractors and staff with asbestos management roles (like faculty technical service managers, health and safety managers, building project and assets managers).
- The information in this plan. Staff can request a copy of this plan from their Faculty or Service Division technical or service manager;
- Staff intranet – the asbestos pages include a high-level summary of asbestos materials in University buildings;
- Maximo (building asset management software) generated work orders for contractors include asbestos information for the assigned workplace.

Supplementary ways to indicate asbestos containing materials may be used from time to time. Supplementary means are registered by Property Services and reviewed regularly to ensure they are up to date. Supplementary ways include:

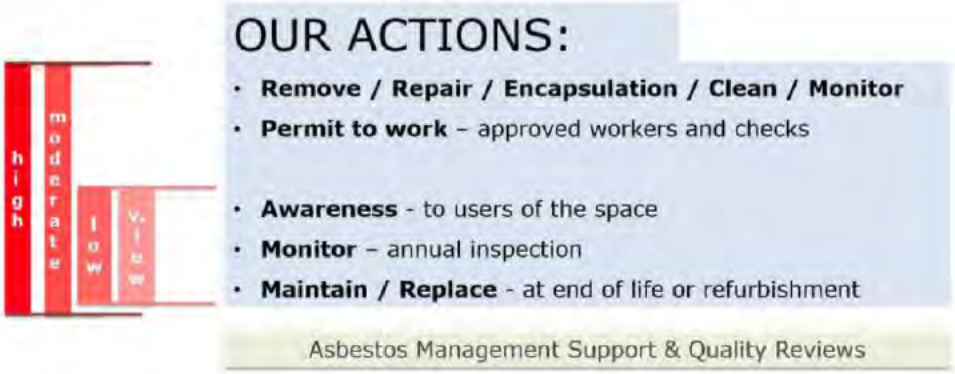
- Signs (e.g. “Permit to work required to enter”);
- Labels (e.g. an asbestos warning on plant room pipe lagging or gaskets);
- Colour coding (e.g. red paint to porous surfaces like concrete to indicate minor traces of asbestos residue may be beneath);
- Instructions for specific work areas provided at induction or through the Permit to Work process.

3.3 Decisions and reasons for decisions about how asbestos materials are managed

Asbestos management decisions are listed in the table of section 3.3.2 and noted in BMIS, the asbestos information system. Asbestos management decisions fall into two broad categories: remove items or manage-in-place. Manage-in-place materials are scheduled for re-inspection and review. Manage-in-place options include repair, seal, encapsulate, label, install lockout or barrier, instruction/training, or permit to work.

Reasons for asbestos management decisions are based on each materials asbestos Risk Rating (see below), a review by Property Services asbestos specialists and asset team, and discussion with faculty and service division operational mangers who represent occupants in the building.

Summary of actions based on the asbestos Risk Rating:



3.3.1 Asbestos Risk Rating

The asbestos risk rating is a sum of the asbestos Material Score (how readily a material can release asbestos fibre) and the Priority Score (which reflects in-use factors like occupant activity, maintenance activity, and likelihood of disturbance). Possible risk rating categories are high, moderate, low, very low.

List of Risk Rating categories for asbestos containing items:

Material Risk Rating
High
Moderate
Low
Very Low

3.3.2 Decisions for working with or near asbestos items by Risk Rating:

Asbestos Risk Rating	Scenario	Decision
All ratings	Work that requires **disturbing** an asbestos containing item	Asbestos Permit to Work required*
Moderate and High	Work **near** asbestos containing materials with moderate or high risk scores	Asbestos Permit to Work required*
Very low and low	All	Ok to work if unlikely to disturb asbestos
All ratings	NA	Annual re-inspection

* Notes:
(i) **In an emergency** a Permit to Work may not be practicable and other steps should be taken to ensure risks are identified, communicated, and managed. Also see procedures for managing incidents and emergencies below.

(ii) **Blanket Permits to Work** that apply to a task that is repeated long-term are not issued. For repeated minor maintenance and refurbishment project work an approved Standard Operating Procedure may be requested in place of a Permit to Work.

University's Asbestos Permit to Work system is managed as part of Property Services Restricted Work Permit system. The asbestos permit includes checks for worker competency and supervision, safe work method, communication, inspections, disposal of asbestos waste to an approved location, and the updating of asbestos records.

3.4 Asbestos Work Records

Asbestos work records are appended to the relevant building in BMIS and are visible to those with "manager view". Records include maintenance and project records like asbestos removal control plans, safe work methods, permit to work forms, air monitoring results, clearance certificates, waste disposal receipts.

3.5 Asbestos Items identified in 312 - STUDENT COMMONS BLOCK E

The following table and figures list the Asbestos containing materials identified in 312 - STUDENT COMMONS BLOCK E. Appendix 1 provides detailed information.

Table: Summary of asbestos items identified in 312 - STUDENT COMMONS BLOCK E with actions

Room	Item	Risk Rating	Recommended action	Frequency	Completion / review date
1					
312-180A	Insulation To Pipework	Low	Inspect	Annually	27-09-2020
312-174	Insulation To Pipe lagging and debris	Moderate	Inspect	Annually	27-09-2020
			Removal	One off	27-01-2020
312-174	No access To Incinerator	Inaccessible	Survey when accessible	One off	27-09-2023
312-175	Insulation To Pipe penetrations and blue and green pipe lagging	Low	Inspect	Annually	27-09-2020
312-175A	No access To Room	Inaccessible	Survey when accessible	One off	27-09-2023
312-171	No access To High level white and blue pipes	Inaccessible	Survey when accessible	One off	27-09-2023
312-100E1	No access to lift shaft	Inaccessible	Survey when accessible	One off	07-04-2020
312-100E2	No access to lift shaft	Inaccessible	Survey when accessible	One off	07-04-2020
312-100E3	No access to lift shaft	Inaccessible	Survey when accessible	One off	07-04-2020
2					
312-200E1	No access to lift shaft	Inaccessible	Survey when accessible	One off	07-04-2020
312-200E2	No access to lift shaft	Inaccessible	Survey when accessible	One off	07-04-2020

3					
312-300E1	No access to lift shaft	Inaccessible	Survey when accessible	One off	07-04-2020
312-300E2	No access to lift shaft	Inaccessible	Survey when accessible	One off	07-04-2020
4					
312-400E1	No access to lift shaft	Inaccessible	Survey when accessible	One off	07-04-2020
312-400E2	No access to lift shaft	Inaccessible	Survey when accessible	One off	07-04-2020
5					
312-501	Insulation To Old pipework	Moderate	Inspect	Annually	27-09-2020
			Encapsulate / seal	One off	27-01-2020
			Removal	One off	27-01-2020

"1" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 10 [Positive : 3, Inaccessible : 6, Negative : 1]

#	Item	Room
1	Insulation To Pipework	312-180A
2	Insulation To Pipe lagging and debris	312-174
3	No access To Incinerator	312-174
4	Insulation To Pipe penetrations and blue and green pipe lagging	312-175
5	No access To Room	312-175A
6	No access To High level white and blue pipes	312-171
7	No access to lift shaft	312-100E1
8	No access to lift shaft	312-100E2
9	No access to lift shaft	312-100E3



The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"2" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 9 [Positive : 0, Inaccessible : 2, Negative : 7]

#	Item	Room
1	No access to lift shaft	312-200E1
2	No access to lift shaft	312-200E2



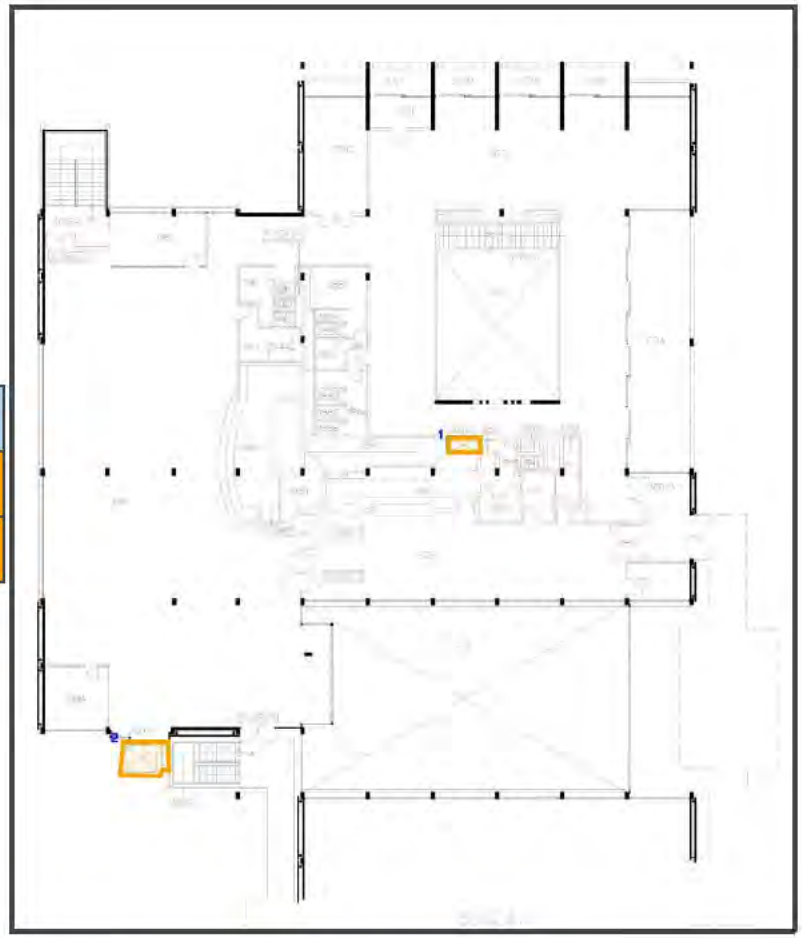
The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"3" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 3 [Positive : 0, Inaccessible : 2, Negative : 1]

#	Item	Room
1	No access to lift shaft	312-300E1
2	No access to lift shaft	312-300E2



The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"4" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 3 [Positive : 0, Inaccessible : 2, Negative : 1]

#	Item	Room
1	No access to lift shaft	312-400E1
2	No access to lift shaft	312-400E2



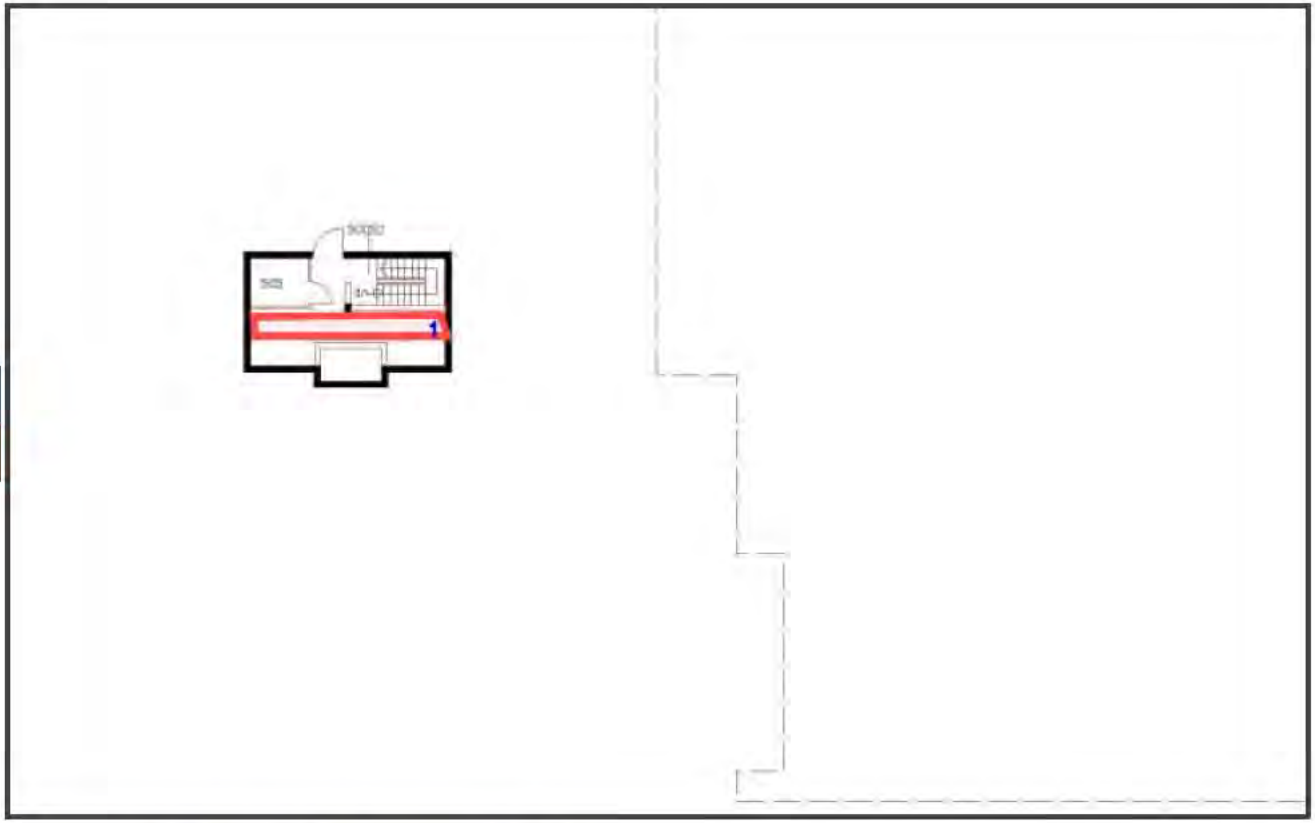
The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

"5" and ACM Locations

Plan Key : Positive or strongly presumed Asbestos | No Access

Total Number of Items : 1 [Positive : 1, Inaccessible : 0, Negative : 0]

#	Item	Room
1	Insulation To Old pipework	312-501



The details of items are attached in Appendix - 1 Detailed Material Information - Postitive and presumed items

4. Procedures for managing incidents or emergencies involving asbestos materials

For an asbestos incident or emergency, the primary University contact is the Staff Service Center, or afterhours Campus Security, who will escalate the incident. Additionally, contractors must follow the incident and emergency procedure in job-specific asbestos work plans.

Primary University Contact for an Asbestos Incident:

- **Staff Service Center (7:30am to 6pm) ext. 86000; 09 923 6000**
- **Security (after hours 6:00pm to 7:30am) ext. 85000; 09 923 5000**

Also inform your manager and if you are a contractor your University contact person as soon as practicable.

4.1 First response Actions

If there is an asbestos incident (e.g. where asbestos fibre is released or presumed to have been released without the required controls):

1. Stop work and clear the affected area of all personnel immediately. Leave contaminated items if safe to do so;
2. Immediately contact the Staff Service Centre, or if after hours Security, who will escalate the incident. Inform your manager, and if a contractor your main University contact person as soon as practicable;
3. Restrict access to the area. If safe,
    - Erect temporary signs and barriers
    - Restrict air flow closing doors, windows and turning off air conditioning if possible
    - Notify those near the immediate area of the incident and restriction
4. Personal decontamination: If any dust or debris is on a person or their clothing they should,
    - Remove contaminated clothing, damp it down, and wash themselves as soon as possible (don’t wash the clothing which risks spreading contamination).
    - Keep clothing in an airtight securely closed container for assessment and advice. Clearly label the container with an asbestos warning and store in a secure place.

4.2 Follow up Actions

Follow-up actions are incident dependent. Follow-up is managed and reviewed between the University Asbestos Group, Facilities, the Health Safety and Wellbeing Office, and by application of the Coordinated Incident Management System (CMIS). CMIS allows scaling and co-ordination with external agencies such as Fire and Emergency Services. For more information refer to the University Overarching Asbestos Management Plan. As part of the response:

- Complete the University incident form within 24 hrs. Available on the staff intranet or for contractors from your University manager.
- The Staff Service Center, or if after hours Security, will escalate the response which links to the University's Coordinated Incident Management System (CMIS).
- Property Services and/or the Health Safety and Wellbeing Office will arrange a risk assessment that involves an approved asbestos specialist. The assessment will confirm the extent of any contamination and exposure, remediation steps and actions before the area is re-occupied, lessons learnt and recommended improvement actions. It will review first-responder interim controls and communication and ensure access is appropriately restricted so that only suitable trained and qualified people enter the area with appropriate PPE. Material sample collection, air monitoring for lab analysis, and relaying information about potential exposure may be required.
- Re-entry: The area may only be re-entered when instructed by Property Services on advice from an approved asbestos specialist and as applicable the incident management team.
- Support and Health Monitoring as relevant (see below).

4.3 Investigation Information and Record Keeping

Asbestos incident investigations use the same investigation, reporting procedures, and recording systems as for general University incidents. Additionally, any building-related records (e.g. clearances, laboratory results, changes in asbestos condition) are uploaded to BMIS University's asbestos information system by Property Services.

Procedures and forms for University incident reporting and recording are available on the staff intranet. Contractors can request this from their University manager. Completed incident reports are submitted to managers or heads of department or service divisions for review before submission to the Health Safety and Wellbeing Office. The primary repository for incident reports and records is Vault, University's main Health and Safety information system.

Incident recommendations and lessons learnt are sent to operational managers with responsibility for the persons affected (e.g. Director of Faculty Operations; Service Manager) and to Property Services to inform asbestos management continuous improvement. Lessons learnt are considered for distribution to other groups as appropriate e.g. for contractor toolbox meetings or communities of practice.

5. Workers carrying out work involving asbestos – information and training

University requires all workers to demonstrate suitable competency and training before undertaking work near moderate and high-risk asbestos materials, or if disturbing or potentially disturbing lower risk materials. The information and training workers require is task specific. Information and training is checked through the Asbestos Permit to work system and contractor onboarding procedure. Inductions and guidance material provide general and basic asbestos instruction.

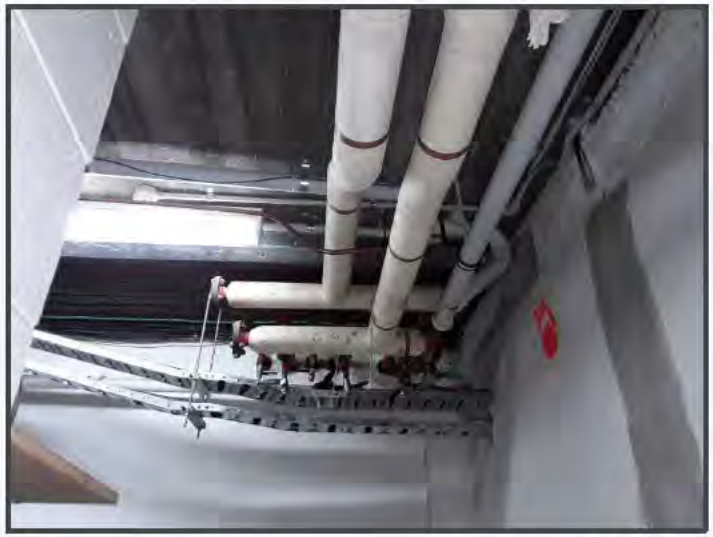
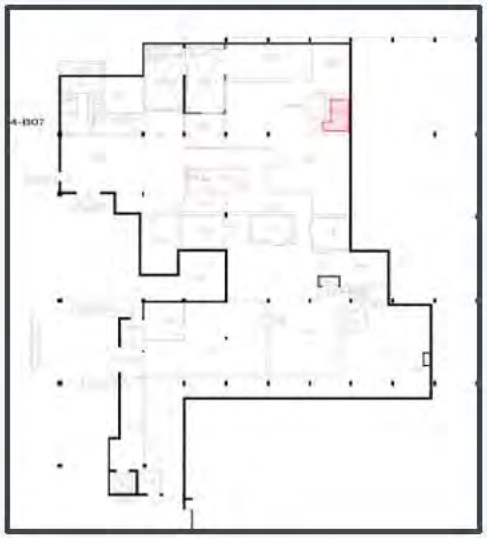
6. Worker health monitoring

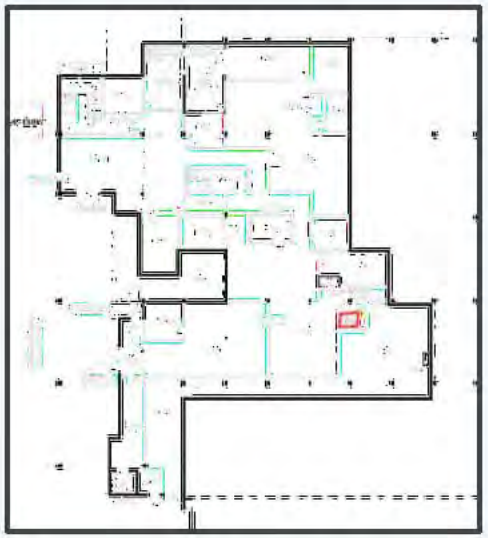
University employees should not carrying out work that requires them to disturb asbestos material. Therefore, asbestos related health monitoring is not be conducted as part of default health monitoring. If unintended exposure occurs that exceeds the workplace contamination standard for asbestos health monitoring and education will be offered to employees.

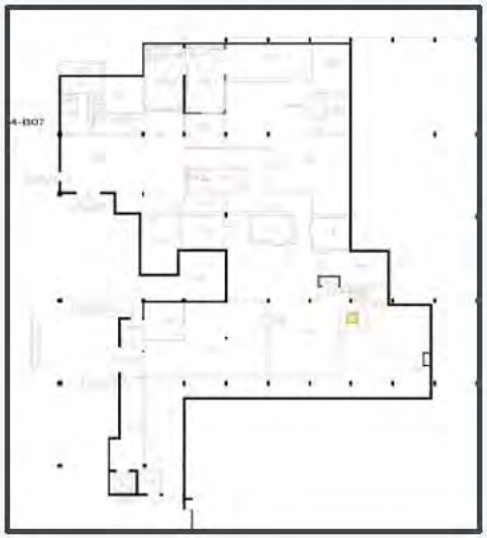
Appendix 1

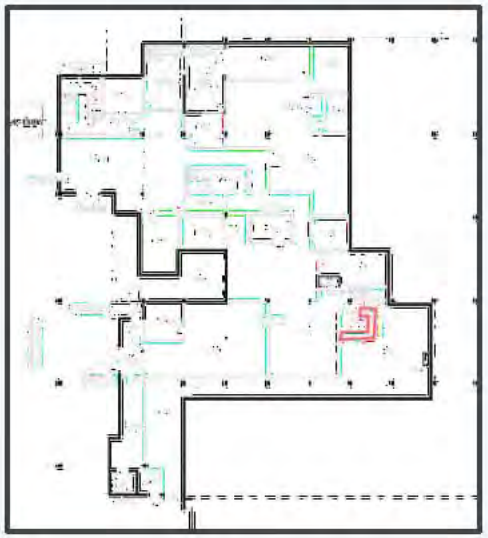
Detailed Material Information - Positive and Presumed items

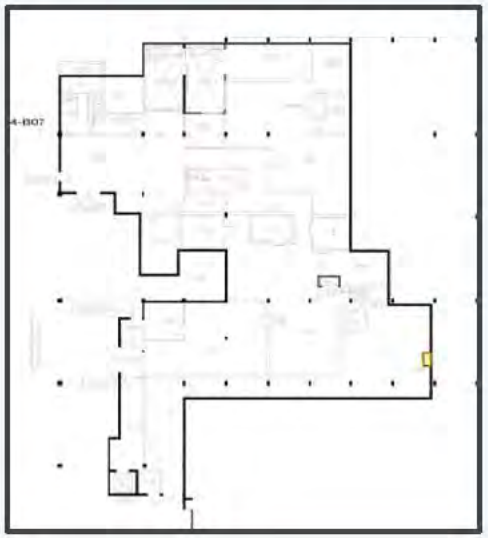
Level - "1"

Related Images Item & Floor plan for Level - 1	Item Details
	**Item Name**
	Insulation To Pipework
	**Room**
	312-180A
	Risk Rating
	Low
	Action
	Inspect

Related Images Item & Floor plan for Level - 1	Item Details
	**Item Name**
	Insulation To Pipe lagging and debris
	Room
	312-174
	Risk Rating
	Moderate
	Action
	Inspect, Removal,

Related Images Item & Floor plan for Level - 1	Item Details
	**Item Name**
	No access To Incinerator
	Room
	312-174
	Risk Rating
	Inaccessible
	Action
	Survey

Related Images Item & Floor plan for Level - 1	Item Details
	**Item Name**
	Insulation To Pipe penetrations and blue and green pipe lagging
	Room
	312-175
	Risk Rating
	Low
	Action
	Inspect

Related Images Item & Floor plan for Level - 1	Item Details
	**Item Name**
	No access To Room
	Room
	312-175A
	Risk Rating
	Inaccessible
	Action
	Survey

Related Images Item & Floor plan for Level - 1	Item Details
	**Item Name**
	No access To High level white and blue pipes
	Room
	312-171
	Risk Rating
	Inaccessible
	Action
	Survey

Related Images Item & Floor plan for Level - 1	Item Details
Image not provided	**Item Name**
	No access to lift shaft
	Room
	312-100E1
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

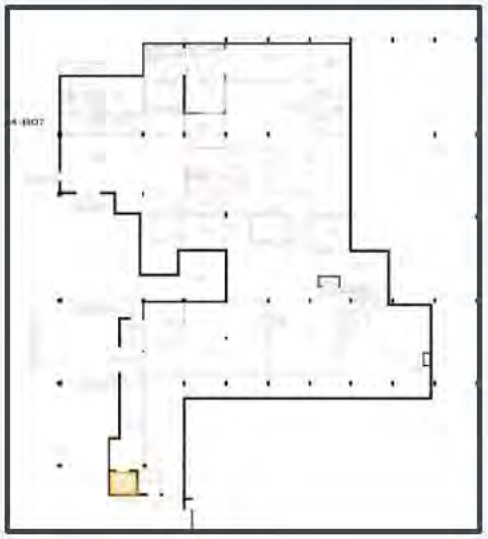
Related Images Item & Floor plan for Level - 1	Item Details
Image not provided	**Item Name**
	No access to lift shaft
	Room
	312-100E2
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

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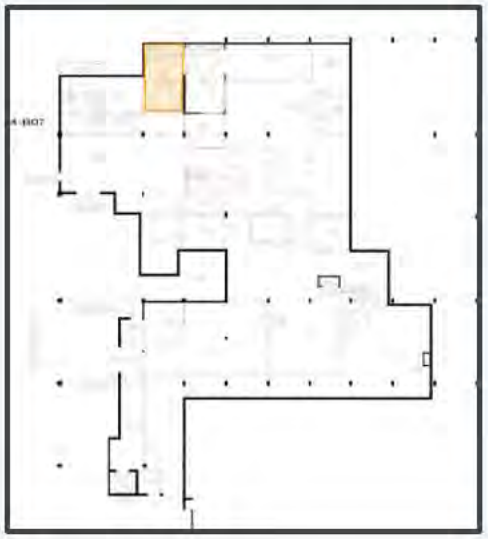
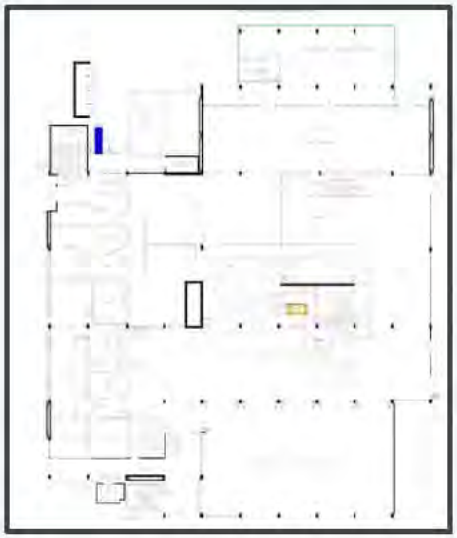
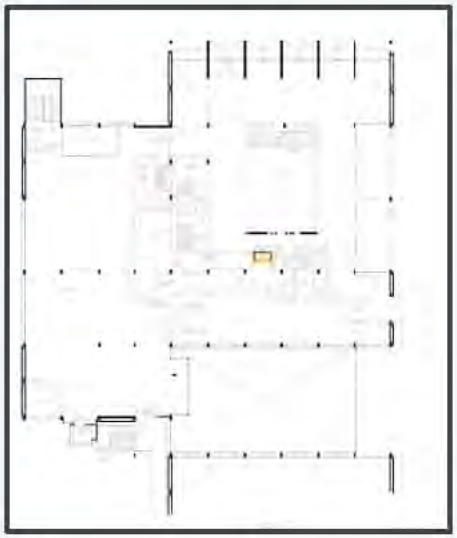
Image not provided	**Item Name**
	No access to lift shaft
	Room
	312-100E3
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

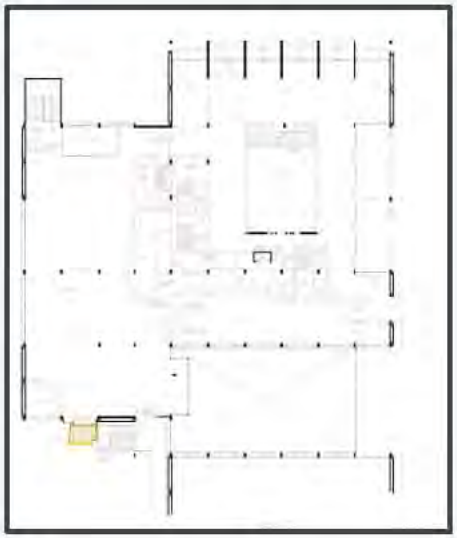
Level - "2"

Related Images Item & Floor plan for Level - 2	Item Details
Image not provided	**Item Name**
	No access to lift shaft
	Room
	312-200E1
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

Related Images Item & Floor plan for Level - 2	Item Details
Image not provided	**Item Name**
	No access to lift shaft
	Room
	312-200E2
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

Level - "3"

Related Images Item & Floor plan for Level - 3	Item Details
Image not provided	**Item Name**
	No access to lift shaft
	Room
	312-300E1
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

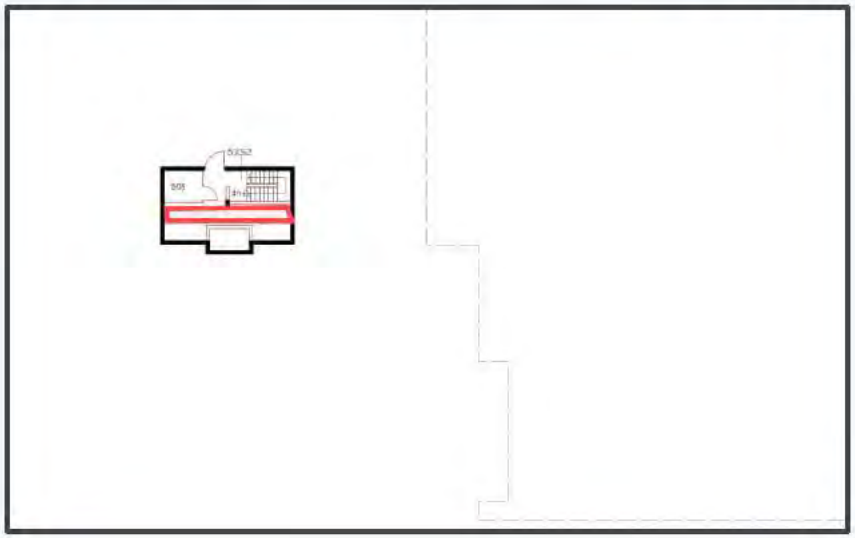
Related Images Item & Floor plan for Level - 3	Item Details
Image not provided	**Item Name**
	No access to lift shaft
	Room
	312-300E2
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

Level - "4"

Related Images Item & Floor plan for Level - 4	Item Details
Image not provided	**Item Name**
	No access to lift shaft
	Room
	312-400E1
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

Related Images Item & Floor plan for Level - 4	Item Details
Image not provided	**Item Name**
	No access to lift shaft
	Room
	312-400E2
	Risk Rating
	Inaccessible
	Action
	Survey when accessible

Level - "5"

Related Images Item & Floor plan for Level - 5	Item Details
	**Item Name**
	Insulation To Old pipework
	Room
	312-501
	Risk Rating
	Moderate
	Action
	Inspect, Encapsulate / seal, Removal,

Appendix 2

Record of Asbestos Items Removed from this Plan

#	Floor Level/Building Area	Item	Room	Location	Removal Date	Removal Notes
20727	1	Gasket -red To Metal encased pipework	312-175	312-175	25-02-2026	Asbestos removal conducted in 2020. Refer to clearance report for details.
20730	1	Gasket -green To Pipework valve	312-175	312-175	25-02-2026	Asbestos removal conducted in 2020. Refer to clearance report for details.

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University of Auckland:
Maidment Theatre
B313
Building Condition Assessment

Prepared by Salmond Reed Architects for
University of Auckland – Property Services
SRA Ref 2015-099 / October 2015



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Contents

1 Executive Statement

1.1	The Survey Brief	3
1.2	Purpose of the Report	3
1.3	Limitations of the Inspections	3
1.4	Historic Background	3
1.5	Summary of Findings & Recommendations	4

2 Description

2.1	The Building	5
2.2	Roof Coverings	5
2.3	External Walls	10
2.4	Timber and Steel Joinery	12
2.5	Interior	15

3 Condition Assessment

3.1	Roof Coverings	21
3.2	External Walls	25
3.3	Timber and Steel Joinery	28
3.4	Interior	29

4 Repair Recommendations

4.1	Roof Coverings	32
4.2	External Walls	34
4.3	Timber Joinery	35
4.4	Interior	36

Appendices

AppendixOne Original Drawings and Roof Plan

1 Executive Statement

1.1 The Survey Brief

The response to the brief for an assessment of the building fabric includes the current extent of defects in the existing external envelope of the building (roofs, walls, windows) and associated elements and fittings, and interior elements (walls, ceilings, floors and staircases).

1.2 Purpose of the Report

The purpose of this report is to impart the findings of the inspection of the building, to identify and explain the nature of the defects, and to provide recommendations on remedial works.

1.3 Limitations of the Inspections

The extent of our inspections has included the roof coverings, external elevations, and accessible internal areas.

Our inspections were undertaken during October 2015.

1.4 Historic Background

The theatre building was purposely designed as the Student Drama Centre for Auckland University by the Architects Warren and Mahoney and was officially opened in 1976.

The building was constructed as an extension of the Student Union buildings (also designed by Warren and Mahoney), and is linked internally from the foyer space accessed from the Alfred Street entrance to B311.

A major refurbishment had taken place in 1996 that saw the addition of the office spaces to the Albert Street elevation, an extended bar/waiting space for the Musgrove Theatre entrance and the installation of new theatre seats to both theatre spaces among other alterations.

The original drawings are appended to this report for reference to key architectural details and elements of construction (Appendix A).

The original drawings identify the long elevations facing North-East and South-West.

North-East Elevation, East End - Maidment Theatre Entrance Front via Student Union building (B311) at ground level (Alfred Street)

South-West Elevation, West end - Musgrove Theatre Entrance Front – Access from Princes Street ("The Quad" courtyard)

North-East Elevation – Adjacent to roadway (Alfred Street)

North-West Elevation – Adjacent to roadway (Princes Street).

1.5 Summary of Findings and Recommendations

There are nineteen separate roof areas, approximately half of which have coverings of bituminoous membrane laid to shallow falls that are less than the minimum requirement for surface water dispersal and the avoidance of ponding.

Large areas of existing membrane are in serviceable condition, although deficiences are concentrated at roof/wall junctions, roof perimeters and internal membrnae lined gutters.

Patch repairs are concentrated in these areas, particularly along junctions. Rather than ongoing patch repair, a better strategic repair proposal is required to extend the serviceable life of the roofs with the fewer inherent problems.

Localised repairs are required to insitu concrete walls, beams and stone-chip faced concrete panels, where cracks and corrding steel reinforcement is evident.

Steel framed windows exhibit deteriorated glazing putties and failing paint coatings. A comprehensive overhaul is required. Doors would benefit from localised repair and overhauling.

The interior exhibits in-use wear and tear. Of most significant concern is the incidence of water penetration within the orchestra pit. This requires further investigation.

2 Building Description

2.1 The Building

1. For the purposes of the University of Auckland protocol on building identification, the Maidment Theatre is separately identified as B313.

2. The building has a rectangular plan with a splayed North-East elevation parallel with Alfred Street (rather than the opposite elevation). It has three principal storey's split between two theatre spaces – the predominant space known as the Maidment Theatre, and the smaller space known as the Musgrove Theatre (originally the "Little Theatre").

2.2 Roofs

Roof Coverings:

1. There are nineteen separate roof areas over differing levels, forming numerous junctions at abutments.

   All roofs were checked for the angle of fall, including internal gutters.

   The individual roofs and gutters and their respective falls are shown on the roof plan (Appendix A). Roof areas are identified as follows:

   a) Roofs 1-4 comprise the main roof area above the Maidment Theatre, which is rectangular with shallow falls towards the north-east and south-west. Roof 1, the auditorium roof, runs perpendicular to roofs 2-4 and splays toward the south and east.

   b) Roof 5 - the roof area above the Musgrove Theatre. This is rectangular with a central apex and shallow falls towards eaves gutters (copper box-profile), and the central ducting roof.

   c) Roofs 6-19 are located over 'common areas' including offices, dressing rooms, stairs, utility rooms, bathrooms, and storage areas.

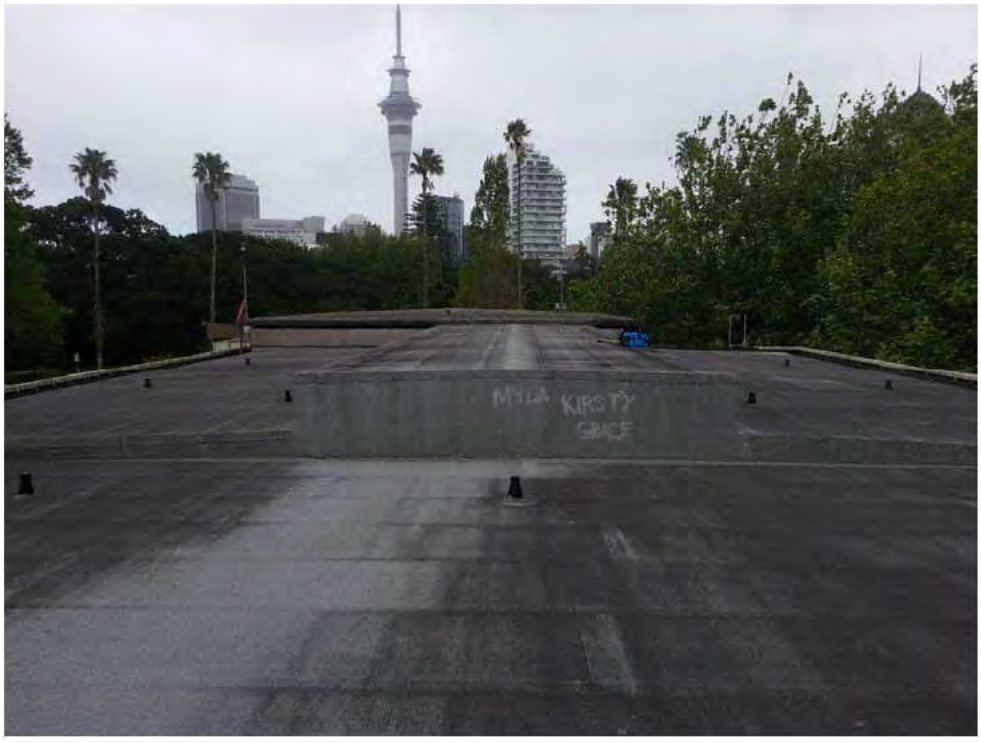


Fig. 1 – View of shallow-sloped roofs over the Maidment Theatre stage, central raised ducting roof, and the Musgrove Theatre roof to the rear.



Fig. 2 View of roof over auditorium adjacent to Student Union building (B311).



Fig. 3 View of roof to fire services room



Fig. 4 View of fibreglass reinforced liquid applied membrane strip 'repair' to the lower part of the wall overlapping the metal flashing

2. All roofs are shallow pitched and covered with a bituminous membrane comprising lapped sheets. Upstands and junctions are coated by a fibreglass reinforced liquid-applied membrane (Equus Dexx or similar acrylic coating), chased and fitted metal flashings or a combination of both.

   The original drawings identify Butynol roofing over two layers of *plycopyne sarking* to all roof areas. It is uncertain whether or not these original layers remain beneath the bituminous membrane.

   Roof framing includes both steel and timber construction.

3. Roofs 1-4 comprise the main roof area over the Maidment Theatre, which is rectangular with shallow falls towards the north-east and south-west. Roof 1, the auditorium roof, runs perpendicular to roofs 2-4 and splays toward the south and east.

4. Roof 5 - the roof over the Musgrove Theatre is rectangular with a central apex and shallow falls towards eaves gutters (copper box-profile) gutters, or directly onto the central ducting roof.

5. Surface water drains along the main roofs to internal parapet gutters at the north-east and south west perimeter edges, and along the internal gutter towards a 100mm diameter outlet that is covered by a perforated dome grate.

6. An overflow pipe is located on roof 7 to discharge to roof 8 below that in turn discharges to a single overflow rainwater head located at the eastern junction between the original building and the additional offices.

7. Some roofs are penetrated by copper ventilation pipes (original), new polypropylene roof cavity ventilation pipes and mechanical vents.

8. Perimeter upstands/parapets are covered with metal angle flashings that are bonded to the outer corners with sealant. These flashings are a comparatively recent installation.

9. The small addition of a fire services room beside the Musgrove Theatre loading doors has a covering of fibre glass reinforced liquid applied membrane directly over plywood sheeting.

10. There is no direct safe permanent access to the roofs.
    Access is by way of a temporary ladder only, to reach the small roof over fire services room (R9), and repositioned to reach a lower roof (R8).
    There is one fixed ladder that provides access from the lower roof (R8) to the main roof (R9).

    There are no harness anchor fixings to any of the individual roofs, and therefore safe access is restricted to a distance of 2metres from roof edges. Accordingly there is no safe access to perimeter gutters.

11. The glazed canopy to the South-West elevation is a modern addition of steel construction.
    The glazed roof falls away from the building into a smaller box profile gutter.
    Rafters have been individually fixed directly to the concrete fairfaced walls or the concrete beam.
    A continuous apron flashing is face fixed to the concrete surfaces to protect against moisture penetration to the walls and as a finish to the high end of the glazing panels.

Rainwater Disposal and Fittings:

12. Rainwater disposal from roof coverings to ground is via internal membrane lined gutters and external copper eaves gutters, which drain to original copper downpipes and additional uPVC downpipes.



Fig. 5 View of copper box gutter and copper downpipe



Fig. 6 View of internal parapet gutter to north-east elevation

13. The original drawings show that the rainwater downpipes from internal gutters to the north-east elevation are fixed to the interior side of concrete external walls along the loading dock bay, one of which is located between the double leaf doors (semi internal).
    Due to the extension of the loading dock bay these are now all internal and have been framed and lined with plasterboard restricting any further inspection of their condition. They discharge past the finished floor surface of the loading dock room.

14. The internal gutter along the south-west elevation has one copper downpipe mounted externally to the return wall.
    Two additional uPVC downpipes have been connected from the adjacent building (B311) and are directed to the internal gutter for discharging at this specific downpipe. It is unlikely that this single downpipe is adequate to take the discharge from additional roofs.

15. Eaves gutters to the Musgrove Theatre are copper box-profile secured to the front of wall faces by galvanised steel brackets.
    The box gutter is the most efficient profile, and is of sufficient capacity to cope with roof water.
    The brackets have a wide back plate and a narrow bar shaped to match the size of the gutter. Some of the copper gutters are separated from the galvanised steel brackets by stainless steel cover strips, to eliminate the risk of dissimilar metal corrosion.

    The arrangement of the eaves gutters are characterised by their projecting outlets to the downpipe locations. Rather than squared intersections at roof corners, the gutter profile extends by approximately 400mm to incorporate a dropper outlet.

The copper box gutters to the south-east elevation have copper downpipes cut short to discharge to the main roof below, whilst the north-west copper downpipes discharge to below ground level.

16. There is a single copper rainwater head used as an overflow outlet for the eastern end of the north-east internal gutters. The copper downpipe is cut short and fitted into a uPVC pipe. The uPVC pipe is redirected along the ceiling of the stage door access adjacent to the loading dock doors and connecting to a downpipe that finishes below ground level.

17. Internal gutters to the Musgrove Theatre foyer discharge into copper pipes (that have been painted gold), which are located to the interior perimeter of the foyer – original and extended spaces.

2.3 External Walls

1. The elevations along the Maidment Theatre face South West at full height and North East at high level only.
   The elevations along the Musgrove Theatre face South West at high level, North West at full height and North East and high level only.



Fig. 3 – View of South-West elevation – Red painted *fairfaced* concrete structure with moulded asbestos panels (upper level cladding) and concrete panels with stone chip finish (lower level cladding).



Fig. 4 – View of North-West elevation with full height concrete panels with stone chip finish and South-West elevation with moulded asbestos panels (upper level cladding). The 1996 splayed extension to the Musgrove Theatre foyer exhibits a red painted *fairfaced* concrete wall and full height glazing panels.

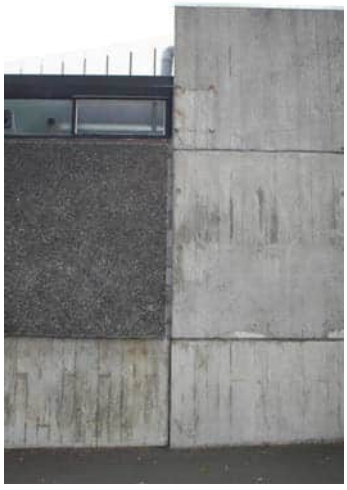


Fig. 5 – View of unpainted *fairfaced* concrete wall and concrete panels with stone chip finish along North-East elevation.



Fig. 6 – View of both moulded and flat cement based asbestos cladding profiles

2. The building is of reinforced concrete and concrete block construction.

3. External walls of cast reinforced concrete are located around the building. The surface impression of timber shuttering used to form the structure remain – this is referred to as *Fairfaced* in the original drawings - and surfaces were originally left

bare. Paint finishes on these faces are a modern treatment. These walls are either full height or form the footings for the concrete block walls.

4. Some lower level and full height elevations incorporate pre-cast reinforced concrete cladding panels with a textured surface of stone chippings. These panels are fixed at the head and base with mild steel cleats over the concrete block work structure with full height vertical copper flashings fitted between panels.

5. Upper level concrete block wall structures are clad with either a light weight flat asbestos cement sheet or moulded asbestos cement panels over timber framing.

6. The Musgrove Theatre foyer entry has a double leaf door with side lights that are as original. The original drawings indicate full height windows to either side of a large concrete ducting channel. This channel now separates the original foyer and the extended foyer spaces.

7. The splayed extension to the Musgrove Theatre foyer and the offices to the East corner of the building are not part of the original design. The use of full height glazing units is in-keeping with the original design intent, however these are fitted within more complex shapes and finishes (curved and with glazing terminating at corners without joinery elements.

8. Fibre cement sheeting has been used as cladding to cover previous openings, glazed walls, and for the fire services room.

2.4 Timber and Steel Joinery

1. The external window joinery is fabricated from steel profiles, whilst doors are timber or a combination of both.



Fig. 7 – View of the Maidment Theatre entrance and office extension built in 1996 with full height glazing panels with fanlights.



Fig. 8 – View of original horizontal band of steel joinery with copper sill flashing returning from north-east elevation (Dressing Room 1)



Fig. 9 – View of full height glazing units and timber doors to Musgrove Theatre

Window Joinery:

2. The external window joinery is fabricated in steel profiles.

3. The horizontal units across the North-East elevation are rolled cast steel and form a pattern of alternating fixed lights to top hung sashes.

   Top-hung units are fitted with three hinges and a single brass stay. The glazing is obscured glass.

4. The Musgrove Theatre foyer has a full height curving glazed wall to match the curve of the *fairfaced* concrete wall to the rear of the auditorium wall. The glazing is plain clear glass.

5. Windows and putties externally are painted gloss black. Some windows have not had their putties painted or have been re-puttied and left unfinished.

6. The glazing to the office addition are single pane full height vertical units with side hung openings and fanlights - fixed and top hung. Glazing to the office units is a combination of Georgian wire reinforced safety glass and plain glass.

External Doors:

7. Doors to the Musgrove Theatre are of timber construction comprising hanging and locking frames, and top, bottom and mid rails. Door leafs are fitted with a full height steel pull handle.
   The black steel fittings are both functional and aesthetic, the appearance of which matches the black steel window joinery.

   NOTE: This is also the style used in the Student Union Buildings adjacent to the Theatre – B311 and B312



Fig. 10 – View of fire exit to North-East elevation



Fig. 11 – View of Musgrove Theatre backstage doors and fire service room attachment

8. There are two sets of timber bi-fold loading bay doors – an "interior" and "exterior" set. This is not the original location of the doors and it is unknown if these are the original door leaves.

9. The backstage doors to the Musgrove Theatre are timber.

10. There are three retrofitted timber fire exit doors: one is located on the South-West elevation through the red painted fairfaced concrete wall (near the south corner); the second is on the North-East elevation through the plain fairfaced concrete wall (between the two theatre's backstage areas); the third is located adjacent to the loading dock doors.

11. Evidence of an original doorway to the South-West elevation remains in the concrete landing and differing cladding element covering over the opening.

2.5 Interiors

Ceilings:

1. Ceilings are a combination of exposed concrete soffits (of floors above), plasterboard, suspended particle board panels, shiplap timber and a commercial suspended ceiling with perforated acoustic ceiling tiles.



Fig. 12 – View of plasterboard and timber shiplap ceiling to the Musgrove Theatre Foyer



Fig. 13 – View of plasterboard ceiling to the Musgrove Theatre



Fig. 14 – View of suspended ceiling and concrete soffit ceiling to the Maidment Theatre Greenroom/Kitchen



Fig. 15 – View of plasterboard ceiling to Dressing Room 4

2. The exposed concrete soffits have a plywood shuttered imprint.

3. Plasterboard linings are secured to timber joists that form the roof or floor framing above, although without removing a sample this arrangement cannot be confirmed.

4. The Maidment Theatre auditorium features three ceiling levels:

    a. A series of particle board panels also provide a decorative feature with their wave like formation directly above the seating. These are painted blue.

    b. Above the blue acoustic panels there is another particle board ceiling that forms the underside of the working ceiling space containing HVAC ducting, gantries and lighting and sound equipment. This is painted black.

    c. The roof ceiling is located above both of these lower ceilings and is lined with plasterboard that is painted black.

5. The shiplap timber ceiling is only present in the Musgrove Theatre foyer. It is unclear whether this is an original ceiling finish.

6. The commercial suspended ceiling with perforated acoustic ceiling tiles is a later addition, most likely at the time the rooms that made up this area were converted into a single space. This ceiling type is only found in the backstage room and does not cover the entire ceiling. It is unusually fitted around the staircase and stops short over the kitchen sink and boiler unit.

7. The Musgrove Theatre ceilings are painted matt black and are heavily covered with ducting, lighting and sound equipment.

Walls and Partitions:

8. Original exterior masonry walls comprise either *fairfaced* (shuttered) concrete or concrete blockwork, all of which have a painted finish.

   Internal partitions are constructed of timber framing with plasterboard.



Fig. 16 – View of painted *fairfaced* concrete (foreground) and concrete block walls (background) to Theatre stage and auditorium



Fig. 17 – View of Maidment Theatre
Dressing room passage

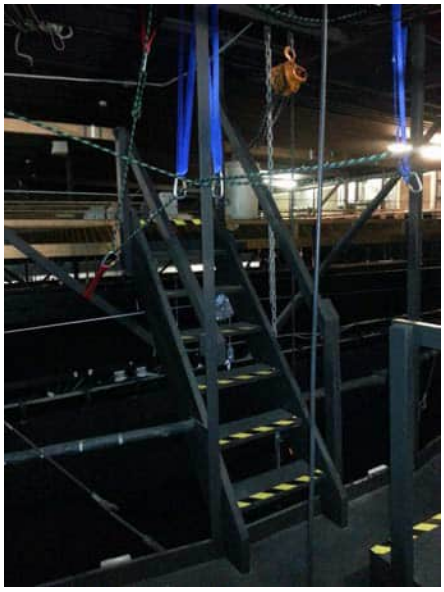


Fig. 18 – View of Maidment Theatre
ceiling gantries

9. The Maidment Theatre and the Musgrove Theatre stages are one floor level apart and the theatres are connected internally at two points: one is the passage way running adjacent to Albert Street from the loading dock of the Maidment to the Musgrove backstage room; the second is from the Basement level of the Musgrove to the stage floor of the Maidment.

   At both points they penetrate through concrete block walls.

10. The internal floor level of the Maidment Theatre (loading dock and stage) is approximately 1(low end) to 2.5metres (high end) below the external ground level of Albert Street.

    The South-West side and North-West entrances into the Musgrove Theatre spaces are level with the street level.

11. Partitions that form the dressing rooms, green rooms and related bathroom and stairwells are timber framed with a covering of painted plasterboard.

    Timber and steel window joinery to the dressing rooms are original. Some windows have had additional timber packers added between frames and sashes.

    Some steel posts between dressing rooms have been framed and lined around by plasterboard linings.

    Bathrooms have had updated plumbing features and plastic shower linings installed.

    Floor finishes have been updated, most likely during the 1996 refurbishment of the theatres.

12. The two level office addition to the east has timber internal partitions with modern plasterboard linings with paint finishes.

13. The extension to the Musgrove Theatre foyer has covered the original exterior concrete wall with a plaster finish. The back of the room has been separated by a timber frame and plasterboard lined wall with a paint finish.

    The original doorways into the theatre from the foyer were original two leaf openings that have been filled in and replaced: the theatre door with single leaf smoke stop door; the other with a simple hollow core door.

14. Gantries are built out of timber framing and particle board, and are also painted black.

There are no balustrades to the gantry's in the Maidment Theatre ceiling. A series of rope lines have been fixed to framing elements for securing staff against falls from height.

Floors:

15. Flooring types include tongue and groove timber flooring over timber framing and concrete formed floors and stairs. Finishes include paint, varnish, carpet, vinyl or bare concrete.



Fig. 19 – View of Maidment Theatre auditorium floors – hardwood tongue and groove and vinyl laid finishes

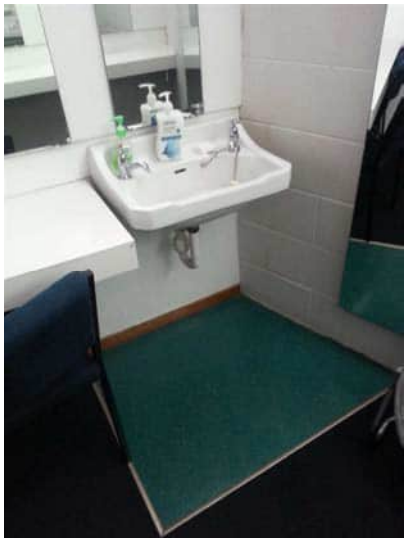


Fig. 20 – View of typical dressing room floor – carpet and vinyl linings

16. Floors of tongue and groove are located on stage floors, loading areas, side stages and seated areas.

    Stage floors are painted black and are a recently refurbished item.

    Floors to the auditorium are likely to be original, with a varnished finish.

17. Carpets and vinyl coverings have been replaced during a stage of refurbishment.

Internal Doors:

18. Internal doors include single leaf hollow core doors and single leaf timber smoke stop doors.



Fig. 21 – View of door from Maidment Theatre stage to Musgrove Theatre basement level



Fig. 22 – View of door from green room that leads to the loading bay

19. Smoke stop doors are a recent addition.

20. Hollow core doors are only in areas where staff and performers would be present.

21. There are a pair of timber bifold doors to the piano storage room that are similar to the loading bay doors only shorter in height.

Fixtures:



Fig. 23 – View of communal shower to the Musgrove Theatre backstage area



Fig. 24 – View of Men's bathroom in the Maidment Theatre dressing room level.

22. Fixtures and fittings include sanitary ware, and kitchen installations.

23. The building has a number of small bathrooms containing male, female and communal toilets and showers, located within the ground level of the Musgrove Theatre and the First Floor of the Maidment Theatre (which are essentially the same floor level)

24. Each dressing room has wall mounted dressing tables and a basin (Dressing room 1 has two basins).

25. There is a kitchen associated with the green room of the Maidment Theatre comprising a sink unit and worktop, gas hot water boiler and cabinetry.

26. Gantries are built out of timber framing and particle board, and are also painted black.

    There are no balustrades to the gantry's in the Maidment Theatre ceiling. A series of rope lines have been fixed to framing elements for securing staff against falls from height.

3 Condition Assessment

3.1 Roof Coverings



Fig. 25 – View of the Musgrove Theatre membrane roof with liquid applied membrane repair patches



Fig. 26 – View of the Musgrove Theatre membrane roof with a liquid applied membrane repair patch



Fig. 26 – View of the Musgrove Theatre foyer membrane roof with liquid applied membrane to upstands over flashings. Note the liquid membrane peeling from the left hand side.

1. The Musgrove Theatre roof has had four patch repairs of liquid membrane applied over the single layer membrane at corner lap joints due to continual moisture penetration issues. These are all located along the North corner from the apex to the gutter.

2. Upstands of membrane to adjacent concrete walls have had a liquid membrane applied over a chased coated aluminium steel flashing and painted over to match the wall surface colour. These appear to be in sound condition.

3. All roofs with a minimum fall of 1.5 degrees are appropriate for the membrane covering that has been applied.

   Roofs 6, 8, 10, 11, 12, 13, 14 and 19 have a fall that is less than 1.5 degrees, and these areas are at a risk of ponding.

4. There are wide spread areas of moss growth along upstands and internal gutters.

5. Liquid applied membrane upstands have begun to deteriorate, particularly to upstand junctions over the Musgrove Theatre foyer.



Fig. 27 – Example of moss growth along upstand



Fig. 28 – Example of moss growth along upstand junctions

Internal / Parapet Gutters:

6. The parapet gutters along the eaves and internal gutters between roofs have membrane linings with falls between 0 and 1.5 degree falls. This is an inadequate fall for the material used.

7. We understand that there has been a history of moisture penetration through the internal parapet gutters to the North-East eaves as evidenced by water staining marks to ceilings within dressing rooms beneath.

   These have been mitigated by the current membrane system.

8. The parapet gutter along the South-West eave was ponded at the time of inspection due to a foliage blockage around the grill. Once this was cleared the gutter was slowly able to drain.



Fig. 29 – View of the ponded South-West parapet gutter towards the high end.

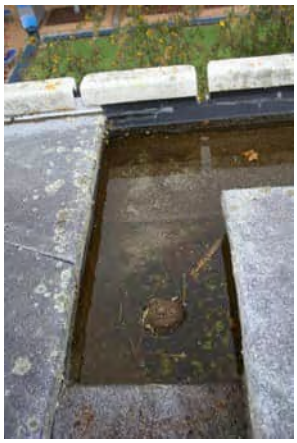


Fig. 30 – View of the ponded South-West parapet gutter at the outlet.

Copper Gutters:

9. The copper gutters are of high quality material, but in a rather dilapidated condition due to lack of maintenance.

   They have been altered slightly with the installation of the membrane roof – clips between section have been removed and not replaced.

   Several internal brackets have come loose from the wall leaving vulnerable holes in the membrane and the gutter unsupported.



Fig. 31 – View of copper gutter bracket from below – note stainless steel separator



Fig. 32 – View of two copper gutter sections meeting and missing their cover flashing

3.2 External Walls and Claddings

Fairfaced (shuttered) concrete walls:



Fig. 33 – View of fairfaced concrete wall with shadow of historic signage and remaining corroded fixings.

1. Paint finishes obscure the actual condition of the concrete surfaces beneath. However, there was no evidence of significant structural cracking in painted wall claddings.

2. The North-East bare concrete wall (running parallel with Alfred Street) has several hairline cracks and two patch repairs where concrete has fallen away along the horizontal control joint. Further along there is a small piece of concrete not far from falling away.

3. Old fixings or plastic lugs from fixings have been left from historic signage. Metal fixings have corroded.

Concrete Beams:



Fig. 34 – View of cantilevered concrete beam extending from the Musgrove Theatre roof over the control room and foyer.



Fig. 35 – View of concrete beam over Musgrove Theatre foyer with exposed and corroded reinforcing bar.

4. There are two areas of exposed corroded steel reinforcing where concrete has fallen away.

5. There are several areas of hairline cracking

6. A beam end to the North-East elevation of the Musgrove Theatre is not square and has a sever crack to the junction meeting with a perpendicular beam.

Concrete Panels (over concrete blockwork):

7. In general these panels appear to be in good condition.

8. Along the South-West elevation below the modern glazed walkway cover, the panels have been filled between each other with plaster. It is unclear if this has been done directly over the original copper flashings or if they were removed prior to sealing.

9. Along the remaining elevations the panels have vertical copper flashings. One flashing along the North-East elevation requires re-fixing.

10. Some chippings have fallen away to a north-east panel exposing steel reinforcing that has subsequently corroded.

Moulded Asbestos Panels (over concrete blockwork):



Fig. 36 – View of moulded asbestos panels from above.



Fig. 37 – View of cracked moulded asbestos panels from top edge.

11. The moulded asbestos panels have discoloured over time and have extensive lichen and foliage growth. There are approximately 3 panels that have cracked. Asbestos panels cannot be cleaned with any scrubbing or corrosive chemicals as they might breakdown and become an airborne hazard.

Flat Asbestos Sheets (over concrete blockwork):



Fig. 38 – View of external corner junction for moulded asbestos panels to flat asbestos sheet.



Fig. 39 – View of flat asbestos sheet trimmed around parapet junction.

12. The flat asbestos panels have discoloured over time and have extensive lichen and foliage growth.

Concrete Blockwork:

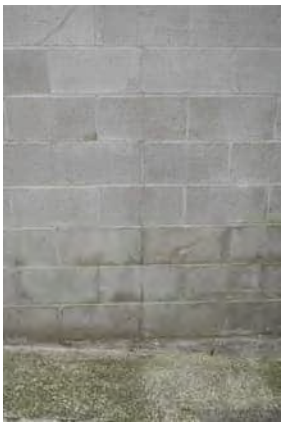


Fig. 40 – View of vertical crack to concrete block wall of office extension.



Fig. 41 – View of exposed and corroded reinforcing steel to block wall footing.

13. There are two vertical cracks and an exposed piece of reinforcing bar to the bare concrete block wall to the office extension.

3.3 Timber and Steel Joinery

Steel Windows:

1. Steel windows have poor paint coatings.

2. Window putty's have deteriorated, cracked and subsequently failed.

3. The original horizontal band of window joinery exhibits varying levels of surface corrosion to steel frames.

External Doors:

4. Timber doors to the backstage/loading dock areas are in working order, but should be overhauled.

5. Fire escape doors need to be inspected for their working order and will therefore require the alarms to be temporarily disabled.

6. The door frame to the North-East elevation fire escape has been subject to water ingress.

The opening for this fire escape has been finished poorly and rendering around all edges is heavily cracked. The concrete to the threshold is originally the interior slab and has exposed corroded reinforcing steel.

7. The historic door threshold to the South-West elevation is in poor condition with an uneven surface and exposed nail fixings.

3.4 Interior

Ceilings:

1. Plasterboard linings are cracked along joint lines.

2. Deterioration of plasterboard linings is common where edges meet bare concrete or concrete block walls.

3. There are several water stain marks from moisture penetration to various areas, whether these are historic leaks or new is not known. However, water stains occur at junctions where the roofs above have had a history of leaking.

   Several stains in the dressing rooms have been painted over. The fresh paint highlights these previously stained areas.

4. Linings that surround the concrete posts and beams in the office extension have been fitted poorly and have split severely at corners.

5. The roof ceiling to the Maidment Theatre auditorium shows signs of paper layers peeling from the plasterboard.

6. The commercial suspended ceiling with perforated acoustic ceiling tiles found in the backstage room does not cover the entire ceiling. It is unusually fitted around the staircase and stops short over the kitchen sink and boiler unit. Ceiling tiles around the staircase junction have torn.

7. Tapes used to seal around ducting equipment has frayed and peeled away in isolated areas exposing fibres and will cause further deterioration of the tape over time.

Walls and Partitions:

8. External walls are difficult to assess due to their painted surfaces and poor lighting conditions.

9. Concrete block walls have vertical cracking occurring to several areas throughout the building. The most common areas include - but are not limited to - basement level walls and first floor walls.

10. There are two below-ground areas of concern with external walls:

    a) Below the external fire exit door to the North-East elevation there has been a substantial amount of fairfaced concrete wall deteriorate due to moisture penetration and continued saturation of the wall.

    b) The concrete block wall to the orchestra pit has a severe leak that is decaying the door frame and ponding the close-by water grates. There is an over-exposure of salts and possibly an oil like substance that has built up on the wall, floor and timber surfaces.

11. Partitions have a lot of general wear and tear as to be expected for their age. There are several hairline cracks, holes, dents and scuff marks.

12. The two level office addition internal partitions are in a better condition due to their age. However, the lining over the exterior concrete block wall has severe rot occurring beside the window joinery. This could be due to a leak from the concrete block wall junction above or from the adjacent window joinery.

13. Plasterboard ceilings to the Musgrove Theatre foyer are cracking at wall junctions to the original concrete air duct. The shiplap boards have started to slump and decay around the internal downpipe.

14. Particle board is swollen in areas where there have been moisture penetrations. The gantries have several areas where particle board has been worn away.

Floors:

15. Tongue and groove timber flooring is in overall good condition with typical marks from shoes and equipment.

16. The stairs between landings for gallery seating access have side boards splitting and coming away from their frames.

17. Carpets to dressing rooms five and six are already pulling away at seams and bundling forming uneven surfaces and trip hazards.

18. Finishes to treads and risers of stairs have moved away from edges and several nosings push forward and downwards when walking downstairs.

19. Vinyl coverings to the Orchestra Pit have been stained with an oil residue from the hydraulic floor lift.

Internal Doors:

20. Internal doors are generally in good working order, albeit subject to the typical wear and tear of regular use.

21. Openable doors exhibit two forms of wear and tear, including physical damage to timber edges and in some, but not all cases, poorly functioning hardware.

Fixtures:

22. The small bathrooms containing male, female and communal toilets and showers have been refurbished in the past and are in general good order. Some timber elements have swelled due to over exposure to moisture or have decayed from excess soap discharging and splashback.

23. Wall mounted dressing table joinery is in poor condition. There are additional brackets installed to hold up the tables and siliconing applied to edges has failed and torn away.

24. Finishing timber beads to timber joinery in dressing rooms have peeled from substrates.

25. Some hand basins to dressing rooms have cracked.

26. There is a kitchen associated with the green room of the Maidment Theatre comprising a sink unit and worktop, gas hot water boiler and cabinetry.

27. Mains service pipes are severely corroded at junctions where insulating materials have become brittle and fallen away.

28. Timber handrails have parted at butt joints at the left corner junction of Staircase 2.

29. The timber handrail to the front row gallery seating is loose.

30. Seating upholstery is heavily worn to arm rests and top edges, and notable tears to sides.

4 Repair Recommendations

4.1 ROOF COVERINGS

The following repair requirements and recommendations are made in respect of the existing shallow-sloped roof coverings:

Membrane Roofs:

1. Approximately half of the roof areas have a fall that is less than the minimum industry standard requirement of 1.5 degrees for jointed membranes.

   These roofs were originally designed for butyl membrane coverings, which were comparitively thin (around 1mm) with flat laps, whereas replacement bituminous membrane coverings are typically three to seven times thicker (depending upon layers). This additional thickness along lapped joints results in the increased incidence of ponding (standing water), and the consequential risk of moisture penetration over time.

   Complex junctions covered by older bituminous membrane are also a risk because the joints within these locations fail before the sheet material itself.

Patch repairs (utilising fibreglass reinforced liquid-applied membrane) along lapped joints and to complex junctions are a temporary measure that targets specific leaks – because of the ease of use in urgent situations. Additional metal flashings are also evidence of ongoing failures.

This reactive approach to repair typically becomes cyclical – ie every time a new leak appears, and consequently the patching increases. This however does not provide a long term remedial solution.

Rather than selectively targetting the poorest laps and junctions for temporary repairs, the prudent approach would be to establish a programme of membrane repair or replacement of problematical junctions where roofs have suffered the most leaks. This approach would allow the large areas of membrane covering that are in a servicable condition to function for longer (ie as an alternative to wholesale replacement). Careful consideration would be needed to avoid an inapproapriate piecemeal approach, and it would be preferable to identify grouped roofs of similar condition to establish coherent areas for repair.

Those roofs currently laid to a fall less than 1.5 degrees would need to be reviewed for re-decking at the time they become due for replacement, in order to comply with good material practice and warrantable work.

2. Internal gutters similarly require careful consideration where these are replaced in conjunction with individual or groups of roofs, to ensure that inadequate falls to outlets are improved.

3. The internal gutter that is severely ponded should be rebuilt to an improved fall and relined with new membrane.

Eaves Gutters and Downpipes

4. The existing copper eaves gutters require overhauling – work that would included the following:

   - Replacement of internal gutter clips;
   - Repair and refixing of external gutter clips.
   - Brazing of all splits and open joints.

Protection

5. The extent of works to the roof coverings will necessitate a temporary protection against weather ingress over critical internal spaces.

6.

4.2 EXTERNAL WALLS

The following repair requirements and recommendations are made in respect of the external claddings and concrete wall construction:

Fairfaced concrete framework, walls and stone-chip concrete panels:

7. Hairline cracks within shuttered concrete walls require further investigation to determine the cause – these defects are most evident along the Alfred Street elevation. Fine cracks may be concealed beneath painted concrete surfaces.

8. There are numerous fine corroded steel wires that project from the face of shuttered concrete walls. This is not an uncommon occurrence, and the wires are left over from the timber shuttering. These should be cut back, drilled out where practicable and the concrete made good.

9. There are only a few locations where stone chips have become detached from the face of concrete cladding panels, and this has exposed rusting steel reinforcement. These locations require localised repair – cutting out around steel rods, cleaning, treating, and mortar repair with new bedded stone chips.

10. Investigate and repair structural cracking to concrete beam.

Asbestos Cement Cladding Panels:

11. The asbestos based cladding panels cannot be easily maintaned because of the risk of disloging fine material (fibres and dust particles). Whilst operatives can wear suitable protection, there is an element of public risk. It is therefore difficult to scrape back moss and lichen growth without encountering the risk described.

Removal of asbestos based components is an established practice which can be undertaken safely – for operatives and public. We would recommend that replacement panels be planned for the medium – long term, preferably using an alternative material of the same thickness and profile to recognise the importantance of the original architectural design intent.

Fixings – All Elevations

12. There are a number of redundant signage fixings which are corroding, and these should be core dilled and made good with a repair mortar.

If these are neglacted, the corroding steel will expand and damage the concrete.

4.3 TIMBER AND STEEL JOINERY

The following repair requirements and recommendations are made in respect of the steel windows and timber doors:

Windows

13. Overhaul openable window fanlights to leave in good working order.

14. Replace the defective glazing putty to steel window frames, and repaint.

Doors

15. Overhaul timber doors as required.

4.4 INTERIOR

The following repair requirements and recommendations are made in respect of the interior elements, fixtures and fittings:

16. The most significant concern for the building interior is the penetrating water within the orchestra pit corridor. The ponding of water on the concrete floor is located adjacent to the loading deck (at a slightly higher level).

    To determine the source of this water penetration requires a more intensive internal / external investigation to identify if the source is linked to ground water, leaking service pipe, or defective internal rainwater pipe.

17. There are several areas to ceiling linings that have suffered from water penetrations from previous roof leaks or have cracked along joint lines. Junctions where plasterboard linings meet with masonry walls have swelled due to moisture transfer.

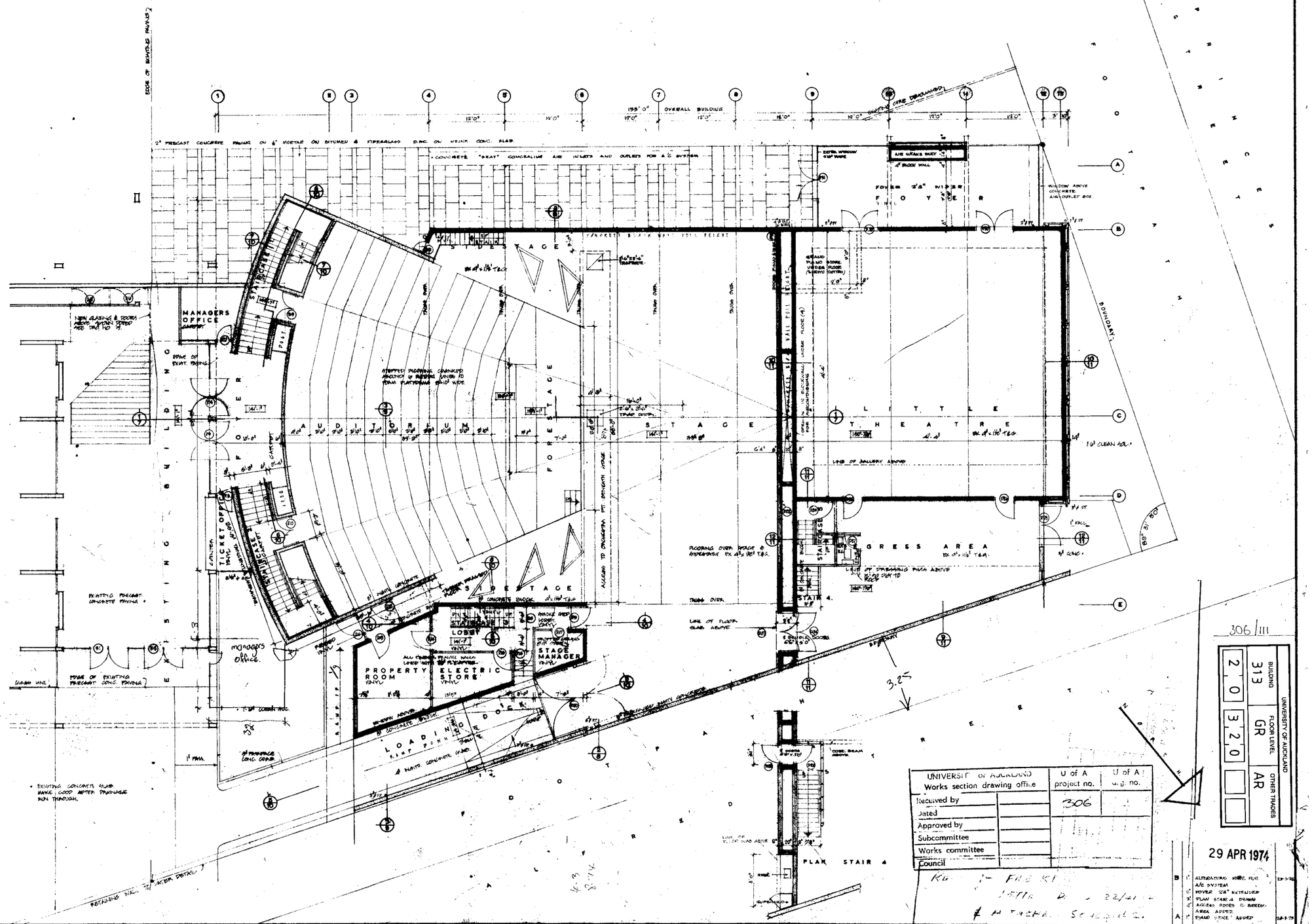
    Localised making good of these surfaces will improve the appearance to these locations.

18. We recommend that the handrail to the front row gallery seating be re-secured to the balcony substrate.

19. Steps to the various gallery seating levels require re-building and making good of split timbers.

20. Remaining conditions internally are mainly issues of wear and tear.

SALMOND REED ARCHITECTS



REN & MAHONEY
STERED ARCHITECTS
CHRISTCHURCH

HOLMES, WOOD & POOLE — CONSULTING STRUCTURAL ENGINEERS
R. L. LEFEBVRE — CONSULTING MECHANICAL ENGINEERS
MAINDONALD & ASSOCIATES — CONSULTING ELECTRICAL ENGINEERS
RUSSELL, DRYSDALE & THOMAS — QUANTITY SURVEYORS

THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE

DESIGN: DRN: TRD: CHD: APD:
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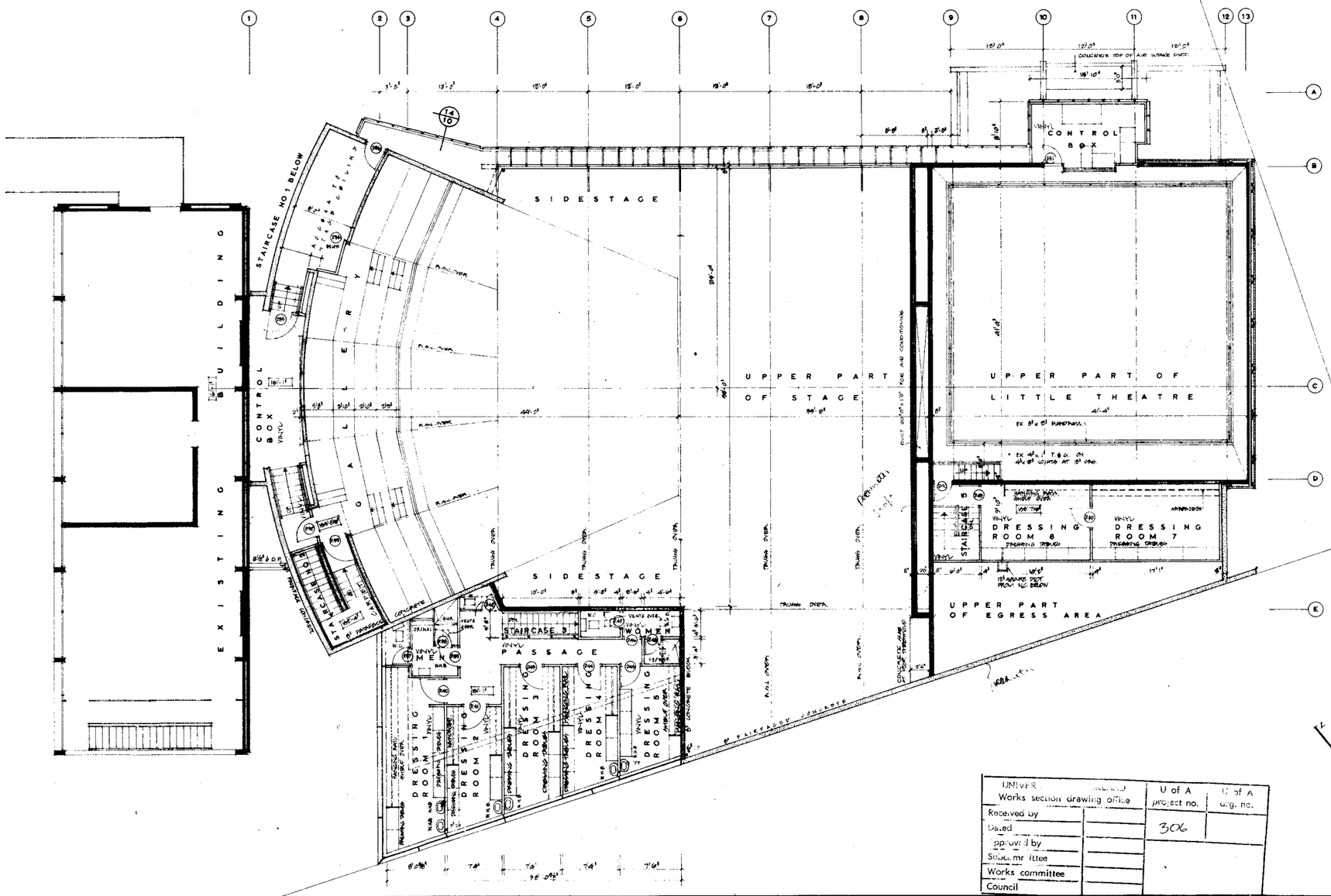

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A 1" ALTERATIONS DRAWN FOR A/C ROOF POWER 2'8" EXTENDED

WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	HOLMES, WOOD & POOLE R. L. LEFEBVRE MAINDONALD & ASSOCIATES RUSSELL DRYSDALE & THOMAS	CONSULTING STRUCTURAL ENGINEERS CONSULTING MECHANICAL ENGINEERS CONSULTING ELECTRICAL ENGINEERS QUANTITY SURVEYORS	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	DESIGN DRN : TRD : CHD : APD :	SCALES 1/8" = 1'-0"	DATE A AUG '72 MAR '74	FIRST FLOOR PLAN	FILE	DRAWING 2 A

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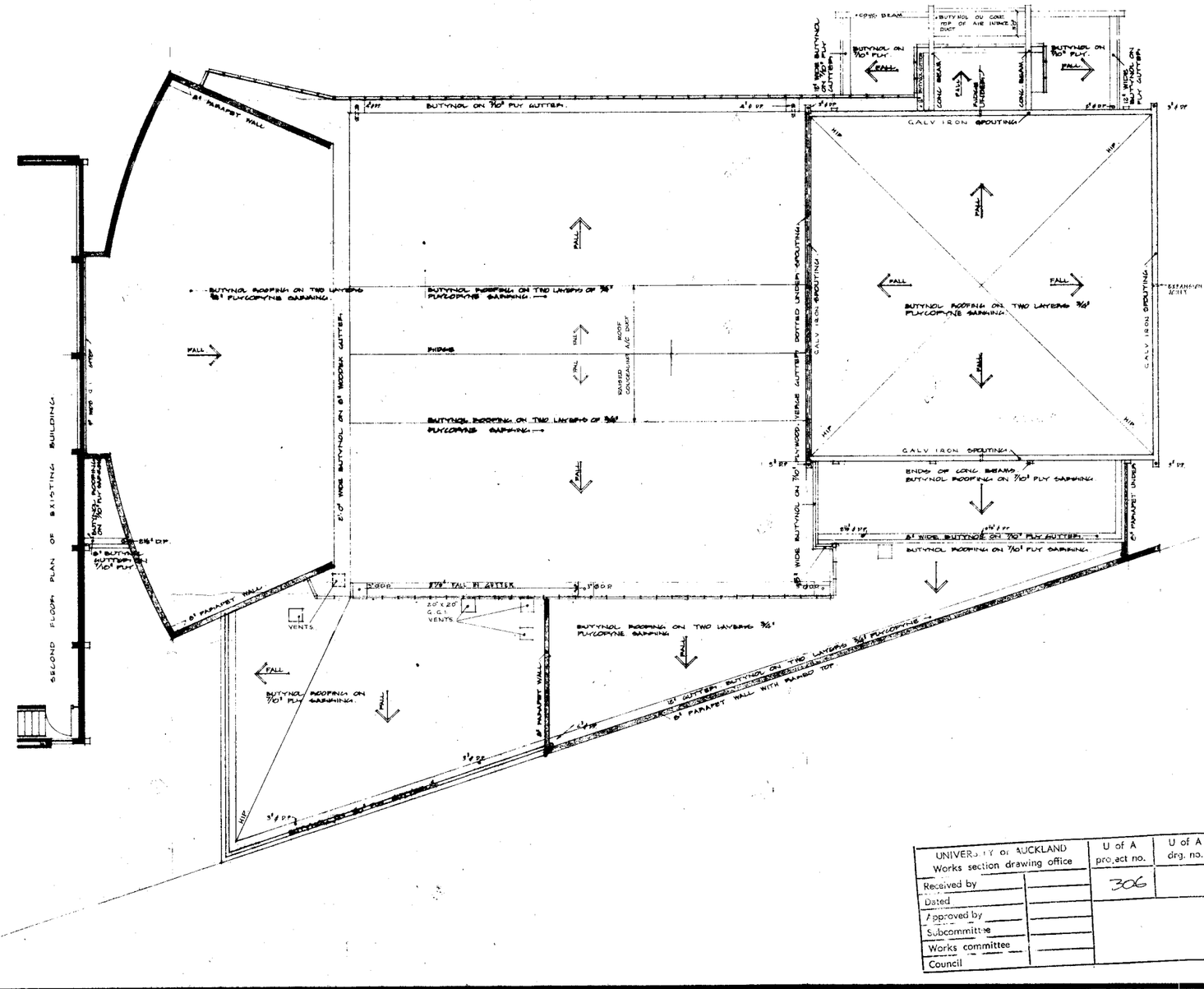
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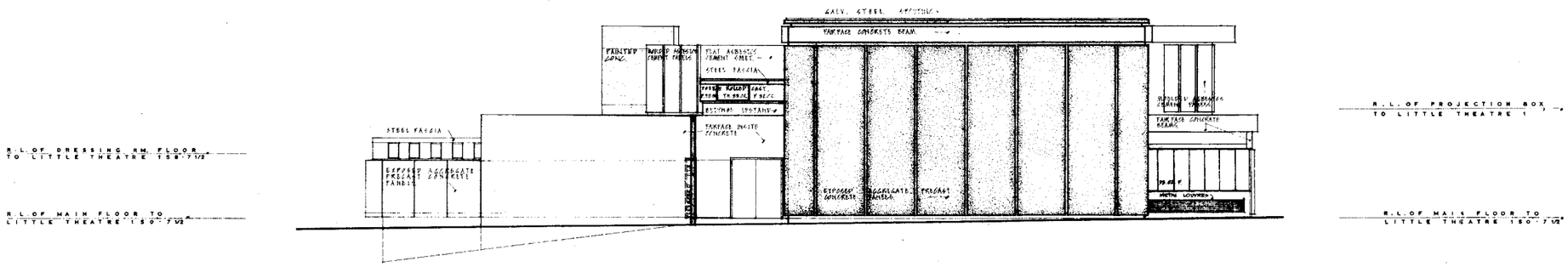
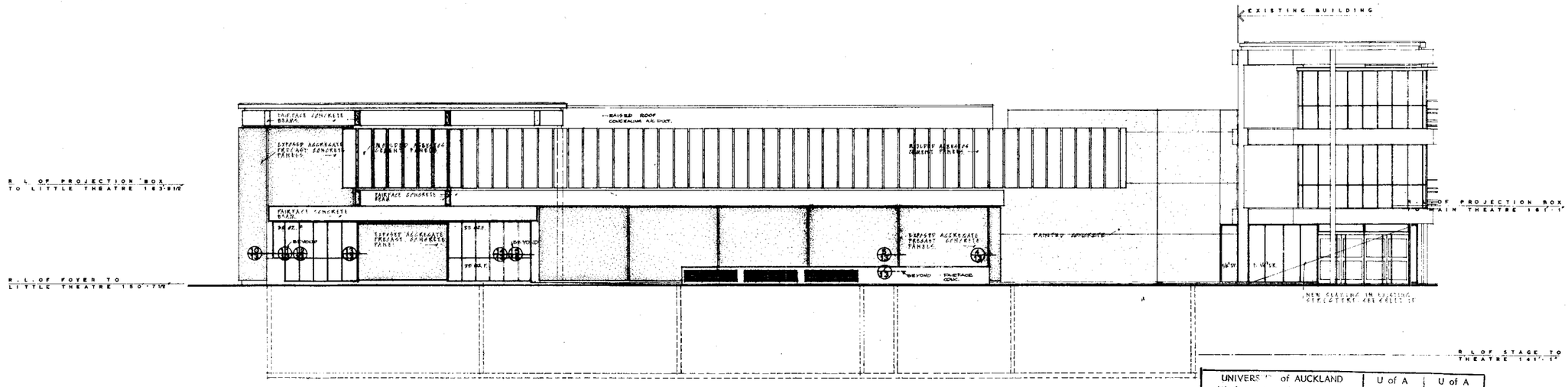


NORTH WEST ELEVATION



SOUTH WEST ELEVATION

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A 1" PLANTROOMS DRAWN
2" RAISED ROOF FOR A/C SYSTEM ADDED.
3" WINDOWS FOYER LITTLE THEATRE ALTERED.
4" AIR CONDITIONING LOUVRES ER ADDED.
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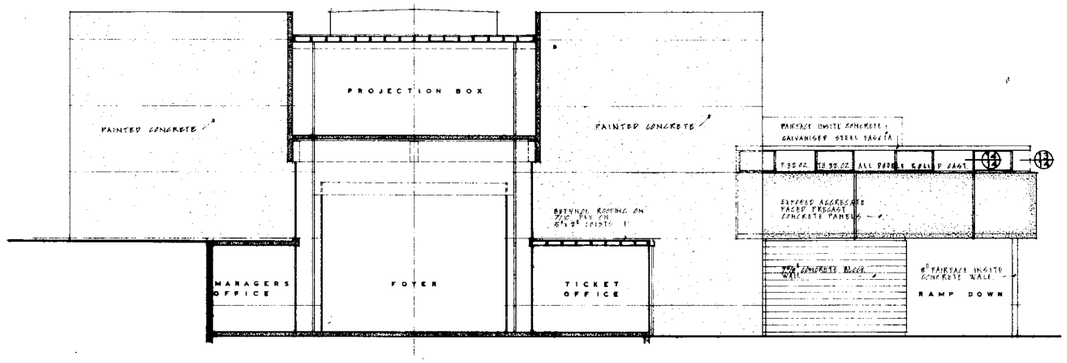
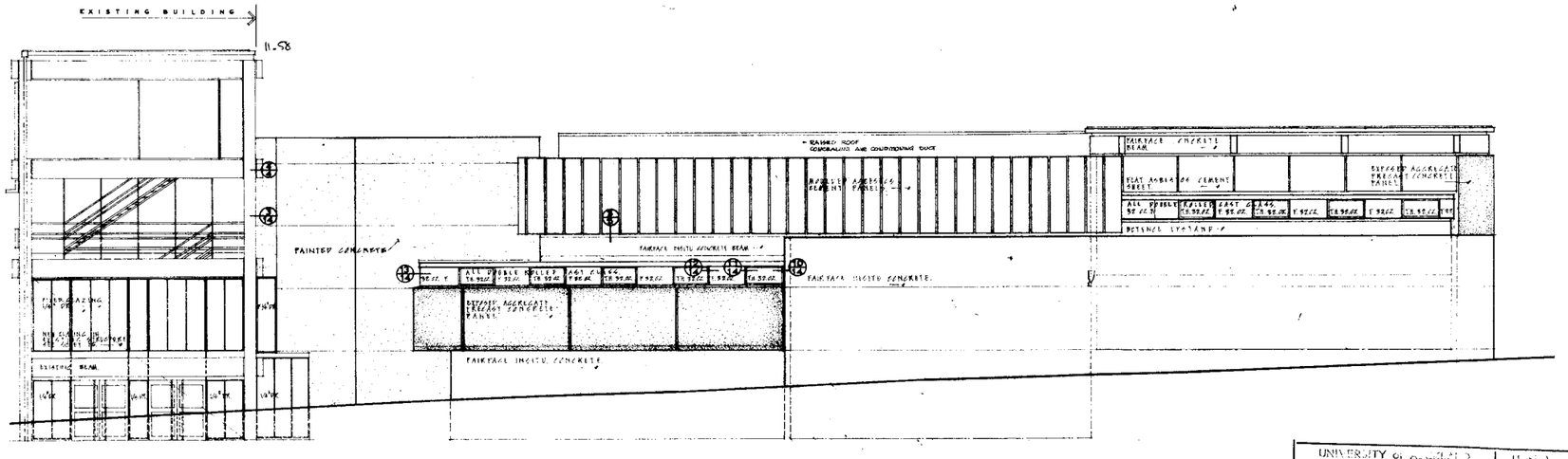


SOUTH EAST ELEVATION



NORTH EAST ELEVATION

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Council			

A 1" RAISED ROOF FOR A/C SYSTEM ADDED

WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	HOLMES, WOOD & POOLE R. L. LEFEBVRE MAINDONALD & ASSOCIATES RUSSELL, DRYSDALE & THOMAS	CONSULTING STRUCTURAL ENGINEERS CONSULTING MECHANICAL ENGINEERS CONSULTING ELECTRICAL ENGINEERS QUANTITY SURVEYORS	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	DESIGN DRN : TRD : CHD : APD :	SCALES 1/8" = 1'0"	DATE A AUGUST '72 MAR '74	SOUTH EAST AND NORTH EAST ELEVATIONS	FILE	DRAWING 6 A

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

UNIVERSITY of AUCKLAND Works section drawing office		U of A proj. no.	U of A drg. no.
Received by		306	
Dated			
Approved by			
Subcommittee			
Works committee			
Council			

BUILDING	FLOOR LEVEL	OTHER TRADES
313	01-	AR
2,0	3,7,0	

SECTION 1/1

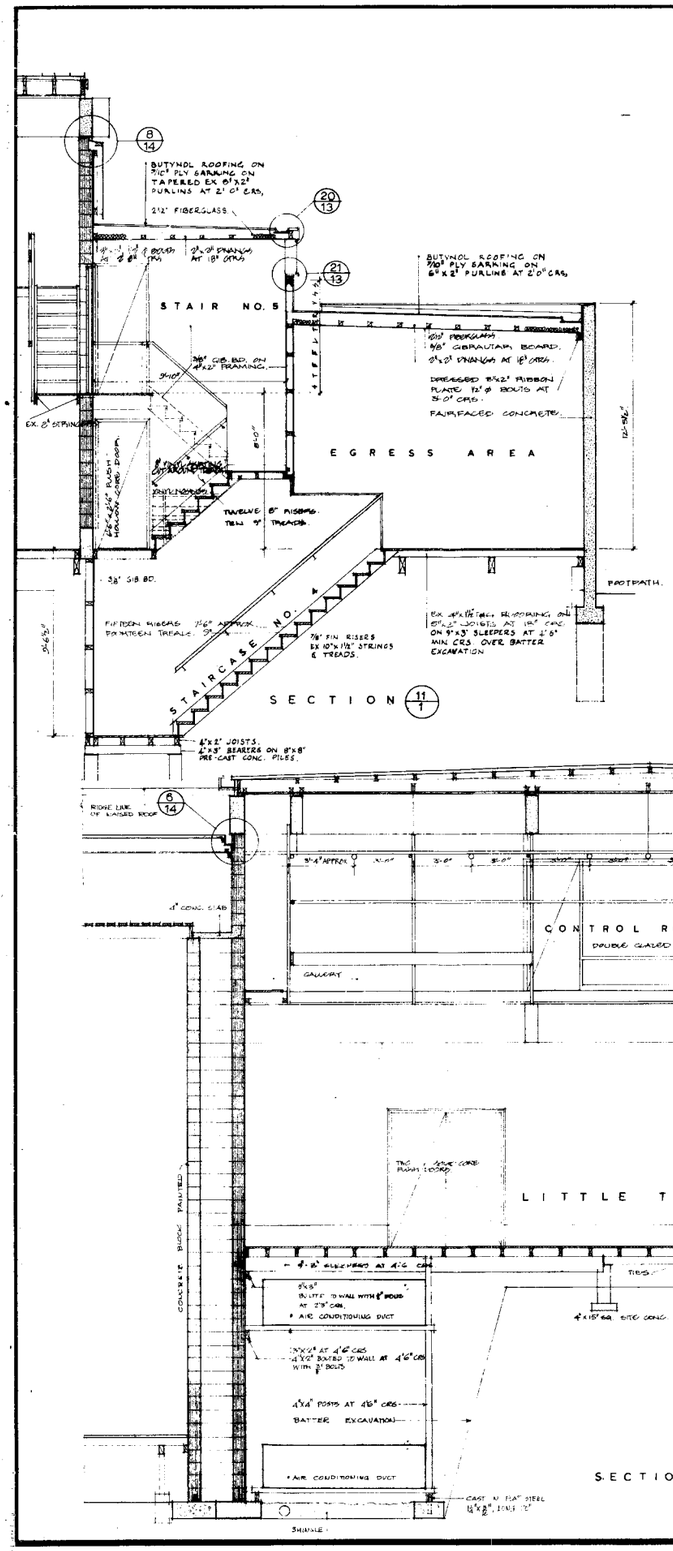
ELEVATION PIANO STORE

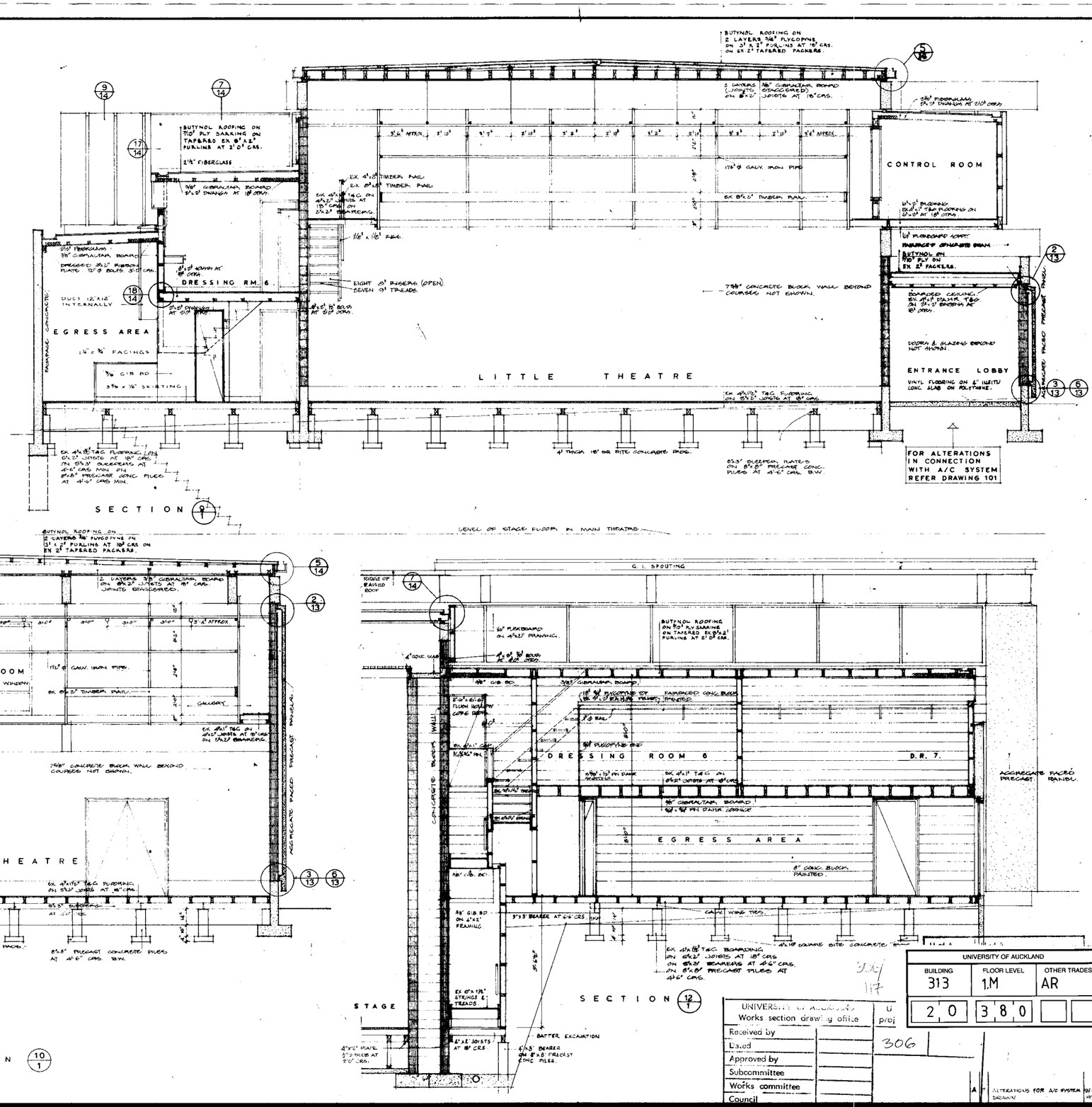
CROSS SECTION

U of A Proj. No.	U of A Drawing No.
306	116

WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	HOLMES, WOOD & POOLE — CONSULTING STRUCTURAL ENGINEERS R. L. LEFEBVRE — CONSULTING MECHANICAL ENGINEERS MAINDONALD & ASSOCIATES — CONSULTING ELECTRICAL ENGINEERS RUSSELL DRYSDALE & THOMAS — QUANTITY SURVEYORS	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	DESIGN: DRN: TRD: CHD: APD: SCALES: 1/4"= 1'-0" 1/8 F.S. DATE: AUG 72; A FEB 73; B MAR 74 SECTION 1/1 FILE DRAWING 7 B

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK





UNIVERSITY OF AUCKLAND

BUILDING	FLOOR LEVEL	OTHER TRADES
313	1.M	AR
2 0	3 8 0	

UNIVERSITY OF AUCKLAND
Works section drawing office

Received by	
Dated	
Approved by	
Subcommittee	
Works committee	
Council	

U proj 306

A ALTERATIONS FOR A/C SYSTEM DRAWN 1974

WARREN & MAHONEY
REGISTERED ARCHITECTS
CHRISTCHURCH

HOLMES, WOOD & POOLE — CONSULTING STRUCTURAL ENGINEERS
R. L. LEFEBVRE — CONSULTING MECHANICAL ENGINEERS
MAINDONALD & ASSOCIATES — CONSULTING ELECTRICAL ENGINEERS
RUSSELL, DRYSDALE & THOMAS — QUANTITY SURVEYORS

THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE

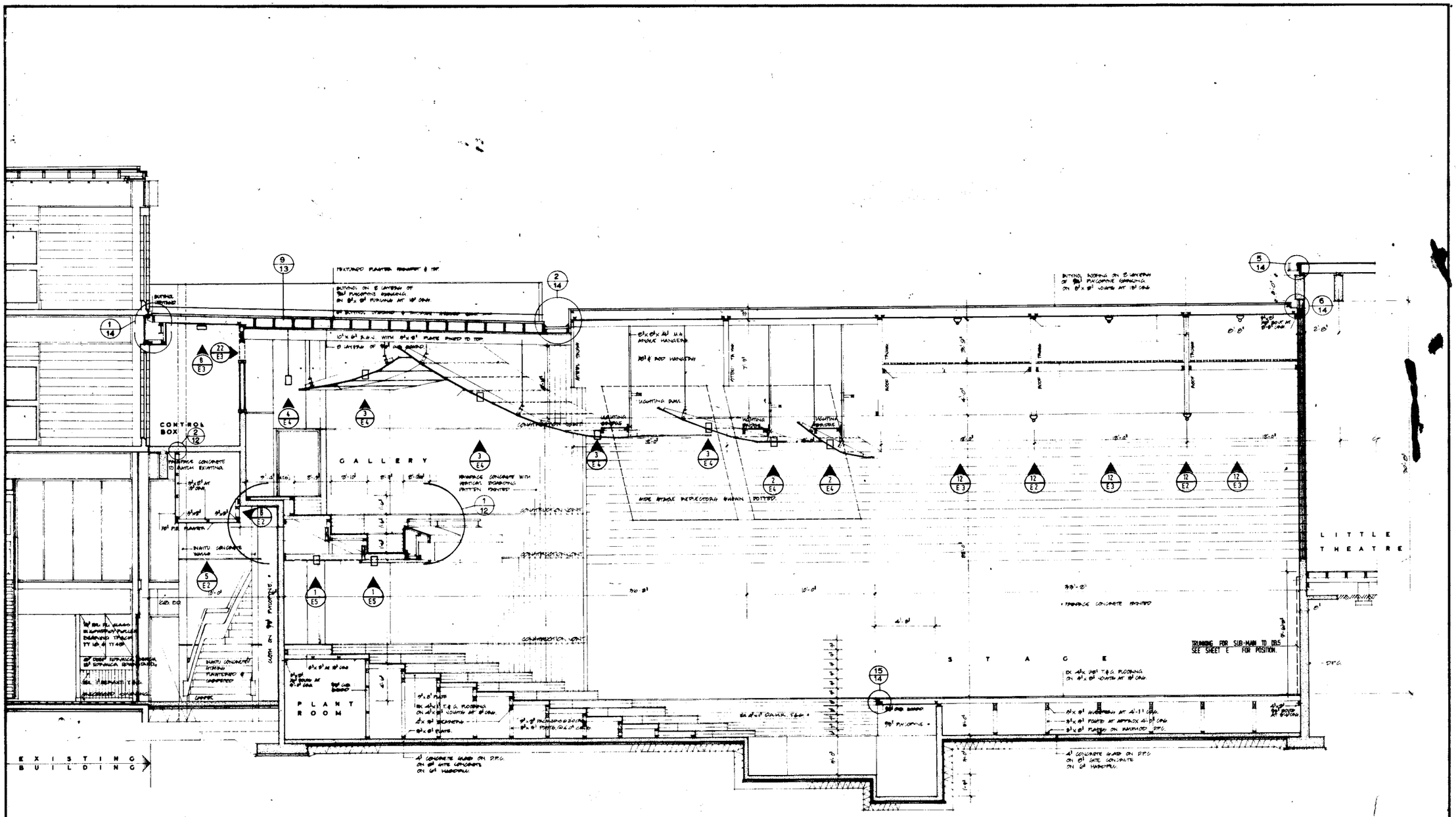
DESIGN	SCALES	DATE
DRN :	1/4" TO 1'0"	A AUG 72
TRD :		MAR 74
CHD :		
APD :		

LITTLE THEATRE SECTIONS 9/1 10/1 11/1 12/1

FILE

DRAWING 11 A

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

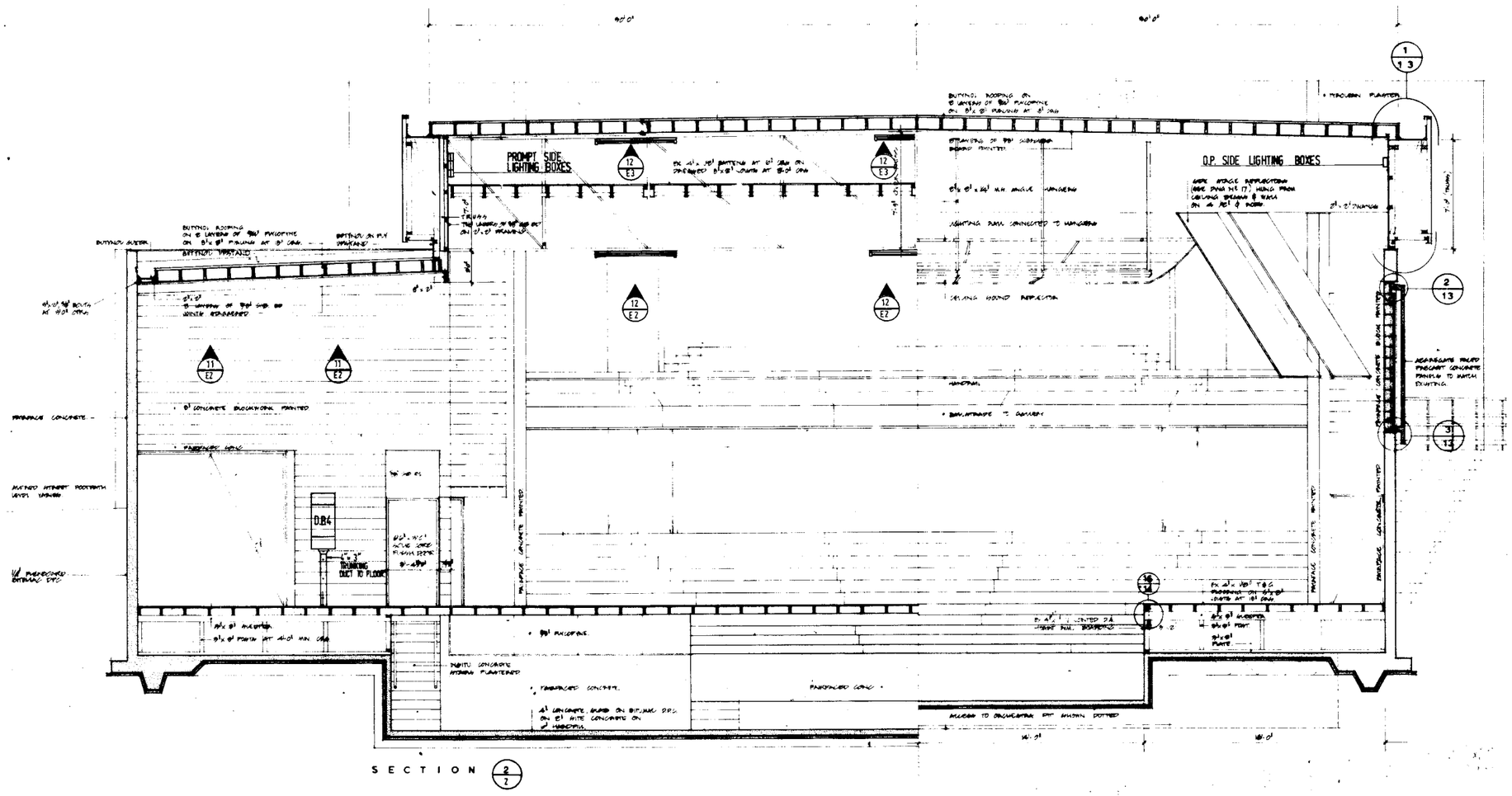


BUILDING	FLOOR LEVEL	OTHER TRADES
313	GR	EL, AR
6,1	0,8,0	

313/E41
AS BUILT

WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	HOLMES, WOOD & POOLE — CONSULTING STRUCTURAL ENGINEERS R. L. LEFEBURE — CONSULTING MECHANICAL ENGINEERS MAINDONALD & ASSOCIATES — CONSULTING ELECTRICAL ENGINEERS RUSSELL BRUSDALE & THOMAS — QUANTITY SURVEYORS	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	DESIGN: DRN: TRD: CHD:	SCALES: 1/2 - 1'-0"	DATE: OCT, 1972	SECTION 1/2	FILE: J1468	DRAWING: E7

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



BUILDING 313 | FLOOR LEVEL GR | OTHER TRADES EL, AR

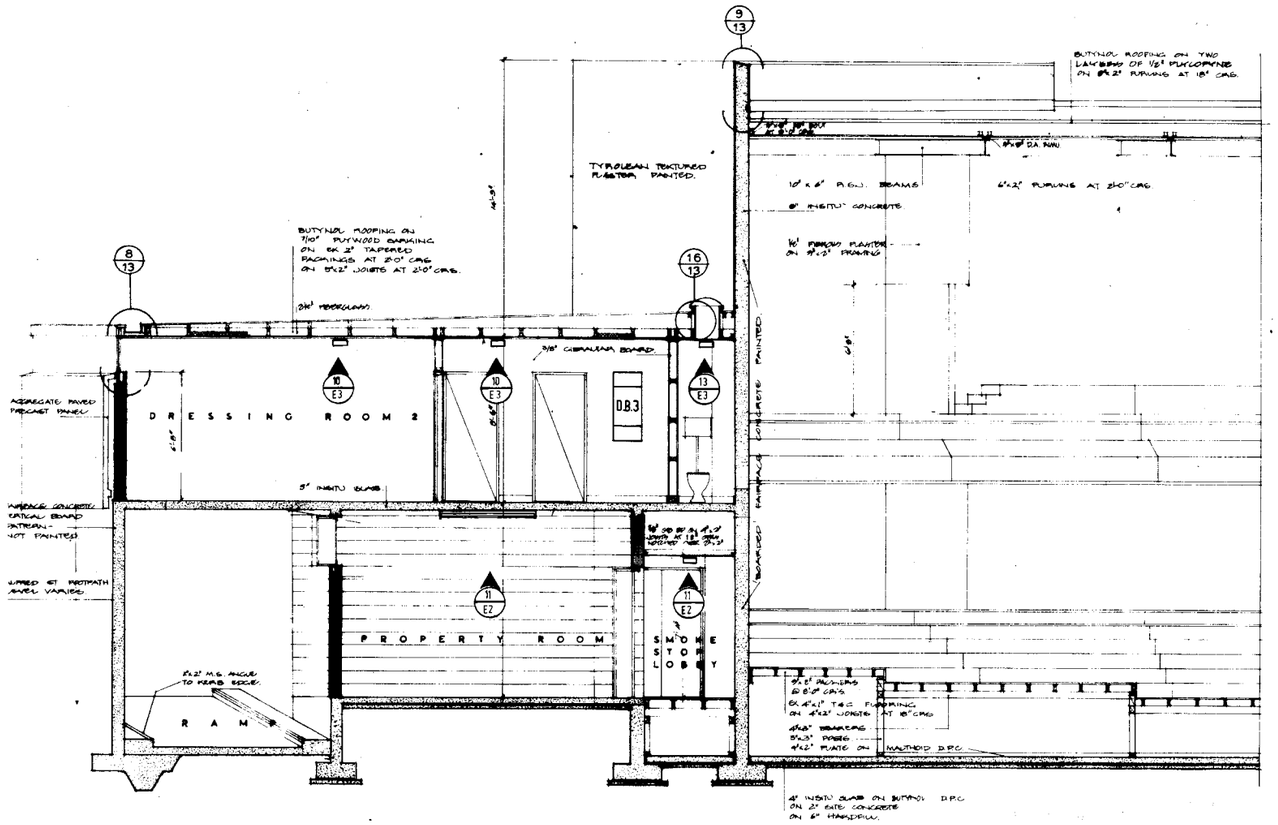
6 1 | 0 9 0

AS BUILT

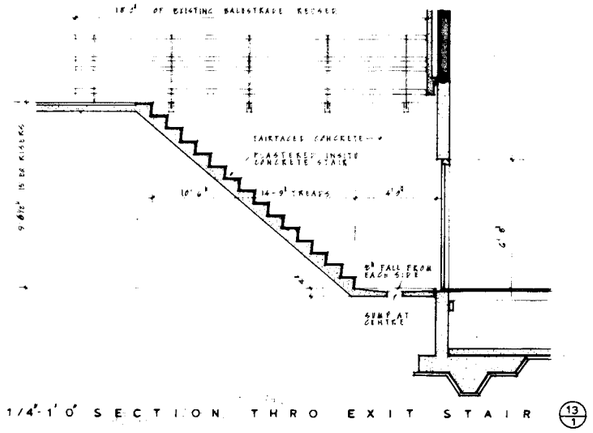
WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	HOLMES, WOOD & POOLE — CONSULTING STRUCTURAL ENGINEERS R. L. LEFEBVRE — CONSULTING MECHANICAL ENGINEERS MAINDONALD & ASSOCIATES — CONSULTING ELECTRICAL ENGINEERS RUSSELL, DRYSDALE & THOMAS — QUANTITY SURVEYORS	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	DESIGN DRN : TRD : CHD : APD :	SCALES 1/4"=1'-0"	DATE OCT. 1972	SECTION 2/7	FILE J1468 / DRAWING E8

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

313/E42



S E C T I O N 3/7



1/4"-1'0" S E C T I O N T H R O E X I T S T A I R 13/1

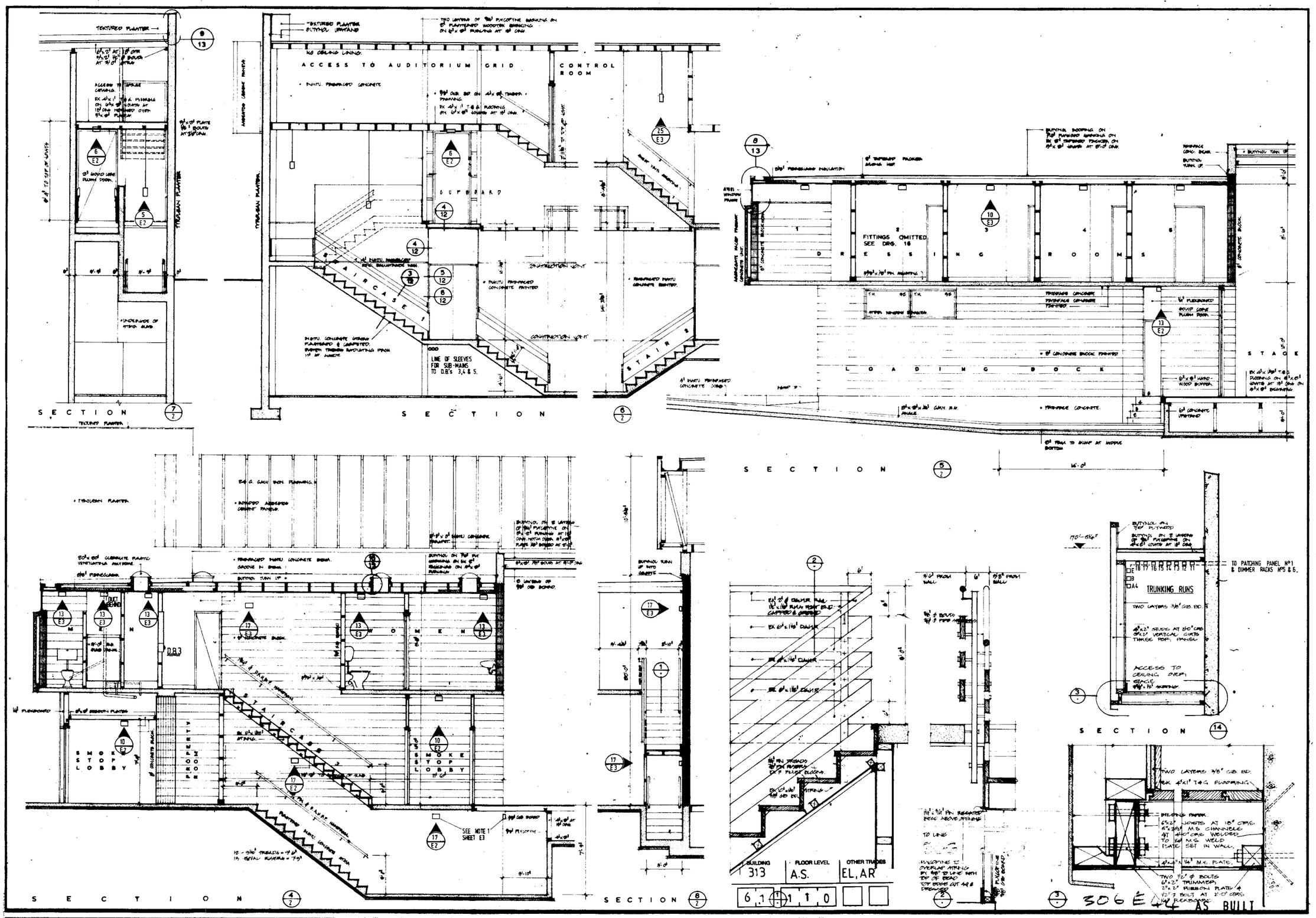
BUILDING	FLOOR LEVEL	OTHER TRADES
313	G	EL, AR

6,1 | 1,0,0 | | |

313/E43

AS BUILT

WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	HOLMES, WOOD & POOLE — CONSULTING STRUCTURAL ENGINEERS R. L. LEFEBVRE — CONSULTING MECHANICAL ENGINEERS MAINDONALD & ASSOCIATES — CONSULTING ELECTRICAL ENGINEERS RUSSELL, DRYSDALE & THOMAS — QUANTITY SURVEYORS	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	DESIGN: DRN: TRD: CHD: APD: SCALES: ¼"=1'-0" DATE: OCT., 1972 SECTION 3/7 FILE: J1468 DRAWING: E9 CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	HOLMES, WOOD & POOLE R. L. LEFEBVRE MAINDONALD & ASSOCIATES RUSSELL, DRYSDALE & THOMAS	CONSULTING STRUCTURAL ENGINEERS CONSULTING MECHANICAL ENGINEERS CONSULTING ELECTRICAL ENGINEERS QUANTITY SURVEYORS	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	DESIGN DRN : TRD : CHD : AED :	SCALES 1/4" = 1'-0"	DATE OCT, 1972	SECTION 7/2 6/2 5/2 4/2 8/2 14 FILE J1468 DRAWING E10 CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

313/E44

STAIR NO. 6

EGRESS AREA

STAIRCASE NO. 6

SECTION 11/2

DRESSING RM. 6

EGRESS AREA

SECTION 9/2

LITTLE THEATRE

ENTRANCE LOBBY

SECTION 10/2

CONTROL ROOM

LITTLE THEATRE

SECTION 12/2

DRESSING ROOM 6

STAGE

BUILDING 313 | FLOOR LEVEL A.S. | OTHER TRADES EL, AR

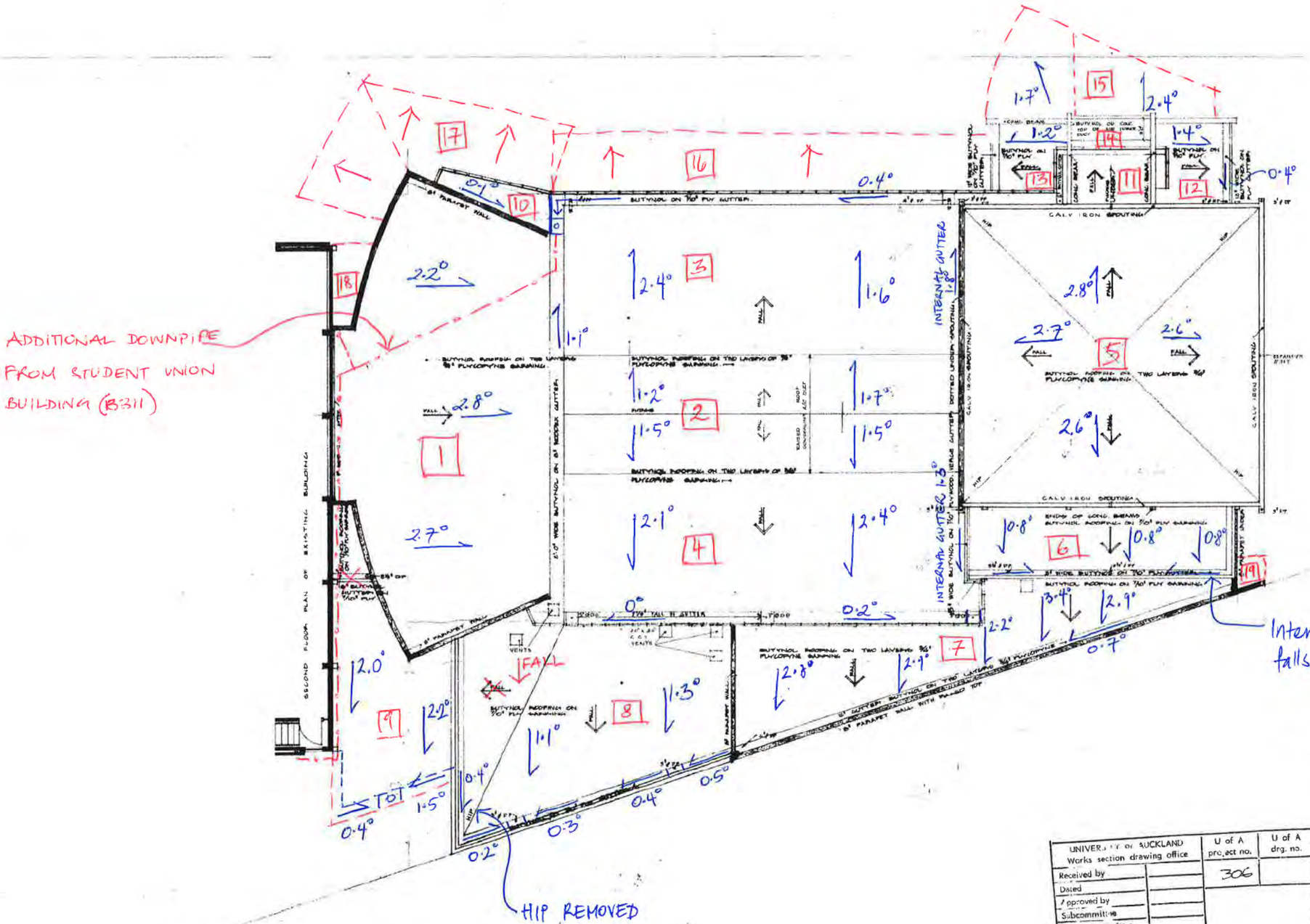
6,1 | 1,2,0

AS BUILT

WARREN & MAHONEY REGISTERED ARCHITECTS CHRISTCHURCH	HOLMES, WOOD & POOLE — CONSULTING STRUCTURAL ENGINEERS R. L. LEFEBVRE — CONSULTING MECHANICAL ENGINEERS MAINDONALD & ASSOCIATES — CONSULTING ELECTRICAL ENGINEERS RUSSELL, DRYSDALE & THOMAS — QUANTITY SURVEYORS	THE UNIVERSITY OF AUCKLAND STUDENT DRAMA CENTRE	DESIGN: DRN: TRD: CHK: APD:	SCALES 1/4" = 1'-0"	DATE OCT. 1972	LITTLE THEATRE SECTIONS 9/2 10/2 11/2 12/2	FILE J1468 / DRAWING E 11

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

313/E45


ADDITIONAL DOWNPIPE FROM STUDENT UNION BUILDING (B311)
SECOND FLOOR PLAN OF EXISTING BUILDING
BUTYNOL ROOFING ON TWO LAYERS OF 36" FLYCOFYNE SARKING
BUTYNOL ON 750 FLY GUTTER
INTERNAL GUTTER
GALV IRON SPOUTING
ROOF OF LONG BEAMS
BUTYNOL ROOFING ON 750 FLY SARKING
BUTYNOL ROOFING ON 450 FLY SARKING
BUTYNOL ROOFING ON 750 FLY SARKING
BUTYNOL ROOFING ON TWO LAYERS 750
BUTYNOL ROOFING ON 750 FLY SARKING
BUTYNOL ROOFING ON TWO LAYERS OF 36" FLYCOFYNE SARKING
BUTYNOL ROOFING ON TWO LAYERS OF 36" FLYCOFYNE SARKING
BUTYNOL ROOFING ON 750 FLY SARKING
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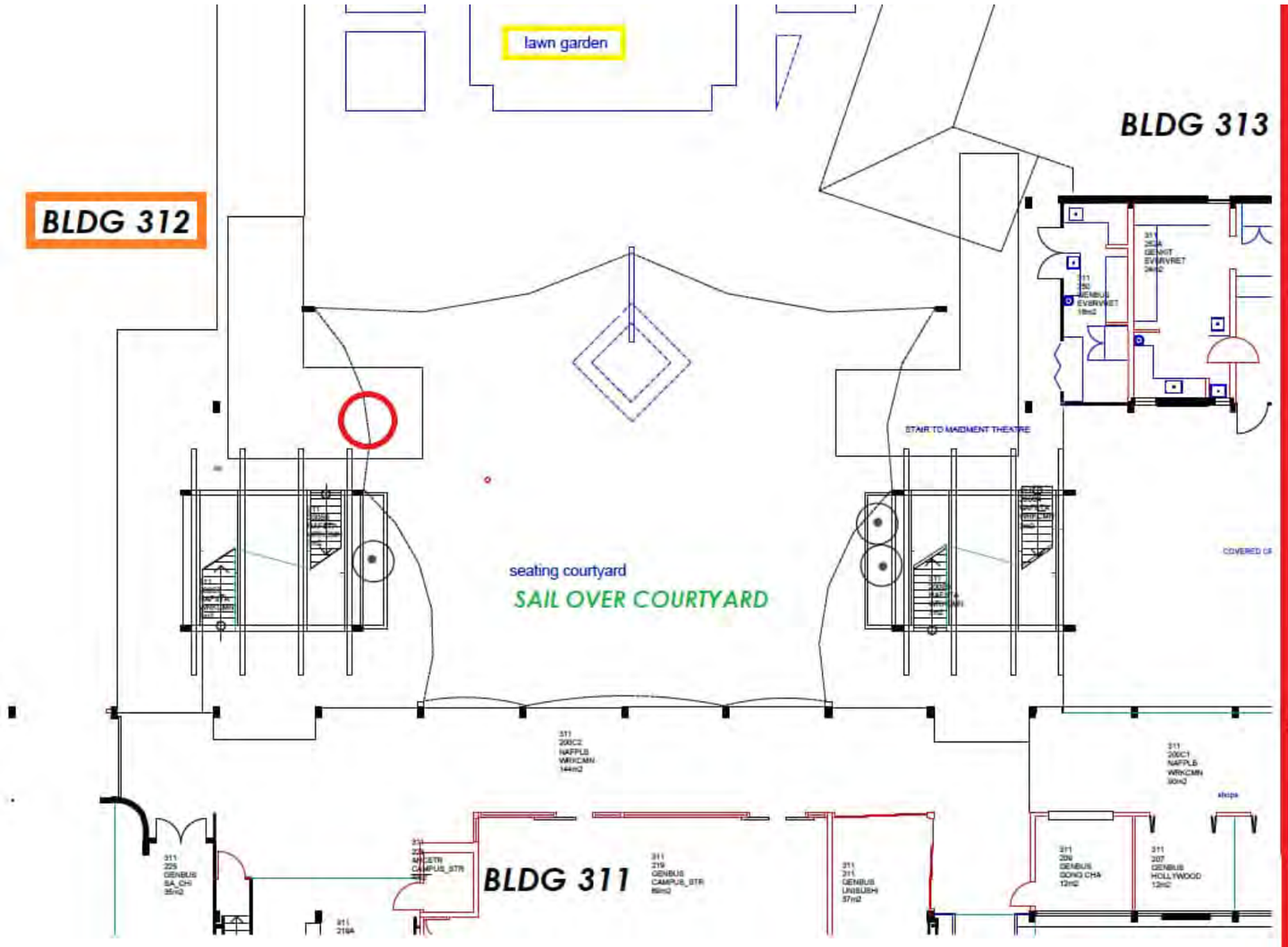
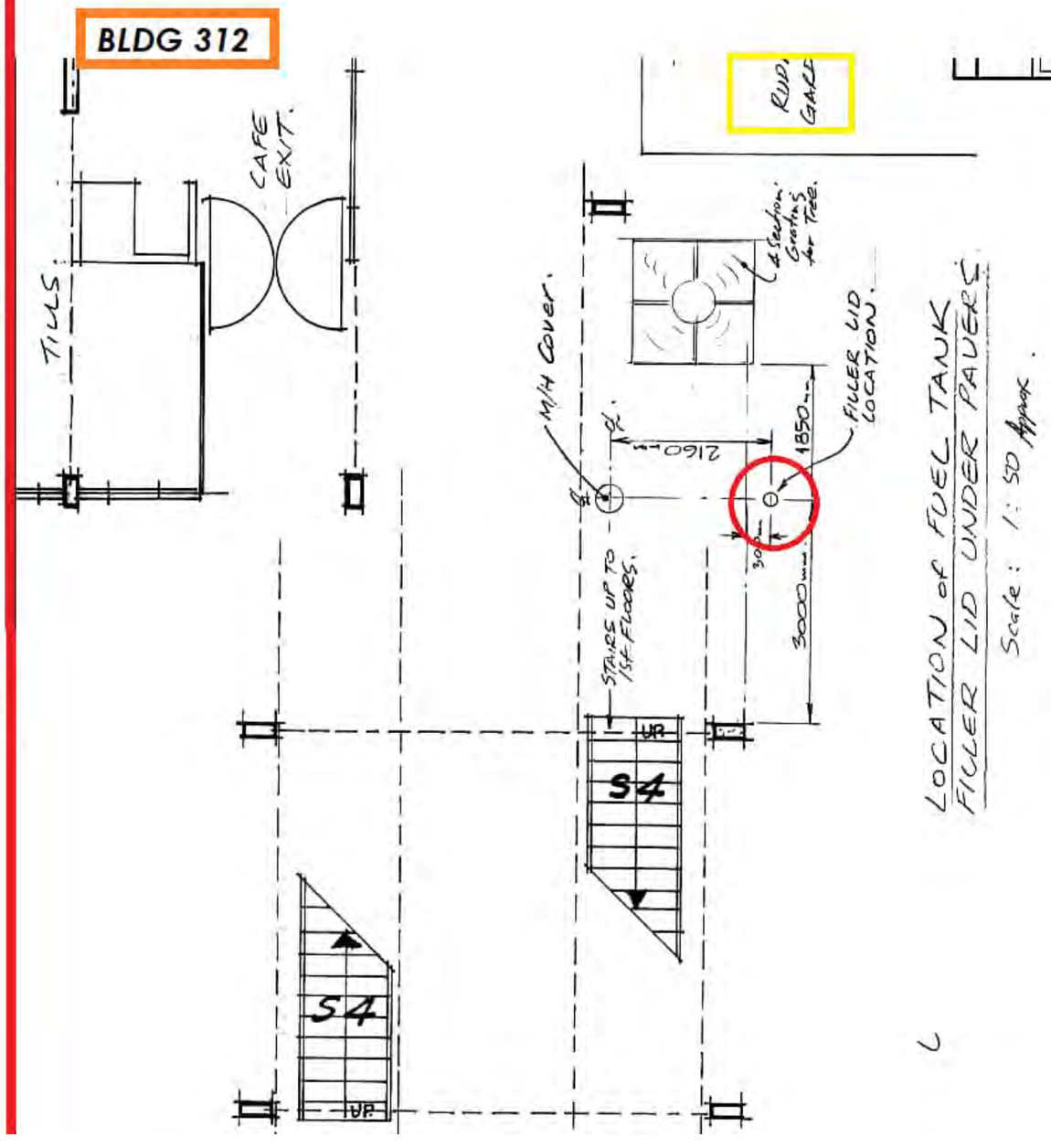
BUTYNOL ROOFING ON TWO LAYERS 750 FLYCOFYNE SARKING
BUTYNOL ROOFING ON 750 FLY SARKING



DRWG 31150850

NOTE ON DRWG SAYS - TANK DRAINED & FILLED WITH CONCRETE SLURRY
NO DATE ON DRWG



Appendix F Geotechnical Borehole Logs

Tonkin+Taylor

BOREHOLE LOG

BOREHOLE No.: **BH01 (PZ)**

Hole Location: On artificial turf, next to Princes Street.

SHEET: 1 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920112.33 mN 1757672.09 mE	DRILL TYPE: JD1	HOLE STARTED: 04/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 07/09/2026
R.L.:	45.52m		DRILLED BY: JASL
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS								ENGINEERING DESCRIPTION								
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%)	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa)	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa)	DEFECT SPACING (mm)	DESCRIPTION
Fill					100	HANDEX		45			M W	TP S				*0.00m* Fine to medium GRAVEL; grey Tightly packed, moist, fill, gap40 hardfill. Gravel, sub-angular to angular.
											M	F-St				*0.10m:* SILT, some gravel, minor sand; dark grey mottled orange . Soft, wet, non-plastic; gravel, fine, sub-rounded to sub-angular; sand, fine to coarse.
Auckland Volcanic Field					100	HQTT		1			W	S				*0.50m:* SILT, some clay, trace sand; orange mottled white. Firm to stiff, moist, low to medium plasticity; sand, fine.
					100	SPT	0/0// 0/0/1/1 N=2	44								*1.00m:* Sandy gravelly SILT, minor clay; light brown spotted brown. Soft, wet, low plasticity; sand, fine to coarse; gravel, fine, rounded to sub-rounded.
							15/5 kPa in barrel									
					100	HQTT		2								
								43								
					100	SPT	0/1// 0/1/0/1 N=2	3			M-W	VS-S				*3.10m:* SILT, some clay, minor sand; orange streaked white. Very soft to soft, moist to wet, low plasticity; sand, fine.
							23/8 kPa in barrel	42								
					33	HQTT		4								*3.75m:* CORE LOSS - Suspect material left in bottom of hole, washed out on subsequent run.
					100	SPT	0/0// 1/1/1/2 N=5	41			M	S				*4.50m:* Clayey SILT, minor sand; light grey streaked orange. Soft, moist, medium plasticity; sand, fine.
							15/5 kPa in barrel	5								
					100	HQTT		40								
					100	PT	PT @ 6.00m	6	N/L							*6.00m:* NOT LOGGED - Push tube, top and bottom of push tube consistent - clayey.
							68/15 kPa in barrel	39			M	S-F				*6.50m* Clayey SILT, trace sand; light grey Soft to firm, moist, medium plasticity; sand, fine.
East Coast Bays Formation					00	HQTT		7								
					44	SPT	0/1// 1/2/1/2 N=6	38		RS		F				*7.40m:* SILT, minor clay, trace sand; grey. Firm, moist, low plasticity, residual soil; sand, fine. *7.60 - 7.95m:* Locally sandy.
			07/ 09/2026		100	PT	PT @ 7.95m 105/38 kPa in barrel	8	N/L							*7.95m:* NOT LOGGED - Push tube, top and bottom of push tube consistent - clayey.
					100	HQTT		37		HW		EW				*8.50m:* Highly weathered, light orangish grey, SANDSTONE. Extremely weak, moderately cemented, fine to coarse grained. Interbedded with: SILTSTONE. Soil description, silty fine to coarse sand, medium dense, moist to wet.
					100	SPT	2/4// 4/6/6/7 N=23	9								
					100	HQTT	UTP in barrel	36								*9.75 - 9.85m:* Locally; light grey mottled brown.

COMMENTS: Groundwater measured at 8.5 m below ground level on 07/09/2026, prior to drilling, hole left open overnight.

Hole Depth 25.5m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:34 pm - Produced with Core-GS by GeRoc

BOREHOLE LOG

BOREHOLE No.: **BH01 (PZ)**

Hole Location: On artificial turf, next to Princes Street.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920112.33 mN 1757672.09 mE	DRILL TYPE: JD1	HOLE STARTED: 04/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 07/09/2026
R.L.:	45.52m		DRILLED BY: JASL
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS									ENGINEERING DESCRIPTION							
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%) 25 50 75	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) VS 12 25 50 F 24 100 VS 200	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) EW 1 VW 5 W 20 MS 50 S 100 VS+	DEFECT SPACING (mm) 20 60 200 600 2000	DESCRIPTION
East Coast Bays Formation					100	HQTT		35	10.00		HW		EW				*10.00m* Highly weathered, orange grey, SANDSTONE. Extremely weak, moderately cemented, fine to coarse grained. Interbedded with: SILTSTONE. Soil description, silty fine to coarse sand, medium dense grading to very dense, moist to wet.
					100	SPT	4/4// 3/4/7/8 **N=22**		11								
					100	HQTT		34	12								
					100	SPT	6/11// 13/14/18/5 for 11mm **N>=50**		12.20								*12.20 - 12.90m:* Grading to grey.
					100	HQTT		33	12.90								
					0	SPTC	15/28// 25 for 30mm **N>=50** Solid Cone	32	13		MW		VW				*12.90m:* Moderately weathered, grey, SILTSTONE. Very weak, moderately cemented, fine to coarse grained.
					100	HQTT			13.80								*13.80 - 14.30m:* Poorly cemented.
					0	SPTC	6/8// 30 for 54mm **N>=50** Solid Cone Bouncing	31	14.30								
					100	HQTT			15								*15.00 - 15.40m:* Mottled dark brown.
					0	SPTC	7/35// for 56mm **N>=50** Solid Cone Bouncing	30	15.40		SW						*15.40m:* Slightly weathered, grey, SANDSTONE. Very weak, moderately cemented, fine to coarse grained. Interbedded with: Slightly weathered, grey, SILTSTONE.
					85	HQTT		29	16								
					0	SPTC	10/38// 15 for 27mm **N>=50** Solid Cone Bouncing	28	17								*17.00m:* Slightly weathered, grey, SANDSTONE. Very weak, moderately cemented, fine to coarse grained. Interbedded with: SILTSTONE.
					100	HQTT		27	18								
					0	SPTC	7/41// 50 for 62mm **N>=50** Solid Cone	26	19								
					100	HQTT											

COMMENTS: Groundwater measured at 8.5 m below ground level on 07/09/2026, prior to drilling, hole left open overnight.

Hole Depth 25.5m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:34 pm - Produced with Core-GS by GeRoc

BOREHOLE LOG

BOREHOLE No.: **BH01 (PZ)**

Hole Location: On artificial turf, next to Princes Street.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920112.33 mN 1757672.09 mE	DRILL TYPE: JD1	HOLE STARTED: 04/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 07/09/2026
R.L.:	45.52m		DRILLED BY: JASL
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS								ENGINEERING DESCRIPTION							
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%) 25 50 75	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) VS 12 25 50 F St 100 VSt 200 Hd	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) EW 1 VW 5 W 20 MS 50 S 100 VS+	DEFECT SPACING (mm) 20 60 200 600 2000	DESCRIPTION
East Coast Bays Formation					100	HQTT		25		SW		VW				[CONT] *17 00m* Slightly weathered, grey, SANDSTONE. Very weak, moderately cemented, fine to coarse grained. Interbedded with: SILTSTONE.
					0	SPT	12/38// for 73mm **N>=50** Solid Cone	21								
					100	HQTT		24								
					100	HQTT		22								
					100	HQTT		23								
								21								
								25								
								20								25.5m: Target depth
								26								
								19								
								27								
								18								
								28								
								17								
								29								
								16								

COMMENTS: Groundwater measured at 8.5 m below ground level on 07/09/2026, prior to drilling, hole left open overnight.

Hole Depth 25.5m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:34 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH01 (PZ)**

Hole Location: On artificial turf, next to Princes Street.

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: 5920112.33 mN (NZTM2000) 1757672.09 mE	DRILL TYPE: JD1	HOLE STARTED: 04/09/2026
R.L.: 45.52m	METHOD: Rotary cored	HOLE FINISHED: 07/09/2026
DATUM: NZVD2016	DRILL FLUID: WATER POLY	DRILLED BY: JASL
		LOGGED BY: JASL CHECKED: JOWI



0.00-3.45m



3.45-8.90m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:34 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH01 (PZ)**

Hole Location: On artificial turf, next to Princes Street.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920112.33 mN 1757672.09 mE	DRILL TYPE: JD1	HOLE STARTED: 04/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 07/09/2026
R.L.:	45.52m		DRILLED BY: JASL
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



8.90-12.39m



12.39-15.35m

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:34 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH01 (PZ)**

Hole Location: On artificial turf, next to Princes Street.

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: 5920112.33 mN (NZTM2000) 1757672.09 mE	DRILL TYPE: JD1	HOLE STARTED: 04/09/2026
R.L.: 45.52m	METHOD: Rotary cored	HOLE FINISHED: 07/09/2026
DATUM: NZVD2016	DRILL FLUID: WATER POLY	DRILLED BY: JASL
		LOGGED BY: JASL CHECKED: JOWI



15.35-18.50m



18.50-21.75m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:34 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH01 (PZ)**

Hole Location: On artificial turf, next to Princes Street.

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000) 5920112.33 mN 1757672.09 mE	DRILL TYPE: JD1	HOLE STARTED: 04/09/2026
R.L.: 45.52m	METHOD: Rotary cored	HOLE FINISHED: 07/09/2026
DATUM: NZVD2016	DRILL FLUID: WATER POLY	DRILLED BY: JASL
		LOGGED BY: JASL CHECKED: JOWI



21.75-24.60m



24.60-25.50m

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:34 pm - Produced with Core-GS by GeRoc

Tonkin+Taylor

BOREHOLE LOG

BOREHOLE No.: **BH02**

Hole Location: Northern corner of closed site close to entrance.

SHEET: 1 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920114.53 mN 1757703.53 mE	DRILL TYPE: MRK2	HOLE STARTED: 12/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 13/08/2026
R.L.:	41.95m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL | METHOD OBSERVATIONS | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT / ADDITIONAL OBSERVATIONS	DESCRIPTION
Fill	*0.00m* GRAVEL; grey Tightly packed, moist Gravel, sub-angular to angular; fill, concrete fragments.
	0.30m: Sandy SILT, minor clay; light orange mottled brown. Soft, moist, low plasticity; sand, fine to coarse; fill, ash.
	0.80m: SILT, some clay and some sand; light orange mottled orange spotted dark grey . Soft, moist, low plasticity; sand, fine to coarse; fill, ash.
Auckland Volcanic Field	*1.30m:* SILT, minor sand; light orange mottled orange . Soft, moist, non-plastic to low plasticity; sand, fine to coarse; fill, ash.
	1.50m: NO RECOVERY - Suspect slipped out of SPT spoon.
	1.95m: SILT, trace clay and trace sand; dark grey . Soft, wet, non-plastic; sand, fine.
	2.40m: Fine to medium GRAVEL, some silt; grey with reddish orange. Tightly packed, wet, non-plastic. Gravel, sub-angular to angular.
	2.55m: SILT, some clay, trace sand; grey mottled orange spotted black. Firm, wet, low to medium plasticity; sand, fine.
	2.90m: Silty fine GRAVEL, some sand; light orange. Loose, wet, non-plastic. Gravel, rounded to sub-rounded; sand, fine to coarse.
	3.20m: Silty CLAY; light grey . Firm, moist, medium plasticity.
East Coast Bays Formation	*4.40m:* Silty fine SAND, minor clay; grey. Loose, moist, low plasticity.
	5.10m: Completely weathered, grey, SANDSTONE. Extremely weak, medium to coarse grained.
	5.50m: Highly weathered, grey, SILTSTONE. Extremely weak, moderately cemented. Interbedded with: SANDSTONE, fine to medium grained.
	7.20 - 7.80m: Very weak to weak.
	10.00 - 10.20m: Completely weathered. Very weak to weak.

RL (m)	DEPTH (m)	CORE RECOVERY (%)	METHOD	TESTS
41	1	0	CCORE	
		0	HANDEX	
		100	HQTT	
40	2	0	SPT	1/0// 0/1/0/1 N=2
		100	HQTT	UTP in barrel
39	3	100	SPT	0/1// 2/1/1/2 N=6
		00	HQTT	83/18 kPa in barrel
38	4	100	SPT	1/1// 1/1/1/2 N=5
		100	HQTT	48/3 kPa in barrel
37	5	0	SPT	2/4// 5/7/7/1 N=30
		100	HQTT	UTP in barrel
36	6	00	SPT	4/10// 35/15 for 44mm N>=50
		100	HQTT	
35	7	100	SPT	6/8// 8/12/16/13 N=49
		100	HQTT	
34	8			
33	9			
32				

WATER: 13/08/2026

COMMENTS: Groundwater level measured at 3.4 m below ground level in the morning of 13/08/2026 prior to drilling. Hole left open overnight.

Hole Depth 25.63m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:36 pm - Produced with Core-GS by GeRoc

BOREHOLE LOG

BOREHOLE No.: **BH02**

Hole Location: Northern corner of closed site close to entrance.

SHEET: 2 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920114.53 mN 1757703.53 mE	DRILL TYPE: MRK2	HOLE STARTED: 12/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 13/08/2026
R.L.:	41.95m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS									ENGINEERING DESCRIPTION							
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%) 25 50 100	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) VS 12 25 50 F 200 100 VS+	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) EW 1 VW 5 W 20 MS 50 S 100 VS+	DEFECT SPACING (mm) 20 60 200 600 2000	DESCRIPTION
East Coast Bays Formation					100	HQTT		31	11		CW		VW-W				[CONT] *5 50m* Highly weathered, grey, SILTSTONE Extremely weak, moderately cemented. Interbedded with: SANDSTONE, fine to medium grained.
											HW		EW				
					99	SPT	8/14// 11/21/18 for 17mm **N>=50**										
					100	HQTT					MW-HW						*11.10m:* Moderately to highly weathered, grey, SANDSTONE. Extremely weak, medium to coarse grained.
					100	SPT	9/19// 43/7 for 64mm **N>=50**	30	12								
					100	HQTT					MW		VW				*12.75m:* Moderately weathered, grey, SANDSTONE. Very weak, medium to coarse grained. *13.10 - 13.40m:* Fine to medium SAND. Very dense, wet.
					0	SPT	13/37// for 38mm **N>=50**										
					100	HQTT		29	13								
								28	14		SW						*14.65m:* Slightly weathered, grey, SANDSTONE. Very weak, fine to medium grained. Interbedded with: SILTSTONE.
					97	SPT	18/32// for 41mm **N>=50**	27	15								
					100	HQTT											
					112	SPT	26/24// for 27mm **N>=50** Solid Cone	26	16								
					100	HQTT					UW						*16.80m:* Unweathered, grey, SANDSTONE. Very weak, fine grained.
					0	SPTC	6/8// 42/8 for 4mm **N>=50** Solid Cone	25	17								
					71	HQTT		24	18								
					100	SPT	16/34// for 25mm **N>=50** Solid Cone	23	19				W				*19.50m:* Unweathered, grey, SILTSTONE. Weak. Interbedded with: SANDSTONE, fine grained.
					100	HQTT		22									

COMMENTS: Groundwater level measured at 3.4 m below ground level in the morning of 13/08/2026 prior to drilling. Hole left open overnight.

Hole Depth 25.63m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:36 pm - Produced with Core-GS by GeRoc

BOREHOLE LOG

BOREHOLE No.: **BH02**

Hole Location: Northern corner of closed site close to entrance.

SHEET: 3 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920114.53 mN 1757703.53 mE	DRILL TYPE: MRK2	HOLE STARTED: 12/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 13/08/2026
R.L.:	41.95m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS								ENGINEERING DESCRIPTION								
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%) 25 50 75	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) VS 12 25 50 F St 100 200 VSt	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) EW 1 VW 5 W 20 MS 50 S 100 VS+	DEFECT SPACING (mm) 20 60 200 600 2000	DESCRIPTION
East Coast Bays Formation					100	HQTT	14/36// for 51mm **N>=50** Solid Cone	21 / 21		UW		W				[CONT] *19 50m* Unweathered, grey, SILTSTONE Weak. Interbedded with: SANDSTONE, fine grained.
					82	HQTT	23/27// for 33mm **N>=50** Solid Cone	20 / 22								
					76	HQTT	15/35// for 31mm **N>=50** Solid Cone	19 / 23				MS				*23.00m:* Unweathered, grey, SANDSTONE. Moderately strong, fine to coarse grained.
					100	HQTT	11/39// for 49mm **N>=50** Solid Cone	18 / 24				VW-W				*23.65m:* Unweathered, grey, SILTSTONE. Very weak to weak. Interbedded with: SANDSTONE, fine to medium grained.
								17 / 25								25.63m: Target depth
								16 / 26								
								15 / 27								
								14 / 28								
								13 / 29								
								12								

COMMENTS: Groundwater level measured at 3.4 m below ground level in the morning of 13/08/2026 prior to drilling. Hole left open overnight.

Hole Depth 25.63m

Scale 1:50

Rev.: A

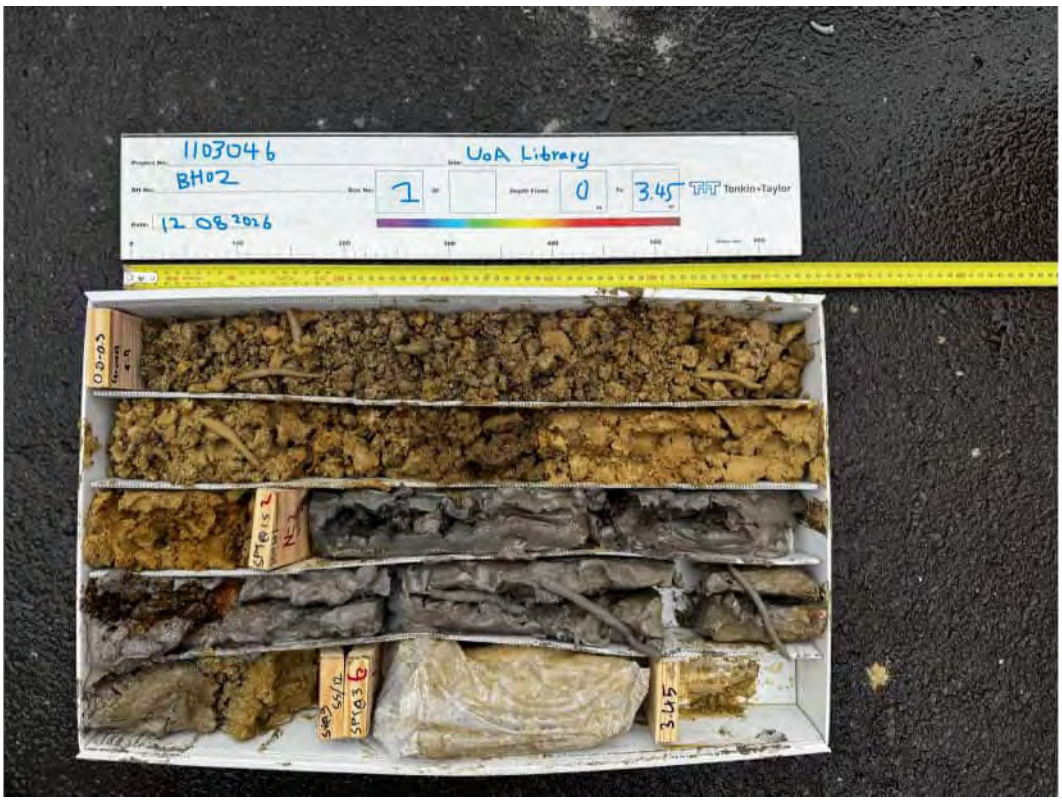
TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:36 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH02**

Hole Location: Northern corner of closed site close to entrance.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920114.53 mN 1757703.53 mE	DRILL TYPE: MRK2	HOLE STARTED: 12/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 13/08/2026
R.L.:	41.95m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



0.00-3.45m



3.45-7.00m

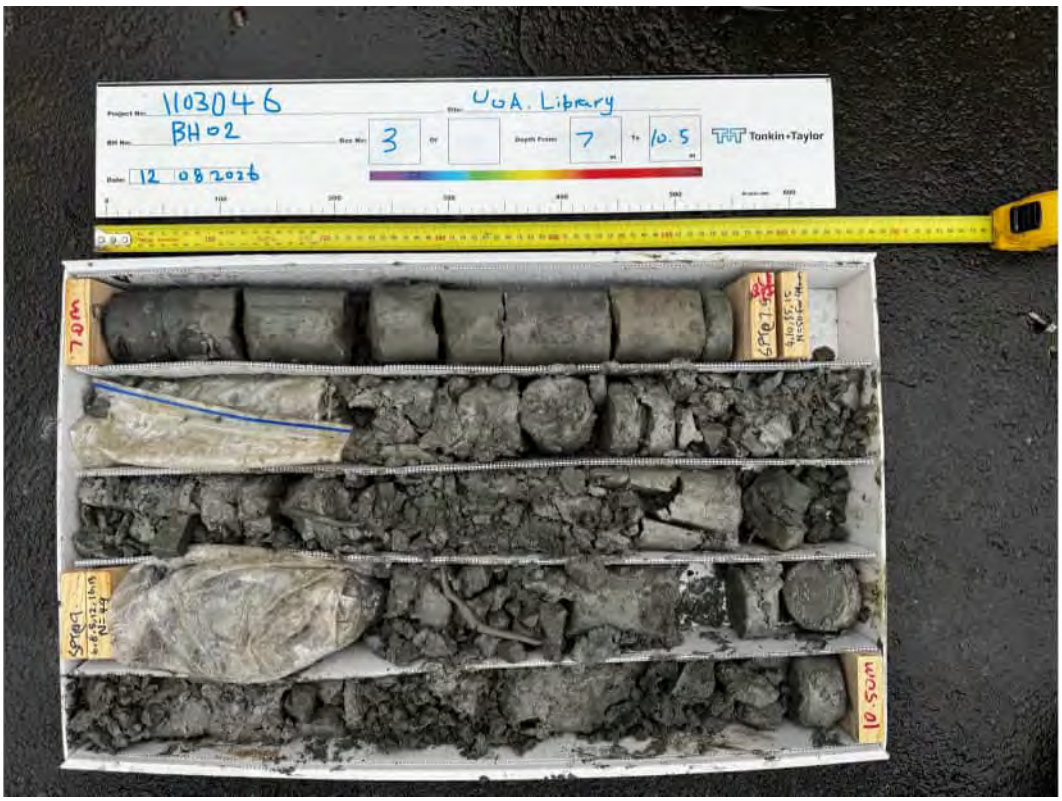
TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:36 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH02**

Hole Location: Northern corner of closed site close to entrance.

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: 5920114.53 mN (NZTM2000) 1757703.53 mE	DRILL TYPE: MRK2	HOLE STARTED: 12/08/2026
R.L.: 41.95m	METHOD: Rotary cored	HOLE FINISHED: 13/08/2026
DATUM: NZVD2016	DRILL FLUID: WATER POLY	DRILLED BY: Perry Drilling
		LOGGED BY: JASL CHECKED: JOWI



7.00-10.50m



10.50-14.50m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:36 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH02**

Hole Location: Northern corner of closed site close to entrance.

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: 5920114.53 mN (NZTM2000) 1757703.53 mE	DRILL TYPE: MRK2	HOLE STARTED: 12/08/2026
R.L.: 41.95m	METHOD: Rotary cored	HOLE FINISHED: 13/08/2026
DATUM: NZVD2016	DRILL FLUID: WATER POLY	DRILLED BY: Perry Drilling
		LOGGED BY: JASL CHECKED: JOWI



14.50-18.40m



18.40-23.00m

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:36 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH02**

Hole Location: Northern corner of closed site close to entrance.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920114.53 mN 1757703.53 mE	DRILL TYPE: MRK2	HOLE STARTED: 12/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 13/08/2026
R.L.:	41.95m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



23.00-25.63m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:36 pm - Produced with Core-GS by GeRoc

Tonkin+Taylor

BOREHOLE LOG

BOREHOLE No.: **BH03 (PZ)**

Hole Location: Southern corner of closed site.

SHEET: 1 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920140.43 mN 1757689.38 mE	DRILL TYPE: MRK2	HOLE STARTED: 13/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 17/08/2026
R.L.:	45.18m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL | METHOD OBSERVATIONS | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS | INSTALLATION | FLUID LOSS (%) | WATER | CASING | CORE RECOVERY (%) | METHOD | TESTS | RL (m) | DEPTH (m) | GRAPHIC LOG | WEATHERING CLASSIFICATION | MOISTURE CLASSIFICATION | CONSISTENCY / DENSITY CLASSIFICATION | ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) | ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) | DEFECT SPACING (mm) | DESCRIPTION

Fill

0.00m Fine to medium GRAVEL; grey Tightly packed, wet. Gravel, sub-angular to angular; fill, concrete fragments.

0.10m: CORE LOSS - Suspect loose granular material dropped out of barrel.

0.45m: Fine GRAVEL; dark grey . Tightly packed, wet. Gravel, sub-rounded to sub-angular; fill, asphalt fragments.

0.90m: SILT, some clay; orange streaked white mottled dark red. Firm, moist, low plasticity; fill, ash.

Auckland Volcanic Field

1.40m: Clayey SILT, minor sand; orange streaked white mottled red. Soft, moist, medium plasticity; sand, fine to medium; fill, ash.

2.20m: Sandy SILT, some clay; light brown mottled orange streaked light orange. Soft, moist, low to medium plasticity; sand, fine to coarse; fill, ash.

3.20m: Gravelly medium to coarse SAND, minor silt; light orange spotted brown. Loose, wet, non-plastic to low plasticity; gravel, fine; fill, ash.

4.40m: Silty fine to medium SAND, some clay, trace gravel; light orange mottled orange. Soft to firm, wet, low to medium plasticity; gravel, fine; fill, ash.

4.65m: SILT, some sand, minor clay, trace gravel; light orange speckleddark brown . Soft to firm, wet, non-plastic to low plasticity; sand, fine; gravel, fine; fill, ash.

5.40m: Clayey SILT, some sand, trace gravel; light orange grading to reddish orange spotted dark brown . Firm, moist, medium plasticity; sand, fine to medium; gravel, fine; fill, ash.

East Coast Bays Formation

6.00m: Silty CLAY; grey. Firm, moist, high plasticity.

5.90 - 6.00m: Locally, some wood fragments; spotted black.

7.95m: NOT LOGGED - Push tube, base of push tube sandy.

8.50m: Silty fine to medium SAND, trace clay; darkish grey. Tightly packed, moist, non-plastic to low plasticity.

8.90m: SILT, some sand; grey. Very stiff to hard, moist, non-plastic; sand, fine to medium.

9.75m: Highly weathered, grey, SANDSTONE.

| | | |

Tonkin+Taylor

BOREHOLE LOG

BOREHOLE No.: **BH03 (PZ)**

Hole Location: Southern corner of closed site.

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000) 5920140.43 mN 1757689.38 mE	DRILL TYPE: MRK2	HOLE STARTED: 13/08/2026
R.L.: 45.18m	METHOD: Rotary cored	HOLE FINISHED: 17/08/2026
DATUM: NZVD2016	DRILL FLUID: WATER POLY	DRILLED BY: Perry Drilling
		LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL | METHOD OBSERVATIONS | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	CORE RECOVERY (%)	METHOD	TESTS	RL (m)	DEPTH (m)	WEATHERING CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	DESCRIPTION
East Coast Bays Formation	100	HQTT		35		HW	EW	Extremely weak, well cemented, fine to medium grained. Interbedded with: SILTSTONE.
	0	SPTC	8/19// 36/14 for 30mm **N>=50** Solid Cone UTP In barrel					
	93	HQTT		34	11			
						MW	VW	*11.50m:* Moderately weathered, grey, SANDSTONE. Very weak, moderately cemented, fine to coarse grained. Interbedded with: SILTSTONE.
	0	SPTC	12/38// for 68mm **N>=50** Solid Cone	33	12			
	70	HQTT		32	13			
	0	SPTC	10/40// for 67mm **N>=50** Solid Cone					
						SW		*13.80m:* Slightly weathered, grey, SANDSTONE. Very weak, well cemented, fine grained. Interbedded with: SILTSTONE.
	89	HQTT		31	14			
	0	SPTC	13/37// for 52mm **N>=50** Solid Cone	30	15			
	44	HQTT		29	16			
	0		28/22// for 11mm **N>=50** Solid Cone					*16 50m* Slightly weathered, grey, SANDSTONE Very weak, moderately cemented to well cemented, fine to medium grained.
	89	HQTT		28	17			
	0		22/28// for 39mm **N>=50** Solid Cone	27	18			
	91	HQTT		26	19			
	0		17/33// for 34mm **N>=50** Solid Cone					
	86	HQTT						

COMMENTS: Groundwater level measured at 2.1 m below ground level on 14/08/2026, prior to drilling, hole left open overnight.

Hole Depth 25.6m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:38 pm - Produced with Core-GS by GeRoc

BOREHOLE LOG

BOREHOLE No.: **BH03 (PZ)**

Hole Location: Southern corner of closed site.

SHEET: 3 OF 3

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: 5920140.43 mN (NZTM2000) 1757689.38 mE	DRILL TYPE: MRK2	HOLE STARTED: 13/08/2026
	METHOD: Rotary cored	HOLE FINISHED: 17/08/2026
R.L.: 45.18m		DRILLED BY: Perry Drilling
DATUM: NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS								ENGINEERING DESCRIPTION								
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%) 25 50 75	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) VS 12 25 50 F 24 100 VS 200 H	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) EW 1 VW 5 W 20 MS 50 S 100 VS+	DEFECT SPACING (mm) 20 60 200 600 2000	DESCRIPTION
East Coast Bays Formation					86	HQTT	18/32// for 27mm **N>=50** Solid Cone	25 24 23 22 21 20		SW		VW				[CONT] *16 50m* Slightly weathered, grey, SANDSTONE. Very weak, moderately cemented to well cemented, fine to medium grained.
					86	HQTT	25/25// for 7 mm **N>=50** Solid Cone	22 21 20 19 18 17 16								25.6m: Target depth

COMMENTS: Groundwater level measured at 2.1 m below ground level on 14/08/2026, prior to drilling, hole left open overnight.

Hole Depth 25.6m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:38 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH03 (PZ)**

Hole Location: Southern corner of closed site.

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: 5920140.43 mN (NZTM2000) 1757689.38 mE	DRILL TYPE: MRK2	HOLE STARTED: 13/08/2026
R.L.: 45.18m	METHOD: Rotary cored	HOLE FINISHED: 17/08/2026
DATUM: NZVD2016	DRILL FLUID: WATER POLY	DRILLED BY: Perry Drilling
		LOGGED BY: JASL CHECKED: JOWI



0.00-4.10m



4.10-9.00m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:38 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH03 (PZ)**

Hole Location: Southern corner of closed site.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920140.43 mN 1757689.38 mE	DRILL TYPE: MRK2 METHOD: Rotary cored	HOLE STARTED: 13/08/2026 HOLE FINISHED: 17/08/2026
R.L.:	45.18m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



9.00-12.50m



12.50-17.00m

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:38 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH03 (PZ)**

Hole Location: Southern corner of closed site.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920140.43 mN 1757689.38 mE	DRILL TYPE: MRK2	HOLE STARTED: 13/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 17/08/2026
R.L.:	45.18m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



17.00-21.10m



21.10-24.80m

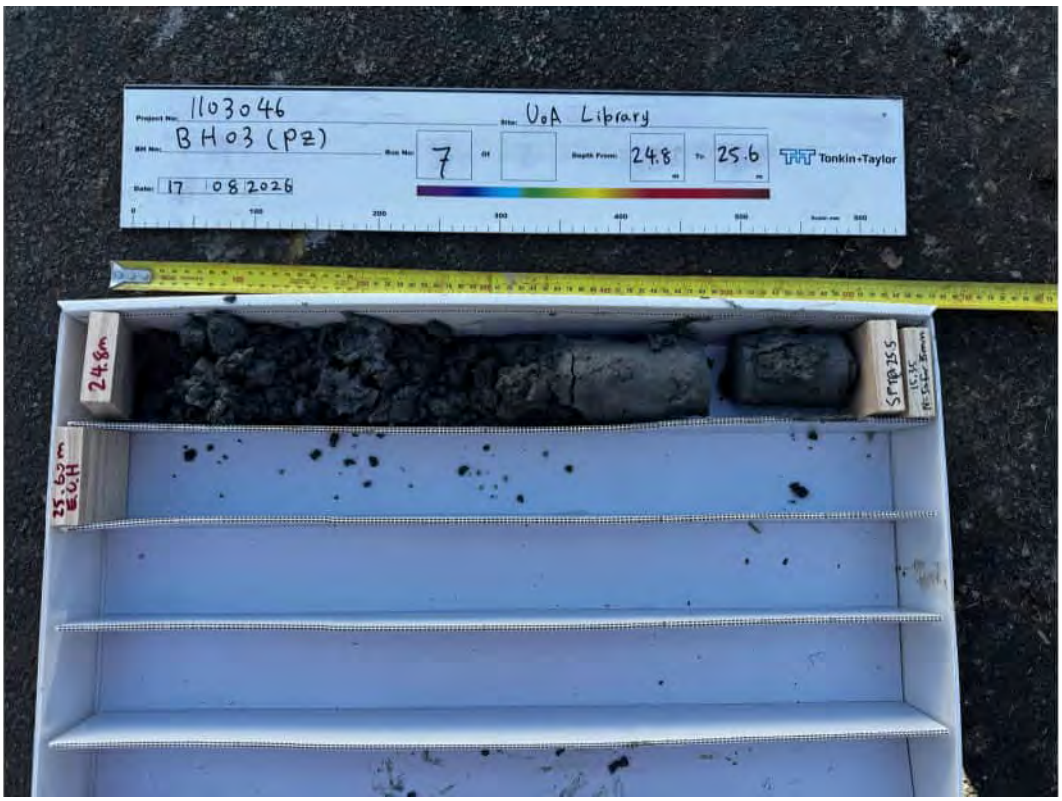
TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:38 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH03 (PZ)**

Hole Location: Southern corner of closed site.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920140.43 mN 1757689.38 mE	DRILL TYPE: MRK2	HOLE STARTED: 13/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 17/08/2026
R.L.:	45.18m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



24.80-25.60m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:38 pm - Produced with Core-GS by GeRoc

Tonkin+Taylor

BOREHOLE LOG

BOREHOLE No.: **BH04 (PZ)**

Hole Location: Next to Alfred Street.

SHEET: 1 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920125.85 mN 1757727.20 mE	DRILL TYPE: JD1	HOLE STARTED: 08/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 10/09/2026
R.L.:	42.63m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL | METHOD OBSERVATIONS | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT / ADDITIONAL OBSERVATIONS	DESCRIPTION
Fill	*0.00m* Medium to coarse GRAVEL; dark grey Tightly packed, moist. Gravel, sub-angular to angular, Hardfill .
	0.20m: SILT, some sand, minor clay; light orange spotted dark brown mottled black. Soft to firm, moist, non-plastic to low plasticity; sand, fine to coarse.
Auckland Volcanic Field	*0.75m:* SILT, some sand and some gravel; orange mottled brown. Soft, wet, low plasticity; sand, fine to coarse; gravel, fine, sub-rounded to sub-angular.
	1.50m: Sandy gravelly SILT; light orange spotted . Soft, wet, low plasticity; sand, fine to medium; gravel, fine to medium, sub-rounded to sub-angular.
	3.20m: Clayey SILT, minor sand, trace gravel; orange mottled light orange. Soft, moist, medium plasticity; sand, fine; gravel, fine, rounded to sub-rounded.
	3.70m: Silty CLAY; grey. Soft to firm, moist, medium to high plasticity.
	4.40 - 4.95m: Light grey mottled light orange.
	4.95m: NOT LOGGED - Push tube, top and bottom of push tube consistent - clayey.
East Coast Bays Formation	*5.50m:* Silty CLAY, minor sand; light grey. Soft, moist, medium to high plasticity; sand, fine.
	6.40m: SILT, minor clay and minor sand; light grey mottled light orange. Firm, moist, low plasticity; sand, fine.
	6.70 - 7.00m: Grading to; grey.
	7.00m: NOT LOGGED - Push tube, base of push tube sandy.
	7.30m: Fine to medium SAND, some silt; grey. Medium dense, moist, non-plastic to low plasticity, completely weathered.
	8.10m: Highly weathered, grey, SILTSTONE. Extremely weak, moderately cemented. Interbedded with: SANDSTONE, fine to medium grained.

TESTS: 0/1// 0/1/0/1 N=2; 8.8 kPa in barrel; 0/1// 1/2/1/1 N=5; 15/5 kPa in barrel; 0/1// 1/0/1/1 N=3; PT @ 4.95m 48/14 kPa in barrel; 1/2// 4/5/5/8 N=22; 53/18 kPa in barrel; PT @ 7.00m 123/27 kPa in barrel; 3/2// 3/3/4/4 N=14; 7/9// 10/6/8/10 N=34; UTP in barrel

WATER: 09/ 09/2026

COMMENTS: Groundwater level measured at 2.3 m below ground level on 09/09/2026 in the morning prior to drilling. Hole left open overnight. Unknown fill between 11.1 to 13.9 m below ground level, due to blockage of backfill during piezometer installation.

Hole Depth 25m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:39 pm - Produced with Core-GS by GeRoc

Tonkin+Taylor

BOREHOLE LOG

BOREHOLE No.: **BH04 (PZ)**

Hole Location: Next to Alfred Street.

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000) 5920125.85 mN 1757727.20 mE	DRILL TYPE: JD1	HOLE STARTED: 08/09/2026
R.L.: 42.63m	METHOD: Rotary cored	HOLE FINISHED: 10/09/2026
DATUM: NZVD2016	DRILL FLUID: WATER POLY	DRILLED BY: Perry Drilling
		LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL | METHOD OBSERVATIONS | ENGINEERING DESCRIPTION

GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS

INSTALLATION | FLUID LOSS (%) | WATER | CASING | CORE RECOVERY (%) | METHOD | TESTS | RL (m) | DEPTH (m) | GRAPHIC LOG | WEATHERING CLASSIFICATION | MOISTURE CLASSIFICATION | CONSISTENCY / DENSITY CLASSIFICATION | ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) | ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) | DEFECT SPACING (mm) | DESCRIPTION

Geological unit	Core recovery (%)	Method	Tests	Weathering classification	Consistency / density classification	Description
East Coast Bays Formation	100	HQTT		HW	EW	[CONT] *8 10m* Highly weathered, grey, SILTSTONE Extremely weak, moderately cemented. Interbedded with: SANDSTONE, fine to medium grained.
					EW-VW	*10.20m:* Highly weathered, grey, SANDSTONE. Extremely weak to very weak, moderately cemented, fine to medium grained. Interbedded with: SILTSTONE.
	100	SPT	2/6// 8/7/8/1 N=34			
	100	HQTT				
	100	SPT	6/9// 8/9/19/14 for 45mm N>=50			
	100	HQTT		MW		*12.50 - 13.20m:* Moderately weathered.
				SW	VW	*13.20m:* Slightly weathered, grey, SANDSTONE. Very weak, well cemented, fine to medium grained. Interbedded with: SILTSTONE.
	100	SPT	6/12// 17/25/8 for 10mm N>=50			
	100	HQTT				
	0	SPTC	6/17// 26/24 for 50mm N>=50 Solid Cone			
	100	HQTT				*15.50m:* Slightly weathered, grey, SANDSTONE. Very weak, well cemented, fine to medium grained. Interbedded with: SILTSTONE.
	0	SPTC	12/38// for 70mm N>=50 Solid Cone			
	100	HQTT				
	0	SPTC	13/37// for 75mm N>=50 Solid Cone			
	100	HQTT				
	0	SPTC	13/37// for 50mm N>=50 Solid Cone			
	101	HQTT				

Depth scale: 11, 12, 13, 14, 15, 16, 17, 18, 19

COMMENTS: Groundwater level measured at 2.3 m below ground level on 09/09/2026 in the morning prior to drilling. Hole left open overnight. Unknown fill between 11.1 to 13.9 m below ground level, due to blockage of backfill during piezometer installation.

Hole Depth 25m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:39 pm - Produced with Core-GS by GeRoc

Tonkin+Taylor

BOREHOLE LOG

BOREHOLE No.: **BH04 (PZ)**

Hole Location: Next to Alfred Street.

SHEET: 3 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920125.85 mN 1757727.20 mE	DRILL TYPE: JD1	HOLE STARTED: 08/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 10/09/2026
R.L.:	42.63m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS								ENGINEERING DESCRIPTION								
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%)	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa)	ESTIMATED ROCK COMPRESSIVE STRENGTH (σu, MPa)	DEFECT SPACING (mm)	DESCRIPTION
East Coast Bays Formation					101 0 101 100 100	HQTT HQTT HQTT HQTT	12/38// for 30mm N>=50 Solid Cone	22 21 21 22 20 23 19 24 18 25 17 26 16 27 15 28 14 29 13		SW		VW				[CONT] *15 50m* Slightly weathered, grey, SANDSTONE. Very weak, well cemented, fine to medium grained. Interbedded with: SILTSTONE. 25m: Target depth

COMMENTS: Groundwater level measured at 2.3 m below ground level on 09/09/2026 in the morning prior to drilling. Hole left open overnight. Unknown fill between 11.1 to 13.9 m below ground level, due to blockage of backfill during piezometer installation.

Hole Depth 25m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:39 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

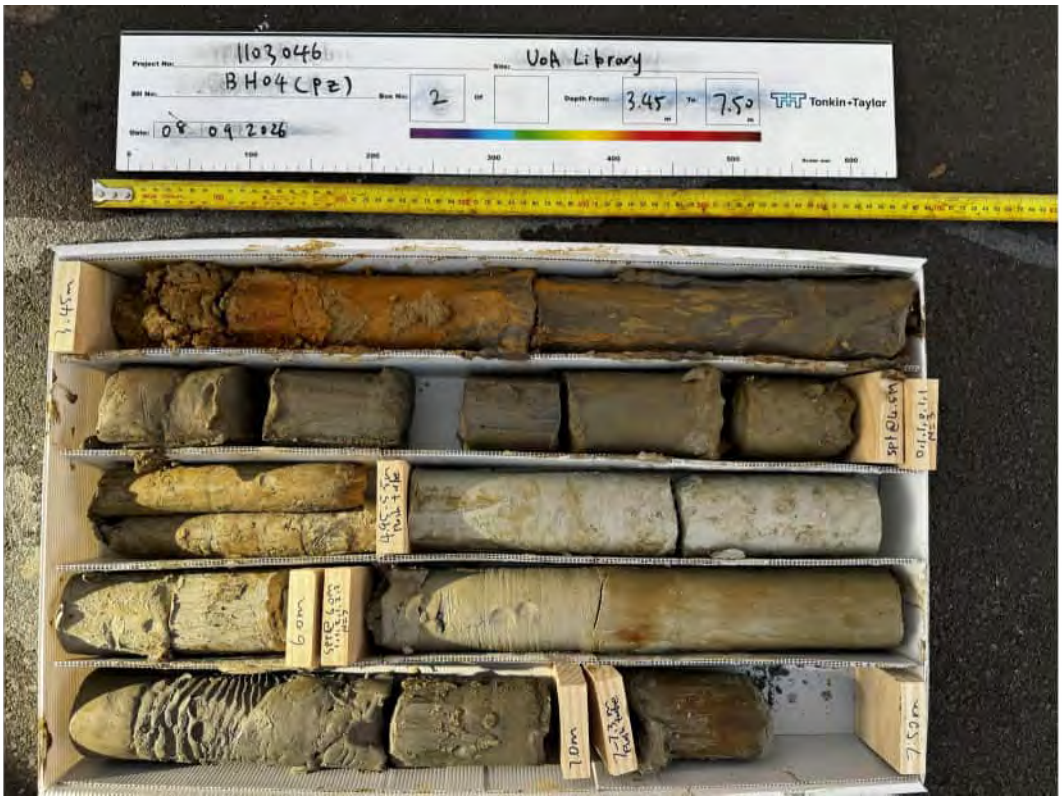
BOREHOLE No.: **BH04 (PZ)**

Hole Location: Next to Alfred Street.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920125.85 mN 1757727.20 mE	DRILL TYPE: JD1	HOLE STARTED: 08/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 10/09/2026
R.L.:	42.63m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



0.00-3.45m



3.45-7.50m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:39 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH04 (PZ)**

Hole Location: Next to Alfred Street.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920125.85 mN 1757727.20 mE	DRILL TYPE: JD1	HOLE STARTED: 08/09/2026
R.L.:	42.63m	METHOD: Rotary cored	HOLE FINISHED: 10/09/2026
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	DRILLED BY: Perry Drilling
			LOGGED BY: JASL CHECKED: JOWI



7.50-10.50m



10.50-13.81m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:39 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH04 (PZ)**

Hole Location: Next to Alfred Street.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920125.85 mN 1757727.20 mE	DRILL TYPE: JD1	HOLE STARTED: 08/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 10/09/2026
R.L.:	42.63m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



13.81-16.90m



16.90-20.00m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:39 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

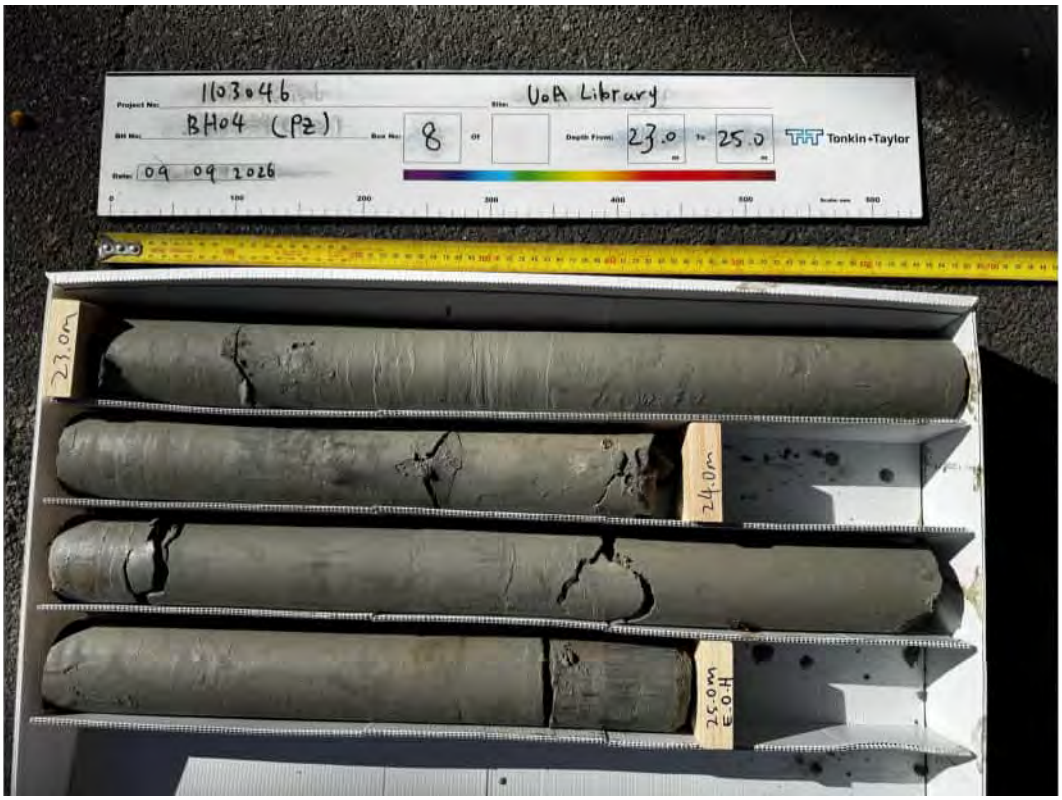
BOREHOLE No.: **BH04 (PZ)**

Hole Location: Next to Alfred Street.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920125.85 mN 1757727.20 mE	DRILL TYPE: JD1	HOLE STARTED: 08/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 10/09/2026
R.L.:	42.63m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



20.00-23.00m



23.00-25.00m

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:39 pm - Produced with Core-GS by GeRoc

Tonkin+Taylor

BOREHOLE LOG

BOREHOLE No.: **BH05**

Hole Location: In the food court hall.

SHEET: 1 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920072.64 mN 1757693.92 mE	DRILL TYPE: JD1	HOLE STARTED: 31/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 01/09/2026
R.L.:	45.59m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS									ENGINEERING DESCRIPTION								
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%) 25 50 75	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) VS 12 S 25 F 50 St 100 VSt 200 Hd 400	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) VW 1 W 5 M 20 MS 50 S 100 VS+ 200	DEFECT SPACING (mm) 20 60 200 600 2000	DESCRIPTION
Fill					100	HQTT		45				M	F				*0.00m* Concrete, some scoria fallen in from sidewalls
Auckland Volcanic Field			01/09/2026		0	SPT	1,0// 0/1/0/1 N=2	44	1								*0.60m:* SILT, minor sand and minor gravel, trace clay; light orange . Firm, moist, low plasticity; sand, fine to medium; gravel, fine, rounded to sub-rounded.
					100	HQTT	45/23 kPa in barrel	43	2				S				*1.20m:* Silty gravelly fine to coarse SAND; light brown mottled dark grey. Soft, moist, non-plastic to low plasticity; gravel, fine, sub-rounded to sub-angular.
					89	SPT	1,0// 1,2/2/1 N=6	42	3			M-W	F				*3.10m:* SILT, some sand and some gravel; reddish orange spotted dark grey. Firm, moist to wet, non-plastic to low plasticity; sand, fine; gravel, fine, rounded to sub-rounded.
					48	HQTT	38/23 kPa in barrel	41	4								
					0	SPT	0/1// 0/1/2/1 N=4	40	5			M	S-F				*4.95m:* CLAY, minor silt; light grey. Soft to firm, moist, high plasticity.
					100	HQTT	60/23 kPa in barrel	39	6								
					100	PT	PT @ 6.00m			N/L							*6.00m:* NOT LOGGED - Push tube, push tube top and bottom consistent - clayey.
East Coast Bays Formation					00	HQTT	105/38 kPa in barrel	38	7			M	F				*6.50m:* Silty CLAY; grey. Firm, moist, high plasticity.
					100	PT	PT @ 7.50m			N/L							*7.50m:* NOT LOGGED - Push tube, top and bottom of push tube consistent. Clayey.
					100	SPT	151/53 kPa in barrel 1,2// 2,2/2/3 N=9	37	8		CW	M	St				*8.00m:* SILT, some clay and some sand; grey. Stiff, moist, medium plasticity, completely weathered; sand, fine
					100	HQTT		36	9								
					100	SPT	1,2// 2,3/3/3 N=11										
					100	HQTT	UTP in barrel										*9.60 - 9.80m:* Locally silty fine to medium SAND; grey. Tightly packed, moist, non-plastic to low plasticity.

COMMENTS: Groundwater level measured at 1.3 m below ground level on 01/09/2026 in the morning prior to drilling. Hole left open overnight.

Hole Depth 25m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:41 pm - Produced with Core-GS by GeRoc

BOREHOLE LOG

BOREHOLE No.: **BH05**

Hole Location: In the food court hall.

SHEET: 2 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920072.64 mN 1757693.92 mE	DRILL TYPE: JD1	HOLE STARTED: 31/08/2026 HOLE FINISHED: 01/09/2026
R.L.:	45.59m	METHOD: Rotary cored	DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS									ENGINEERING DESCRIPTION							
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%) 25 50 75	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) VS 12 25 50 F St 100 VSt 200 Hd	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) EW 1 VW 5 W 20 MS 50 S 100 VS+	DEFECT SPACING (mm) 20 60 200 600 2000	DESCRIPTION
East Coast Bays Formation					100	HQTT		35			CW	M	St				[CONT] *8.00m* SILT, some clay and some sand; grey Stiff, moist, medium plasticity, completely weathered; sand, fine.
					100	SPT	2/4// 4/5/5/6 **N=20**		11		HW		EW				*10.30m:* Highly weathered, grey, SILTSTONE. Extremely weak, moderately cemented. Soil description: SILT, minor sand, non-plastic to low plasticity; sand, fine.
					100	HQTT		34									
					100	SPT	3/5// 5/5/5/7 **N=22**		12								
					100	HQTT		33									
					100	SPT	8/15// 20/30 for 75mm **N>=50**	32	13								*13.25m:* Highly weathered, grey, SANDSTONE. Extremely weak, moderately cemented, fine to medium grained. Soil description: silty fine to medium SAND. Very dense, non-plastic.
					100	HQTT			14		MW						*13.80m:* Moderately weathered, grey, SILTSTONE. Extremely weak, moderately cemented. Soil description: SILT, some sand. Moist, non-plastic to low plasticity; sand, fine.
					100	SPT	8/8// 7/15/5 for 10mm **N>=50** Bouncing	31	15								
					100	HQTT		30	16								
					96	SPT	12/14// 19/6 for 10mm **N>=50** Bouncing	29	17		SW		VW				*16.73m:* Slightly weathered, grey, SANDSTONE. Very weak, moderately cemented, fine and coarse grained. Indistinctly interbedded with SILTSTONE
					101	HQTT		28	18								
					0	SPT	12/38// for 40mm **N>=50** Solid Cone										
					100	HQTT		27			UW						*18.50m:* Unweathered, grey, SANDSTONE. Very weak, moderately cemented, fine to coarse grained. Interbedded with: SILTSTONE.
					-	SPT	29 for 52mm **N>=50** Solid Cone Bouncing	26	19								
					100	HQTT											*20.00 - 20.20m:* Unweathered, SILTSTONE. Extremely weak, poorly cemented. Soil description: clayey SILT. Stiff, medium plasticity.

COMMENTS: Groundwater level measured at 1.3 m below ground level on 01/09/2026 in the morning prior to drilling. Hole left open overnight.

Hole Depth 25m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:41 pm - Produced with Core-GS by GeRoc

BOREHOLE LOG

BOREHOLE No.: **BH05**

Hole Location: In the food court hall.

SHEET: 3 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920072.64 mN 1757693.92 mE	DRILL TYPE: JD1	HOLE STARTED: 31/08/2026 HOLE FINISHED: 01/09/2026
R.L.:	45.59m	METHOD: Rotary cored	DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS								ENGINEERING DESCRIPTION							
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%) 25 50 75	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) VS 12 25 50 100 200 F St VSt H	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) EW 1 VW 5 W 20 MS 60 S 100 VS+	DEFECT SPACING (mm) 20 60 200 600 2000	DESCRIPTION
East Coast Bays Formation					100	HQTT		25 21		UW		VW				[CONT] *18 50m* Unweathered, grey, SANDSTONE Very weak, moderately cemented, fine to coarse grained. Interbedded with: SILTSTONE. *20.70 - 21.10m:* Poorly cemented.
					100	HQTT		24 22								
					100	HQTT		23 24								
					100	HQTT		22 21								
								25								25m: Target depth
								20 26								
								19 27								
								18 28								
								17 29								
								16								

COMMENTS: Groundwater level measured at 1.3 m below ground level on 01/09/2026 in the morning prior to drilling. Hole left open overnight.

Hole Depth 25m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:41 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH05**

Hole Location: In the food court hall.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920072.64 mN 1757693.92 mE	DRILL TYPE: JD1	HOLE STARTED: 31/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 01/09/2026
R.L.:	45.59m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



0.00-4.95m



4.95-9.45m

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:41 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH05**

Hole Location: In the food court hall.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920072.64 mN 1757693.92 mE	DRILL TYPE: JD1	HOLE STARTED: 31/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 01/09/2026
R.L.:	45.59m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



9.45-12.65m



12.65-15.55m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:41 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH05**

Hole Location: In the food court hall.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920072.64 mN 1757693.92 mE	DRILL TYPE: JD1	HOLE STARTED: 31/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 01/09/2026
R.L.:	45.59m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



15.55-18.30m



18.30-21.20m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:41 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH05**

Hole Location: In the food court hall.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920072.64 mN 1757693.92 mE	DRILL TYPE: JD1	HOLE STARTED: 31/08/2026
		METHOD: Rotary cored	HOLE FINISHED: 01/09/2026
R.L.:	45.59m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



21.20-24.00m



24.00-25.00m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:41 pm - Produced with Core-GS by GeRoc

Tonkin+Taylor

BOREHOLE LOG

BOREHOLE No.: **BH06**

Hole Location: On artificial turf, adjacent to the quad.

SHEET: 1 OF 3

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920093.26 mN 1757689.40 mE	DRILL TYPE: JD1	HOLE STARTED: 01/09/2026 HOLE FINISHED: 03/09/2026
R.L.:	45.55m	METHOD: Rotary cored	DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS									ENGINEERING DESCRIPTION								
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%)	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa)	ESTIMATED ROCK COMPRESSIVE STRENGTH (σu, MPa)	DEFECT SPACING (mm)	DESCRIPTION
Fill					100	HANDEX		45				M	S				*0.00m* PEAT (FIBROUS), minor gravel; dark brown Soft, moist; gravel, fine, brick fragments.
Auckland Volcanic Field					100	HQTT			1								*0.50m:* Clayey SILT, trace sand; light orange streaked light grey. Soft, moist, medium plasticity; sand, fine.
					0	SPT	0/1// 0,0/0/0 N=0	44				W					*1.40m:* Gravelly SILT, some sand; light oranged spotted dark grey. Soft, wet, non-plastic to low plasticity; gravel, fine, sub-rounded to sub-angular; sand, fine to medium.
							15/5 kPa in barrel		2								
					100	HQTT		43									
					100	SPT	0,0// 0/1/2/2 N=5		3			M	S-F				*3.20m:* SILT, some sand, minor clay, trace gravel; light orange spotted grey. Soft to firm, moist, low plasticity, dilatant; sand, fine; gravel, fine.
							23/8 kPa in barrel	42									*3.45m:* CORE LOSS - Suspect soft cohesive material dropped out of barrel.
			03/09/2026		19	HQTT			4								
					67	SPT	0/1// 0/1/1/1 N=3	41				W	VS				*4.30m:* SILT, minor clay; grey. Very soft, wet, low plasticity.
							30/8 kPa in barrel		5			M	F				*4.70m:* Clayey SILT; light grey mottled light orange. Firm, moist, medium to high plasticity.
					100	HQTT		40									
					100	PT	PT @ 6.00m		6								*6.00m:* NOT LOGGED - Push tube, top and bottom of push tube consistent - clayey.
							60/23 kPa in barrel	39				M	F				*6 50m* Silty CLAY; light grey Firm, moist, high plasticity.
East Coast Bays Formation					00	HQTT			7								
					100	SPT	0/1// 1/2/2/2 N=7	38					F-St				*7.40m:* SILT, some clay, trace sand; grey. Firm to stiff, moist, medium plasticity; sand, fine.
					100	PT	PT @ 7.95m 60/23 kPa in barrel		8								*8.00m:* NOT LOGGED - Push tube, top and bottom of push tube consistent - clayey.
					100	HQTT		37			CW		EW				*8.50m:* Completely weathered, grey, SANDSTONE. Extremely weak, moderately cemented, fine to medium grained. Soil description: fine to medium SAND, some silt, minor clay. Medium dense, moist, low plasticity.
					100	HQTT	UTP in barrel		9								
								36									

COMMENTS: Groundwater level measured at 4.1 m below ground level on 03/09/2026 in the morning prior to drilling. Hole left open overnight.

Hole Depth 25m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:43 pm - Produced with Core-GS by GeRoc

BOREHOLE LOG

BOREHOLE No.: **BH06**

Hole Location: On artificial turf, adjacent to the quad.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920093.26 mN 1757689.40 mE	DRILL TYPE: JD1	HOLE STARTED: 01/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 03/09/2026
R.L.:	45.55m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS	ENGINEERING DESCRIPTION

GEOLOGICAL UNIT / ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%)	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m)	DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa)	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa)	DEFECT SPACING (mm)	DESCRIPTION
East Coast Bays Formation					100	HQTT		35			HW		EW-VW				*10.00m* Highly weathered, grey, SILTSTONE Extremely weak to very weak, moderately cemented to well cemented. Interbedded with: SANDSTONE, fine to medium grained.
					100	SPT	3/4// 5/7/8/9 **N=29**		11								
					100	HQTT		34									
					100	SPT	3/6// 8/8/10/13 **N=39**		12				VW				*11.80m:* Highly weathered, grey, SILTSTONE. Very weak, moderately cemented. Grading to: Moderately weathered, SANDSTONE Very weak, fine to medium grained.
					100	HQTT		33									
					93	SPT	8/23// 31/19 for 75mm **N>=50**		13								*13.95 - 14.90m:* Poorly cemented.
					67	HQTT		32									
					0	SPTC	4/9// 21/29 for 46mm **N>=50** Solid Cone		14		MW						*13.95m:* Moderately weathered, grey, SANDSTONE. Very weak, moderately cemented, fine to medium grained. Interbedded with: SILTSTONE.
					101	HQTT		31									
					0	SPTC	16/27// 37/13 for 15mm **N>=50** Solid Cone		15								*15.15 - 15.25m:* Grey mottled brown.
					100	HQTT		30									
					0	SPTC	10/40// for 55mm **N>=50** Solid Cone		16								
					100	HQTT		29									
					0	SPTC	30 for 60mm **N>=50** Solid Cone Bouncing		17		SW						*17.10m:* Slightly weathered, grey, SILTSTONE. Very weak, moderately cemented. Interbedded with: Unweathered, SANDSTONE. Very weak, fine to medium grained.
					69	HQTT		28									
									18								
								27									
									19								
								26									

19.50-19.56m: SPT terminated due to hammer bouncing.

19.65 - 19.80m: Light grey. Weak, well cemented.

COMMENTS: Groundwater level measured at 4.1 m below ground level on 03/09/2026 in the morning prior to drilling. Hole left open overnight.

Hole Depth 25m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:43 pm - Produced with Core-GS by GeRoc

BOREHOLE LOG

BOREHOLE No.: **BH06**

Hole Location: On artificial turf, adjacent to the quad.

PROJECT: UoA Library and Student Hub	LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: 5920093.26 mN (NZTM2000) 1757689.40 mE	DRILL TYPE: JD1	HOLE STARTED: 01/09/2026
	METHOD: Rotary cored	HOLE FINISHED: 03/09/2026
R.L.: 45.55m		DRILLED BY: Perry Drilling
DATUM: NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI

GEOLOGICAL	METHOD OBSERVATIONS								ENGINEERING DESCRIPTION							
GEOLOGICAL UNIT/ ADDITIONAL OBSERVATIONS	INSTALLATION	FLUID LOSS (%) 25 50 75	WATER	CASING	CORE RECOVERY (%)	METHOD	TESTS	RL (m) / DEPTH (m)	GRAPHIC LOG	WEATHERING CLASSIFICATION	MOISTURE CLASSIFICATION	CONSISTENCY / DENSITY CLASSIFICATION	ESTIMATED SOIL SHEAR STRENGTH (Su, kPa) VS 12 25 50 F St 100 VSt 200 Hd	ESTIMATED ROCK COMPRESSIVE STRENGTH (qu, MPa) EW 1 VW 5 W 20 MS 50 S 100 VS+	DEFECT SPACING (mm) 20 60 200 600 2000	DESCRIPTION
East Coast Bays Formation					69	HQTT		25 21		SW		VW				[CONT] *17 10m* Slightly weathered, grey, SILTSTONE. Very weak, moderately cemented. Interbedded with: Unweathered, SANDSTONE. Very weak, fine to medium grained.
					0		16/34// for 40mm **N>=50** Solid Cone	24								*21.50 - 21.60m:* Weak, well cemented.
					100	HQTT		22								*22.10 - 22.25m:* Weak, well cemented.
					100	HQTT		23 23								*23.75 - 24.30m:* Light grey. Weak, well cemented.
					100	HQTT		24 21								*24.70 - 24.90m:* Light grey. Weak, well cemented.
								25								25m: Target depth
								20 26 19 27 18 28 17 29 16								

COMMENTS: Groundwater level measured at 4.1 m below ground level on 03/09/2026 in the morning prior to drilling. Hole left open overnight.

Hole Depth 25m

Scale 1:50

Rev.: A

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:43 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH06**

Hole Location: On artificial turf, adjacent to the quad.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920093.26 mN 1757689.40 mE	DRILL TYPE: JD1	HOLE STARTED: 01/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 03/09/2026
R.L.:	45.55m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



0.00-4.50m



4.50-8.50m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:43 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH06**

Hole Location: On artificial turf, adjacent to the quad.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920093.26 mN 1757689.40 mE	DRILL TYPE: JD1	HOLE STARTED: 01/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 03/09/2026
R.L.:	45.55m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



8.50-11.65m



11.65-15.10m

TTNZ_20240924 - BoreLog (Piezo) - 12/10/2026 3:26:43 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH06**

Hole Location: On artificial turf, adjacent to the quad.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920093.26 mN 1757689.40 mE	DRILL TYPE: JD1	HOLE STARTED: 01/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 03/09/2026
R.L.:	45.55m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



15.10-18.60m



18.60-22.10m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:43 pm - Produced with Core-GS by GeRoc

CORE PHOTOS

BOREHOLE No.: **BH06**

Hole Location: On artificial turf, adjacent to the quad.

PROJECT: UoA Library and Student Hub		LOCATION: University of Auckland	JOB No.: 1103046.0000
CO-ORDINATES: (NZTM2000)	5920093.26 mN 1757689.40 mE	DRILL TYPE: JD1	HOLE STARTED: 01/09/2026
		METHOD: Rotary cored	HOLE FINISHED: 03/09/2026
R.L.:	45.55m		DRILLED BY: Perry Drilling
DATUM:	NZVD2016	DRILL FLUID: WATER POLY	LOGGED BY: JASL CHECKED: JOWI



22.10-25.00m

TTNZ_20240924 - BoreLog (Plezo) - 12/10/2026 3:26:43 pm - Produced with Core-GS by GeRoc

Appendix G Analytical soil results

Table G1: Analytical soil results - University of Auckland Waipapa Taumata Rau, Libarary and Student Hub

Sample ID	Commercial/ industrial outdoor worker human health guideline values[1]	Auckland Unitary Plan Permitted Activity Criteria[4]	Auckland Background Concentrations (volcanic range)[3]	BH01			BH02			DUP_01	BH03	BH04	BH05		BH06		
Lab number				4287036.27	4287036.28	4287036.3	4287036.2	4287036.4	4287036.9	4287036.12	4287036.13	4310559.1	4287036.2	4287036.21	4287036.33	4287036.34	4287036.37
Depth (m)				0.0-0.4	0.6-0.9	2.0-2.3	0.5-0.6	1.2-1.3	2.9-3.0	0.5-0.6	1-1.5	0.2-0.6	0.6-1.0	1.2-1.5	0.0-0.4	0.8-1.2	4.1-4.5
Strata				SILT, some gravel	SILT, some clay	Sandy gravelly SILT	Sandy SILT	Sandy GRAVEL	Silty GRAVEL, some sand	Sandy SILT	SILT, some clay	SILT some sand	SILT	Silty gravelly SAND	PEAT (fibrous)	Clayey SILT	SILT
Date				4/09/2026	4/09/2026	4/09/2026	12/08/2026	12/08/2026	12/08/2026	12/08/2026	12/08/2026	10/09/2026	31/08/2026	31/08/2026	3/09/2026	3/09/2026	3/09/2026
Asbestos in Soil[5]																	
Asbestos Type	-	NA	< LoR	Chrysotile (White Asbestos) detected	Asbestos NOT detected	-	Asbestos NOT detected	-	-	-	-	Asbestos NOT detected	Asbestos NOT detected	-	Asbestos NOT detected	-	-
Asbestos as AF/FA as % of Total Sample	0.05%	NA	< LoR	< 0.001	< 0.001	-	< 0.001	-	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Asbestos in ACM as % of Total Sample	0.001%	NA	< LoR	< 0.001	< 0.001	-	< 0.001	-	-	-	-	< 0.001	< 0.001	-	< 0.001	-	-
Heavy metals																	
Arsenic	70	100	12	4	3	< 2	< 2	< 2	7	< 2	< 2	< 2	< 2	< 2	7	2	< 2
Cadmium	1,300	7.5	0.65	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.29	< 0.10	< 0.10
Chromium	6,300	400	125	55	90	42	32	39	73	31	81	72	87	43	46	84	18
Copper	NL	325	90	25	36	35	28	29	49	28	22	38	39	37	161	33	11
Lead	3,300	250	65	88	16.8	8.9	6.1	7.3	24	6.1	8.7	11.6	11	7.3	550	18.2	7.4
Nickel	6000 [2]	320[3]	320	28	21	54	33	57	112	31	16	65	22	43	96	21	16
Zinc	400,000 [2]	1160[3]	1160	93	26	61	88	83	79	89	23	41	28	64	330	23	30
Polycyclic Aromatic Hydrocarbons																	
1-Methylnaphthalene	0.77[6]	-	<LoR	< 0.015	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	< 0.013	-	-
2-Methylnaphthalene	3,000[6]	-	<LoR	< 0.015	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	< 0.013	-	-
Acenaphthene	45,000[6]	-	<LoR	0.03	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	0.121	-	-
Acenaphthylene	-	-	<LoR	< 0.015	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	0.015	-	-
Anthracene	230,000[6]	-	<LoR	0.03	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	0.23	-	-
BaP equivalent	35	20	2	0.17	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	1.03	-	-
Benzo (a) anthracene	refer BAPeq	refer BAPeq	<LoR	0.20	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	1.27	-	-
Benzo (a) pyrene (BAP)	refer BAPeq	refer BAPeq	<LoR	0.30	< 0.039	-	< 0.036	< 0.039	-	< 0.036	< 0.015	-	< 0.042	< 0.037	1.83	-	-
Benzo (a) pyrene Toxic Equivalence (TEF)	-	-	<LoR	0.30	< 0.039	-	< 0.036	< 0.039	-	< 0.036	< 0.036	-	< 0.041	< 0.037	1.81	-	-
Benzo (b) fluoranthene + Benzo (j) fluoranthene	refer BAPeq	refer BAPeq	<LoR	0.23	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.036	-	< 0.017	< 0.015	1.41	-	-
Benzo (e) pyrene	73[6]	-	<LoR	0.11	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	0.68	-	-
Benzo (g,h,i) perylene	-	-	<LoR	0.15	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	0.85	-	-
Benzo (k) fluoranthene	refer BAPeq	refer BAPeq	<LoR	0.10	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	0.53	-	-
Chrysene	refer BAPeq	refer BAPeq	<LoR	0.18	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	1.03	-	-
Dibenzo (a,h) anthracene	refer BAPeq	refer BAPeq	<LoR	0.03	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	0.148	-	-
Fluoranthene	refer BAPeq	refer BAPeq	<LoR	0.41	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	2.6	-	-
Fluorene	30,000[6]	-	<LoR	< 0.015	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	0.066	-	-
Indeno (1,2,3-c,d) pyrene	refer BAPeq	refer BAPeq	<LoR	0.14	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	0.85	-	-
Naphthalene	230[7]	NL[8]	<LoR	< 0.08	< 0.08	-	< 0.08	< 0.08	-	< 0.08	< 0.015	-	< 0.09	< 0.08	< 0.07	-	-
Perylene	67[6]	-	<LoR	0.06	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.08	-	< 0.017	< 0.015	0.33	-	-
Phenanthrene	-	-	<LoR	0.17	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	1.2	-	-
Pyrene	23,000[6]	NL[8]	<LoR	0.38	< 0.016	-	< 0.015	< 0.016	-	< 0.015	< 0.015	-	< 0.017	< 0.015	2.8	-	-
Total of Reported PAHs in Soil				2.40	< 0.4	-	< 0.4	< 0.4	-	< 0.4	< 0.4	-	< 0.5	< 0.4	15.2	-	-

Notes:

'-' indicates not analysed or no relevant acceptance criteria

NL' indicates contaminant is non-limiting (>10,000)

All results are reported in mg/kg

250	Bold values indicates concentration exceeds upper limit of expected background concentrations
250	Greyed cell indicates concentration exceeds Auckland Unitary Plan Permitted Activity Criteria

1 - Mfe Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.

2 - Guideline values for Nickel and Zinc from NEPM (2013) National Environmental Protection (Assessment of Site Contamination) Measure 1999.

3 - Auckland Regional Council, Technical Publication 153, October 2001. Background Concentrations of inorganic elements in soils from the Auckland Region: volcanic soils

4 - Auckland Unitary Plan Operative in part E30 Contaminated Land. Permitted Activity Soil Criteria Table E30.6.1.4.1

5 - Criteria from BRANZ soil guideline value for asbestos based on Commercial and Industrial land use.

6 -USEPA Regional Screening Levels - https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables.

7 - MfE 1999. Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand, Revised 2011. Tier 1 Soil acceptance criteria for applicable pathway.

8 - MfE 1999. Guidelines for Assessing and Managing Petroleum Hydrocarbon Contaminated Sites in New Zealand, Revised 2011. Soil acceptance criteria for protection of groundwater quality.

Appendix H Laboratory Reports

R J Hill Laboratories Limited
Ground Fl, 28 Heather Street
Parnell
Auckland 1052 New Zealand

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www.hill-labs.co.nz

Certificate of Analysis

Client:	Tonkin & Taylor	**Lab No:**	4287102	A2Pv1
Contact:	Natalie O'Rourke C/- Tonkin & Taylor PO Box 5271 Auckland 1141	**Date Received:**	12-Aug-2026	
		Date Reported:	17-Aug-2026	
		Quote No:	80842	
		Order No:	1103046 UoA	
		Client Reference:	1103046 UoA	
		Submitted By:	Talia Mather	

Sample Type: Soil

Sample Name:		BH02_0.5-0.6 12-Aug-2026
Lab Number:		4287102.2
Asbestos Presence / Absence		Asbestos NOT detected.
Description of Asbestos Form		-
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w	< 0.001
As Received Weight	g	713.3
Dry Weight	g	480.3
Moisture*	%	33
Sample Fraction >10mm*	g dry wt	11.2
Sample Fraction <10mm to >2mm*	g dry wt	278.3
Sample Fraction <2mm*	g dry wt	189.8
<2mm Subsample Weight*	g dry wt	53.6
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)*	g dry wt	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001

Glossary of Terms

- Loose fibres (Minor) - One or two fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- Loose fibres (Major) - Three or more fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- ACM Debris (Minor) - One or two small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- ACM Debris (Major) - Large (>2mm) piece, or more than three small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- Unknown Mineral Fibres - Mineral fibres of unknown type detected by polarised light microscopy including dispersion staining. The fibres detected may or may not be asbestos fibres. To confirm the identities, another independent analytical technique may be required.
- Trace - Trace levels of asbestos, as defined by AS4964-2004.

For further details, please contact the Asbestos Team.

Please refer to the BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soil.
https://www.branz.co.nz/asbestos

The following assumptions have been made:

1. Asbestos Fines in the <2mm fraction, after homogenisation, is evenly distributed throughout the fraction
2. The weight of asbestos in the sample is unaffected by the ashing process.

Results are representative of the sample provided to Hill Laboratories only.

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
New Zealand Guidelines Semi Quantitative Asbestos in Soil			
As Received Weight	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g	2
Dry Weight	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g	2
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	2
Sample Fraction >10mm*	Sample dried at 100 to 105°C, 10mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g dry wt	2
Sample Fraction <10mm to >2mm*	Sample dried at 100 to 105°C, 10mm and 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g dry wt	2
Sample Fraction <2mm*	Sample dried at 100 to 105°C, 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g dry wt	2
Asbestos Presence / Absence	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	2
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	2
Weight of Asbestos in ACM (Non-Friable)	Measurement on analytical balance, from the >10mm Fraction. Weight of asbestos based on assessment of ACM form. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	2
Asbestos in ACM as % of Total Sample*	Calculated from weight of asbestos in ACM and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	2
Weight of Asbestos as Fibrous Asbestos (Friable)*	Measurement on analytical balance, from the >10mm Fraction. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	2
Asbestos as Fibrous Asbestos as % of Total Sample*	Calculated from weight of fibrous asbestos and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	2
Weight of Asbestos as Asbestos Fines (Friable)*	Measurement on analytical balance, from the <10mm Fractions. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	2
Asbestos as Asbestos Fines as % of Total Sample*	Calculated from weight of asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	2
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	Calculated from weight of fibrous asbestos plus asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	2

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed on 17-Aug-2026. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Henry Shum
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www.hill-labs.co.nz

Certificate of Analysis

Client:	Tonkin & Taylor	**Lab No:**	4308312	A2Pv1
Contact:	Natalie O'Rourke	**Date Received:**	07-Sept-2026	
	C/- Tonkin & Taylor	**Date Reported:**	11-Sept-2026	
	PO Box 5271	**Quote No:**	80842	
	Auckland 1141	**Order No:**	1103046.0000	
		Client Reference:	1103046.0000	
		Submitted By:	Talia Mather	

Sample Type: Soil

Sample Name:		BH5-0.6-1.0m 31-Aug-2026	BH01-0-0.4m 04-Sept-2026	BH01-0.6-0.9m	BH06-0-0.4m 03-Sept-2026
Lab Number:		4308312.1	4308312.5	4308312.6	4308312.10
Asbestos Presence / Absence		Asbestos NOT detected.	Chrysotile (White Asbestos) detected.	Asbestos NOT detected.	Asbestos NOT detected.
Description of Asbestos Form		-	Loose fibres	-	-
Asbestos in ACM as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	< 0.001
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	< 0.001
Asbestos as Fibrous Asbestos as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	< 0.001
Asbestos as Asbestos Fines as % of Total Sample*	% w/w	< 0.001	< 0.001	< 0.001	< 0.001
As Received Weight	g	677.2	811.8	572.1	855.8
Dry Weight	g	408.6	641.2	387.6	680.4
Moisture*	%	40	21	32	20
Sample Fraction >10mm*	g dry wt	< 0.1	40.8	< 0.1	38.8
Sample Fraction <10mm to >2mm*	g dry wt	314.8	438.0	316.0	433.3
Sample Fraction <2mm*	g dry wt	92.5	161.4	70.4	205.9
<2mm Subsample Weight*	g dry wt	56.9	56.6	53.9	58.5
Weight of Asbestos in ACM (Non-Friable)	g dry wt	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Weight of Asbestos as Fibrous Asbestos (Friable)*	g dry wt	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Weight of Asbestos as Asbestos Fines (Friable)*	g dry wt	< 0.00001	0.00036	< 0.00001	< 0.00001

Glossary of Terms

- Loose fibres (Minor) - One or two fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- Loose fibres (Major) - Three or more fibres/fibre bundles identified during analysis by stereo microscope/PLM.
- ACM Debris (Minor) - One or two small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- ACM Debris (Major) - Large (>2mm) piece, or more than three small (<2mm) pieces of material attached to fibres identified during analysis by stereo microscope/PLM.
- Unknown Mineral Fibres - Mineral fibres of unknown type detected by polarised light microscopy including dispersion staining. The fibres detected may or may not be asbestos fibres. To confirm the identities, another independent analytical technique may be required.
- Trace - Trace levels of asbestos, as defined by AS4964-2004.

For further details, please contact the Asbestos Team.

Please refer to the BRANZ New Zealand Guidelines for Assessing and Managing Asbestos in Soil.
https://www.branz.co.nz/asbestos

The following assumptions have been made:

1. Asbestos Fines in the <2mm fraction, after homogenisation, is evenly distributed throughout the fraction
2. The weight of asbestos in the sample is unaffected by the ashing process.

Results are representative of the sample provided to Hill Laboratories only.

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
New Zealand Guidelines Semi Quantitative Asbestos in Soil			
As Received Weight	Measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g	1, 5-6, 10
Dry Weight	Sample dried at 100 to 105°C, measurement on balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g	1, 5-6, 10
Moisture*	Sample dried at 100 to 105°C. Calculation = (As received weight - Dry weight) / as received weight x 100.	1 %	1, 5-6, 10
Sample Fraction >10mm*	Sample dried at 100 to 105°C, 10mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g dry wt	1, 5-6, 10
Sample Fraction <10mm to >2mm*	Sample dried at 100 to 105°C, 10mm and 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g dry wt	1, 5-6, 10
Sample Fraction <2mm*	Sample dried at 100 to 105°C, 2mm sieve, measurement on analytical balance. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland.	0.1 g dry wt	1, 5-6, 10
Asbestos Presence / Absence	Examination using Low Powered Stereomicroscopy followed by 'Polarised Light Microscopy' including 'Dispersion Staining Techniques'. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland. AS 4964 (2004) - Method for the Qualitative Identification of Asbestos in Bulk Samples.	0.01%	1, 5-6, 10
Description of Asbestos Form	Description of asbestos form and/or shape if present.	-	1, 5-6, 10
Weight of Asbestos in ACM (Non-Friable)	Measurement on analytical balance, from the >10mm Fraction. Weight of asbestos based on assessment of ACM form. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1, 5-6, 10
Asbestos in ACM as % of Total Sample*	Calculated from weight of asbestos in ACM and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1, 5-6, 10
Weight of Asbestos as Fibrous Asbestos (Friable)*	Measurement on analytical balance, from the >10mm Fraction. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1, 5-6, 10
Asbestos as Fibrous Asbestos as % of Total Sample*	Calculated from weight of fibrous asbestos and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1, 5-6, 10
Weight of Asbestos as Asbestos Fines (Friable)*	Measurement on analytical balance, from the <10mm Fractions. Analysed at Hill Laboratories - Asbestos; 28 Heather Street, Auckland. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.00001 g dry wt	1, 5-6, 10
Asbestos as Asbestos Fines as % of Total Sample*	Calculated from weight of asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1, 5-6, 10
Combined Fibrous Asbestos + Asbestos Fines as % of Total Sample*	Calculated from weight of fibrous asbestos plus asbestos fines and sample dry weight. New Zealand Guidelines for Assessing and Managing Asbestos in Soil, November 2017.	0.001 % w/w	1, 5-6, 10

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 10-Sept-2026 and 11-Sept-2026. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

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Certificate of Analysis

Client:	Tonkin & Taylor	**Lab No:**	4287036	SPv4
Contact:	Natalie O'Rourke C/- Tonkin & Taylor PO Box 5271 Auckland 1141	**Date Received:**	12-Aug-2026	
		Date Reported:	15-Sept-2026	**(Amended)**
		Quote No:	80842	
		Order No:	1103046 UoA	
		Client Reference:	1103046 UoA	
		Submitted By:	Talia Mather	

Sample Type: Soil

Sample Name:		BH02_0.5-0.6 12-Aug-2026	BH02_1.2-1.3 12-Aug-2026	BH02_2.9-3.0 12-Aug-2026	Dup_01 12-Aug-2026	BH03_1-1.5m 14-Aug-2026
Lab Number:		4287036.2	4287036.4	4287036.9	4287036.12	4287036.13
Individual Tests						
Dry Matter	g/100g as rcvd	67	62	-	66	67
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	< 2	< 2	7	< 2	< 2
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	32	39	73	31	81
Total Recoverable Copper	mg/kg dry wt	28	29	49	28	22
Total Recoverable Lead	mg/kg dry wt	6.1	7.3	24	6.1	8.7
Total Recoverable Nickel	mg/kg dry wt	33	57	112	31	16
Total Recoverable Zinc	mg/kg dry wt	88	83	79	89	23
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.4	< 0.4	-	< 0.4	< 0.4
1-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
2-Methylnaphthalene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Acenaphthylene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Acenaphthene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Anthracene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Benzo[a]anthracene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.036	< 0.039	-	< 0.036	< 0.036
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.036	< 0.039	-	< 0.036	< 0.036
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Benzo[e]pyrene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Benzo[k]fluoranthene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Chrysene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Fluoranthene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Fluorene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Naphthalene	mg/kg dry wt	< 0.08	< 0.08	-	< 0.08	< 0.08
Perylene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Phenanthrene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015
Pyrene	mg/kg dry wt	< 0.015	< 0.016	-	< 0.015	< 0.015

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The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Sample Type: Soil						
Sample Name:		BH5-0.6-1.0 m 31-Aug-2026	BH5-1.2-1.5 m 31-Aug-2026	BH01-0-0.4 m 04-Sept-2026	BH01-0.6-0.9 m 04-Sept-2026	BH01-2-2.3 m 04-Sept-2026
Lab Number:		4287036.20	4287036.21	4287036.27	4287036.28	4287036.30
Individual Tests						
Dry Matter	g/100g as rcvd	57	65	68	63	-
Heavy Metals, Screen Level						
Total Recoverable Arsenic	mg/kg dry wt	< 2	< 2	4	3	< 2
Total Recoverable Cadmium	mg/kg dry wt	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	87	43	55	90	42
Total Recoverable Copper	mg/kg dry wt	39	37	25	36	35
Total Recoverable Lead	mg/kg dry wt	11.0	7.3	88	16.8	8.9
Total Recoverable Nickel	mg/kg dry wt	22	43	28	21	54
Total Recoverable Zinc	mg/kg dry wt	28	64	93	26	61
Polycyclic Aromatic Hydrocarbons Screening in Soil*						
Total of Reported PAHs in Soil	mg/kg dry wt	< 0.5	< 0.4	2.4	< 0.4	-
1-Methylnaphthalene	mg/kg dry wt	< 0.017	< 0.015	< 0.015	< 0.016	-
2-Methylnaphthalene	mg/kg dry wt	< 0.017	< 0.015	< 0.015	< 0.016	-
Acenaphthylene	mg/kg dry wt	< 0.017	< 0.015	0.032	< 0.016	-
Acenaphthene	mg/kg dry wt	< 0.017	< 0.015	< 0.015	< 0.016	-
Anthracene	mg/kg dry wt	< 0.017	< 0.015	0.033	< 0.016	-
Benzo[a]anthracene	mg/kg dry wt	< 0.017	< 0.015	0.165	< 0.016	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	< 0.017	< 0.015	0.20	< 0.016	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	< 0.042	< 0.037	0.30	< 0.039	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	< 0.041	< 0.037	0.30	< 0.039	-
Benzo[b]fluoranthene + Benzo[j] fluoranthene	mg/kg dry wt	< 0.017	< 0.015	0.23	< 0.016	-
Benzo[e]pyrene	mg/kg dry wt	< 0.017	< 0.015	0.111	< 0.016	-
Benzo[g,h,i]perylene	mg/kg dry wt	< 0.017	< 0.015	0.146	< 0.016	-
Benzo[k]fluoranthene	mg/kg dry wt	< 0.017	< 0.015	0.096	< 0.016	-
Chrysene	mg/kg dry wt	< 0.017	< 0.015	0.175	< 0.016	-
Dibenzo[a,h]anthracene	mg/kg dry wt	< 0.017	< 0.015	0.030	< 0.016	-
Fluoranthene	mg/kg dry wt	< 0.017	< 0.015	0.41	< 0.016	-
Fluorene	mg/kg dry wt	< 0.017	< 0.015	< 0.015	< 0.016	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	< 0.017	< 0.015	0.136	< 0.016	-
Naphthalene	mg/kg dry wt	< 0.09	< 0.08	< 0.08	< 0.08	-
Perylene	mg/kg dry wt	< 0.017	< 0.015	0.061	< 0.016	-
Phenanthrene	mg/kg dry wt	< 0.017	< 0.015	0.172	< 0.016	-
Pyrene	mg/kg dry wt	< 0.017	< 0.015	0.38	< 0.016	-

Sample Name:		BH06-0-0.4 m 03-Sept-2026	BH06-0.8-1.2 m 03-Sept-2026	BH06-4.1-4.5 m 03-Sept-2026
Lab Number:		4287036.33	4287036.34	4287036.37
Individual Tests				
Dry Matter	g/100g as rcvd	76	-	-
Heavy Metals, Screen Level				
Total Recoverable Arsenic	mg/kg dry wt	7	2	< 2
Total Recoverable Cadmium	mg/kg dry wt	0.29	< 0.10	< 0.10
Total Recoverable Chromium	mg/kg dry wt	46	84	18
Total Recoverable Copper	mg/kg dry wt	161	33	11
Total Recoverable Lead	mg/kg dry wt	550	18.2	7.4
Total Recoverable Nickel	mg/kg dry wt	96	21	16
Total Recoverable Zinc	mg/kg dry wt	330	23	30
Polycyclic Aromatic Hydrocarbons Screening in Soil*				
Total of Reported PAHs in Soil	mg/kg dry wt	15.2	-	-
1-Methylnaphthalene	mg/kg dry wt	< 0.013	-	-
2-Methylnaphthalene	mg/kg dry wt	< 0.013	-	-
Acenaphthylene	mg/kg dry wt	0.121	-	-
Acenaphthene	mg/kg dry wt	0.015	-	-
Anthracene	mg/kg dry wt	0.23	-	-

Sample Type: Soil				
Sample Name:		BH06-0-0.4 m 03-Sept-2026	BH06-0.8-1.2 m 03-Sept-2026	BH06-4.1-4.5 m 03-Sept-2026
Lab Number:		4287036.33	4287036.34	4287036.37
Polycyclic Aromatic Hydrocarbons Screening in Soil*				
Benzo[a]anthracene	mg/kg dry wt	1.03	-	-
Benzo[a]pyrene (BAP)	mg/kg dry wt	1.27	-	-
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	mg/kg dry wt	1.83	-	-
Benzo[a]pyrene Toxic Equivalence (TEF)*	mg/kg dry wt	1.81	-	-
Benzo[b]fluoranthene + Benzo[j]fluoranthene	mg/kg dry wt	1.41	-	-
Benzo[e]pyrene	mg/kg dry wt	0.68	-	-
Benzo[g,h,i]perylene	mg/kg dry wt	0.85	-	-
Benzo[k]fluoranthene	mg/kg dry wt	0.53	-	-
Chrysene	mg/kg dry wt	1.03	-	-
Dibenzo[a,h]anthracene	mg/kg dry wt	0.148	-	-
Fluoranthene	mg/kg dry wt	2.6	-	-
Fluorene	mg/kg dry wt	0.066	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg dry wt	0.85	-	-
Naphthalene	mg/kg dry wt	< 0.07	-	-
Perylene	mg/kg dry wt	0.33	-	-
Phenanthrene	mg/kg dry wt	1.20	-	-
Pyrene	mg/kg dry wt	2.8	-	-

Analyst's Comments

Amended Report: This certificate of analysis replaces report '4287036-SPv3' issued on 11-Sept-2026 at 1:20 pm.
Reason for amendment: Additional testing added as per clients request.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	2, 4, 9, 12-13, 20-21, 27-28, 30, 33-34, 37
Total of Reported PAHs in Soil	Sonication extraction, GC-MS/MS analysis. In-house based on US EPA 8270.	0.03 mg/kg dry wt	2, 4, 12-13, 20-21, 27-28, 33
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	0.10 - 4 mg/kg dry wt	2, 4, 9, 12-13, 20-21, 27-28, 30, 33-34, 37
Polycyclic Aromatic Hydrocarbons Screening in Soil*	Sonication extraction, GC-MS/MS analysis. Tested on as received sample. In-house based on US EPA 8270.	0.010 - 0.05 mg/kg dry wt	2, 4, 12-13, 20-21, 27-28, 33
Dry Matter	Dried at 103°C for 4-22hr (removes 3-5% more water than air dry) , gravimetry. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed). US EPA 3550.	0.10 g/100g as rcvd	2, 4, 12-13, 20-21, 27-28, 33
Benzo[a]pyrene Potency Equivalency Factor (PEF) NES*	BaP Potency Equivalence calculated from; Benzo(a)anthracene x 0.1 + Benzo(b)fluoranthene x 0.1 + Benzo(j)fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Benzo(a)pyrene x 1.0 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Fluoranthene x 0.01 + Indeno(1,2,3-c,d)pyrene x 0.1. Ministry for the Environment. 2011. Methodology for Deriving Standards for Contaminants in Soil to Protect Human Health. Wellington: Ministry for the Environment.	0.024 mg/kg dry wt	2, 4, 12-13, 20-21, 27-28, 33
Benzo[a]pyrene Toxic Equivalence (TEF)*	Benzo[a]pyrene Toxic Equivalence (TEF) calculated from; Benzo[a]pyrene x 1.0 + Benzo(a)anthracene x 0.1 + Benzo(b) fluoranthene x 0.1 + Benzo(k)fluoranthene x 0.1 + Chrysene x 0.01 + Dibenzo(a,h)anthracene x 1.0 + Indeno(1,2,3-c,d)pyrene x 0.1. Guidelines for assessing and managing contaminated gasworks sites in New Zealand (GMG) (MfE, 1997).	0.024 mg/kg dry wt	2, 4, 12-13, 20-21, 27-28, 33

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 14-Aug-2026 and 15-Sept-2026. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.



Ara Heron BSc (Tech)
Client Services Manager - Environmental

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www.hill-labs.co.nz

Certificate of Analysis

Client:	Tonkin & Taylor	**Lab No:**	4310559	SPv1
Contact:	Natalie O'Rourke	**Date Received:**	09-Sept-2026	
	C/- Tonkin & Taylor	**Date Reported:**	15-Sept-2026	
	PO Box 5271	**Quote No:**	80842	
	Auckland 1141	**Order No:**	1103046	
		Client Reference:	1103046	
		Submitted By:	Talia Mather	

Sample Type: Soil

Sample Name:		BH04-0.2-0.6 m 09-Sept-2026
Lab Number:		4310559.1
Heavy Metals, Screen Level		
Total Recoverable Arsenic	mg/kg dry wt	< 2
Total Recoverable Cadmium	mg/kg dry wt	< 0.10
Total Recoverable Chromium	mg/kg dry wt	72
Total Recoverable Copper	mg/kg dry wt	38
Total Recoverable Lead	mg/kg dry wt	11.6
Total Recoverable Nickel	mg/kg dry wt	65
Total Recoverable Zinc	mg/kg dry wt	41

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request. Unless otherwise indicated, analyses were performed at Hill Labs, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Soil

Test	Method Description	Default Detection Limit	Sample No
Environmental Solids Sample Drying*	Air dried at 35°C Used for sample preparation. May contain a residual moisture content of 2-5%. (Free water removed before analysis, non-soil objects such as sticks, leaves, grass and stones also removed).	-	1
Heavy Metals, Screen Level	Dried sample, < 2mm fraction. Nitric/Hydrochloric acid digestion. Complies with NES Regulations. ICP-MS screen level, interference removal by Kinetic Energy Discrimination if required. US EPA 200.2 (modified), APHA 3125 B: Online Edition.	0.10 - 4 mg/kg dry wt	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 11-Sept-2026 and 15-Sept-2026. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

This certificate of analysis must not be reproduced, except in full, without the written consent of the signatory.

Kim Harrison MSc
Client Services Manager - Environmental

This Laboratory is accredited by International Accreditation New Zealand (IANZ), which represents New Zealand in the International Laboratory Accreditation Cooperation (ILAC). Through the ILAC Mutual Recognition Arrangement (ILAC-MRA) this accreditation is internationally recognised.
The tests reported herein have been performed in accordance with the terms of accreditation, with the exception of tests marked * or any comments and interpretations, which are not accredited.

Appendix I Council contamination enquiry

8 July 2026

Tonkin & Taylor Limited
PO Box 2093
WELLINGTON

Attention: Natalie O'Rourke

Dear Natalie,

Site Contamination Enquiry – *8 Alfred Street, Auckland Central - Lot 1 DP 151178*

This letter is in response to your enquiry requesting available site contamination information within Auckland Council records for the above site. Please note this report does not constitute a site investigation report; such reports are required to be prepared by a (third-party) Suitably Qualified and Experienced Practitioner.

The following details are based on information available to the Contamination, Air & Noise Team in the Planning & Resource Consent Department. The details provided may be from former regional council information, as well as property information held by the former district/city councils. For completeness the relevant property file should also be requested to obtain all historical records and reports via 09 3010101 or online at:

https://www.aucklandcouncil.govt.nz/buying-property/order-property-report/Pages/order-property-file.aspx.

1. Hazardous Activities and Industries List (HAIL) Information

This list published by the Ministry for the Environment (MfE) comprises activities and industries that are considered likely to cause land contamination as a result of hazardous substance use, storage, and/or disposal.

Council's records indicate this site has possibly been subject to the following activities that fall within the HAIL:

- HAIL Item (E1) - Asbestos products manufacture or disposal including sites with buildings containing asbestos products known to be in a deteriorated condition
- Potential HAIL (I) - Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment

Records indicate the site (8 Alfred Street, Auckland Central, Lot 1 DP 151178) has been used as a university since the 1960s. Prior to this, the site contained residential buildings.

A Ground Contamination Assessment completed in February 2019 for the construction of a Recreation and Wellness Centre indicated the site contained fill up to 1.5 mbgl. The assessment indicates that a historic transformer room was located in the west of building 312. Additionally, a boiler room was situated within the rear of building 312 with an associated underground storage tank positioned north of the building. The concentration of contaminants in soil samples met the adopted human health and environmental discharge criteria. Trace levels of asbestos and low levels of PAHs were detected in some samples. Groundwater sampling identified exceedances of 80% ANZECC protection of marine species values for copper and zinc however were not expected to be an indication of contamination at the site.

A Validation letter dated July 2020 found asbestos fibre concentrations in soil samples up to Class B levels in the B301 basement. A Site Validation Report dated August 2024 states that asbestos in soil

remains at concentrations which may present a risk to human health. The remaining contaminated soil was capped with a geotextile layer followed by a soft cap of at least 0.2 m.

Please note:

- *If you are demolishing any building that may have asbestos containing materials (ACM) in it, you have obligations under the Health and Safety at Work (Asbestos) Regulations 2016 for the management and removal of asbestos, including the need to engage a Competent Asbestos Surveyor to confirm the presence or absence of any ACM.*
- *Paints used on external parts of properties up until the mid-1970's routinely contained lead, a poison and a persistent environmental pollutant. You are advised to ensure that soils affected by old, peeling or flaking paint are assessed in relation to the proposed use of the property, including high risk use by young children.*

2. Consents and Incidents Information (200m radius of the selected site)

The Council database was searched for records of the following activities within approximately 200 metres of the site:

- Pollution Incidents (including air discharges, oil or diesel spills)
- Bores
- Contaminated site and air discharges, and industrial trade process consents
- Closed Landfills
- Air quality permitted activities
- Identified HAIL activities

A map of relevant records can be found appended to this letter as Attachment B.

Relevant details of any pollution incidents, consents and HAIL activities are appended to this letter (Attachment A). Please refer to the column titled 'Property Address' on the spreadsheet to aid in identifying corresponding data on the map.

For any identified HAIL sites, please refer to the tab "HAIL activities" for more information (Column C and D include HAIL activity details where these are available).

Please note:

The HAIL activity hatching in Attachment B only reflects whether a site has been identified as a HAIL site (both verified and non-verified) by the Council and the type of HAIL associated with the site. This does not confirm whether the site has been formally investigated or the contamination status of the property (e.g. contaminated, remediated etc.). Additionally, due to limitations within Council's records, the specific HAIL activity is not included in the data for all properties. For further information on any of these known HAIL sites, a subsequent site contamination enquiry can be lodged for the specific property (up to 5 adjacent properties can be covered in one request).

While the Auckland Council has carried out the above search using its best practical endeavours, it does not warrant its completeness or accuracy and disclaims any responsibility or liability in respect of the information. If you or any other person wishes to act or to rely on this information, or make any financial commitment based upon it, it is recommended that you seek appropriate technical and/or professional advice.

If you wish to clarify anything in this letter that relates to this site, please contact contaminatedsites@aucklandcouncil.govt.nz. Any follow up requests for information on other sites must go through the online order process.

Should you wish to request any of the files referenced above and/or listed in the attached spreadsheet for viewing, please contact the Auckland Council Call Centre on 301 0101 and note you are requesting former Auckland Regional Council records (the records department requires three working days' notice to ensure the files will be available).

Please note Auckland Council cost recovers officer's time for all site enquiries. As such an invoice for the time involved in this enquiry will follow shortly.

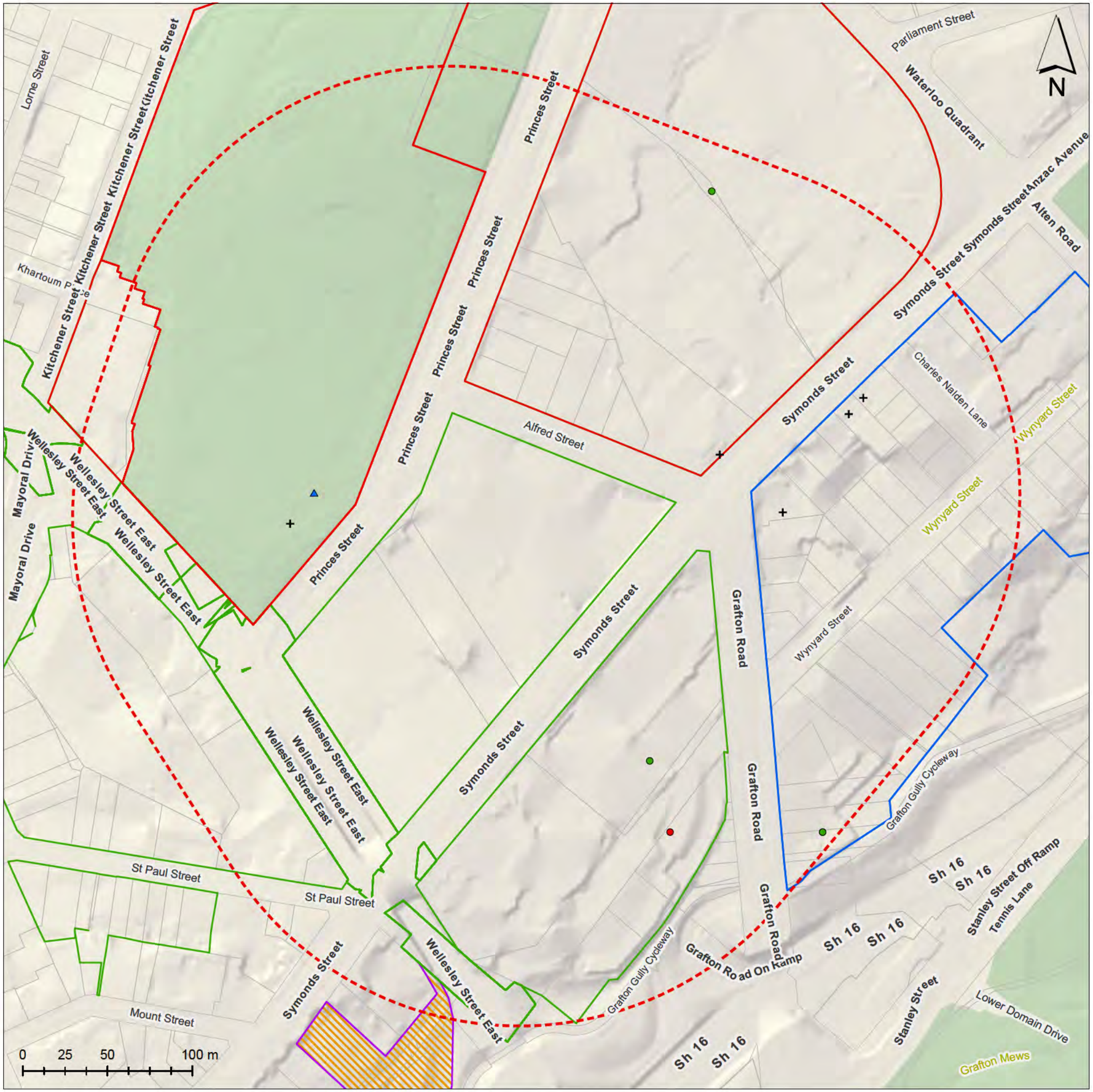
Yours Sincerely,

Contamination, Air and Noise Team
Specialist Unit | Planning & Resource Consents
Auckland Council

Site Contamination Enquiry Report

Legend

- Area of Interest
- Legacy Consent - Bore
- Legacy Consent - Discharge
- Legacy Application - Take
- SIIED Pollution Incident
- Auckland Council Consent - Bore
- Auckland Council Consent - Take
- Auckland Council Consent - Discharge
- SAP Property Characteristic
- HAIL - Contaminated Sites



Appendix J Regulatory framework

The rules and associated assessment criteria relating to the control of contaminated sites in the Auckland region are specified in the following documents:

- The NESCS.
- The AUP; and
- Health and Safety at Work (Asbestos) Regulation 2016 (Asbestos Regulations).

The NESCS considers issues relating to land use and the protection of human health while the AUP has regard to issues relating to the protection of the general environment. The management of asbestos in soils is regulated under Asbestos Regulations. As asbestos is principally considered to be a human health contaminant the Asbestos Regulations (like the NESCS) currently only considers issues relating to the protection of human health.

In order to help achieve compliance with the Asbestos Regulations, WorkSafe New Zealand has prepared an Approved Code of Practice (ACoP): Management and Removal of Asbestos (September 2016).

The requirement under each regulatory system (the NESCS, AUP and Asbestos Regulations) for contaminated sites are described in this appendix.

J1 NESCS

J1.1 Applicability

The NESCS came into effect on 1 January 2012. This legislation sets out nationally consistent planning controls appropriate to district and city councils for assessing contaminants in soil with regard to human health. As a result, the NESCS prevails over the rules in the District Plan, except where the rules permit or restrict effects that are not dealt with in the NESCS.

The NESCS applies to specific activities on land where a HAIL activity has, or is more likely than not to have occurred. Activities covered under the NESCS include soil disturbance, soil sampling, fuel systems removal, subdivision and land use change.

The following table (Appendix J Table 1), as provided in the NESCS Users Guide (April 2012), confirms the NESCS applies to the site.

Appendix J Table 1: PSI checklist

NES Soil Requirement	Applicable to site?
Is an activity described on the HAIL currently being undertaken on the piece of land to which this application applies?	Yes
Has an activity described on the HAIL ever been undertaken on the piece of land to which this application applies?	Yes
Is it more likely than not that an activity described on HAIL is being or has been undertaken on the piece of land to which this application applies?	Yes
If 'Yes' to any of the above, then the NESCS may apply. **The five activities to which the NES applies are:**	
Is the activity you propose to undertake removing or replacing a fuel storage system or parts of it?	Yes*
Is the activity you propose to undertake sampling soil?	No
Is the activity you propose to undertake disturbing soil?	Yes

NES Soil Requirement	Applicable to site?
Is the activity you propose to undertake subdividing land?	No
Is the activity you propose to undertake changing the use of the land?	No
Conclusion: The NESCS applies to the Site	

Note: *Assumed yes based on preliminary earthworks layout plan[28].

An assessment against the relevant permitted activity standards of the NESCS is provided in Appendix J Table 2.

Appendix J Table 2: NESCS Permitted Activity assessment for soil disturbance

NES Soil – Soil disturbance permitted activity conditions (Regulation 8(3))		Assessment
a	Implementation of controls to minimise exposure of humans to mobilised contaminants.	CAN COMPLY- Controls will be in place to prevent mobilisation of contamination.
b	The soil must be reinstated to an erosion free state within one month of completing the land disturbance.	CAN COMPLY - The area of land disturbance will be reinstated to an erosion free state on completion of the works.
c	The volume of the disturbance of the piece of land must be no more than 25 m^3 per 500 m^2.	**UNLIKELY TO COMPLY** - If less than 285 m^3 is disturbed as part of the development (based on a HAIL activity area of 5,700 m^2, the volume will comply with the permitted activity threshold. Based on preliminary earthworks layout plans[29], we anticipate that the proposed activity will not comply.
d	Soil must not be taken away unless it is for laboratory testing or, for all other purposes combined, a maximum of 5 m^3 per 500 m^2 of soil may be taken away per year.	**UNLIKELY TO COMPLY** – If less than 114 m^3 of excavated soil is removed from site, the volume will comply with the permitted activity threshold for the site assuming the works span two arbitrary years[30]. It is expected that excavated soil for the proposed development will be removed from site, and based on preliminary earthworks layout plans[31], we anticipate the proposed activity is unlikely to comply.
e	Soil taken away must be disposed of at an appropriately licensed facility.	CAN COMPLY - Soil removed from site will be disposed to an approved facility.
f	The duration of land disturbance must be no longer than two months.	**WILL NOT COMPLY –** Based on the draft Construction Management Programme[32], land disturbance will last more than two months.
g	The integrity of a structure designed to contain contaminated soil or other contaminated materials must not be compromised.	NOT APPLICABLE - as there are no structures containing contamination within the area subject to land disturbance.

28

29

30 A year is not defined in the NESCS, so this volume can be disturbed or disposed of on two consecutive days, with each day considered as occurring in consecutive years, enabling thresholds to effectively be doubled.

31

32 RCP Limited., 25 September 2026, Student Centre and Library Draft Construction Management Plan. Prepared for Waipapa Taumata Rau, University of Auckland.

Based on our understanding of the proposed activity, the proposed works do not meet the provisions of a Permitted Activity under the NESCS Regulation 8(3)(4) and a resource consent will be required. If investigations to quantify contamination (i.e. a DSI) are not carried out then a discretionary consent is required.

J2 AUP

The AUP was released on 15 November 2016. This version supersedes the Decisions Version, the Independent Hearings Panel Recommended Version and the original proposed version.

The contaminated land rules, set out in Chapter E Environmental Risk Section E30, are not subject to any appeal, hence, the rules can now be 'treated as operative' under section 86F of the Resource Management Act 1991.

Rule E30.6.1.4 states that if soil concentrations or the 95% upper confidence limit (UCL) of soil concentrations are below the specified permitted activity criteria detailed in Table E30.6.1.4.1, then a resource consent is not required for the site. If soil contaminant concentrations exceed these relevant guidelines or separate phase is present, then a controlled activity consent for the ongoing discharge of contaminants is required. Key activity PA thresholds are:

- Soil disturbance – 200 m^3.
- Appropriate controls to minimise discharges of contaminants to the environment must be in place; and
- The works must be completed within two months.

On the basis of the soil volume threshold, we expect consent under Section E30 of the AUP will be required on the same basis as under the NESCS. Completion of a DSI can confirm whether consent is required under the AUP.

J2.1 Health and Safety at Work (Asbestos) Regulations 2016

The management of asbestos in soils is regulated under the Health and Safety at Work (asbestos) Regulations 2016 (Asbestos Regulations). In order to help achieve compliance with the Asbestos Regulations, Worksafe New Zealand has prepared an Approved Code of Practice (ACoP): Management and Removal of Asbestos (September 2016). The ACoP refers readers to the Asbestos in Soil Guidelines[33].

As discussed in Section 4, there may be some impacts to soil from use of asbestos building materials on the site. Therefore, the Asbestos Regulations may apply to future excavation works or redevelopment if asbestos is present in soils.

The Asbestos in Soil Guidelines define the level of oversight and controls (including personal protective equipment, decontamination etc.) that are required to be implemented dependent on the concentration of asbestos fibres/fines or fragments that are present in the soils. In the absence of soil sampling data it is not possible to confirm the level of control (if any) that will be required in relation to this site. If asbestos is present in soil above human health limits (as outlined in the Asbestos in Soil Guidelines), additional controls above standard earthworks controls and hygiene may be required to manage and mitigate potential risks.

As the buildings onsite were constructed prior to the 2000s, they are considered to be a moderate risk of containing asbestos. An asbestos building survey should be considered to confirm whether asbestos may be present in the buildings on site and whether the Asbestos Regulations apply. The

[33] BRANZ Ltd (2024). New Zealand Guidelines for Assessing and Managing Asbestos in Soil.

results of the building survey would assist with determining the appropriate controls, if required, under the Asbestos Regulations for asbestos in the building fabric.

Appendix K Asbestos Controls – Trace Asbestos Contamination

Scenario	PPE	Respiratory protective equipment (RPE)*	Dust/asbestos fibre suppression	Decontamination facilities
Class A Contamination >0.01 f/ML (Air) >1% FA/AF (Soil)	Disposable coveralls rated type 5, category 3, nitrile gloves, steel toe capped gumboots or safety footwear with disposable overshoes.	Full-face P3 respirator with particulate filter. Consider increasing to power-assisted if required.	Water and asbestos-encapsulating polymer emulsion product applied before starting work and during as required. Consider adding a surfactant to water for amphibole fibres (brown and blue).	Basic disposable wet decontamination tent or trailer. Consider powered and plumbed decontamination unit if project scale warrants.
Class B Contamination >0.01 f/ML (Air) >0.01% FA/AF (Soil) >1% ACM (Soil)		Half-face P3 respirator with particulate filter. Consider increasing to full-face if friable ACM present.		Basic disposable decontamination tent and foot wash.
Low Level Asbestos Contamination ≤0/01 f/ML (Air) >0.001% FA/AF (Soil) >0.01% ACM (Soil)		Disposable P2 dust mask.	Water via localised points. Addition of surfactants and polymers where the location is sensitive (such as adjacent to busy centres, schools). Temporary cover of contaminated area awaiting remediation.	
Trace Asbestos Contamination ≤0.01 f/ML (Air) <0.001% FA/AF (Soil) <0.01% ACM (Soil)	No asbestos-specific PPE if air monitoring confirms asbestos below 0.01 f/ml.	No asbestos-specific RPE if SQEP confirms unlikely to exceed trace levels in air monitoring (0.01 f/ml) and/or if air monitoring confirms asbestos below 0.01 f/ml.		Foot wash and used PPE collection area.

*Refer to Part C section 14 of the ACOP and AS/NZS 1715:2009 for more information on RPE selection.

Scenario	Vehicle assessment before demobilisation from site	Vehicle assessment completed by	Vehicle (truck) protection	Truck/excavator air conditioning
Class A Contamination >0.01 f/ML (Air) >1% FA/AF (Soil)	Visual plus swab samples, air sampling should be undertaken inside the cab.	Independent assessor or independent competent person.*	200 µm heavy-gauge polythene wrapped soil/lined trays and truck covered.	HEPA filter system fitted for all occupied vehicles, filter replaced or clean down with HEPA vacuum cleaner post work.
Class B Contamination >0.01 f/ML (Air) >0.01% FA/AF (Soil) >1% ACM (Soil)	Visual (plus swab samples if friable ACM is elsewhere on site – lagging, insulation, etc).	Independent assessor or independent competent person.*		HEPA filter system fitted for all occupied vehicles where friable ACM on site (lagging, insulation, etc).
Low Level Asbestos Contamination ≤0/01 f/ML (Air) >0.001% FA/AF (Soil) >0.01% ACM (Soil)	Visual assessment.	Competent person or SQEP.	Truck lining/soil wrapping depends on the receiving landfill. All trucks should be covered.	Standard air conditioning.
Trace Asbestos Contamination ≤0.01 f/ML (Air) <0.001% FA/AF (Soil) <0.01% ACM (Soil)				

*An independent competent person must meet the requirements of regulation 41(3) under the Asbestos Regulations.



Together we create + sustain a better world