



10th September 2021

The Planning Secretary
Department of Planning, Industry & Environment
320 Pitt Street
Sydney, NSW 2000

Attention: Megan Fu
Project: Nihon University Newcastle Campus - SSD 9787
Re: Conditions of Consent 32

Dear Megan,

Reference is made to SSD 9787 Conditions of Consent E32 in relation to the Long Term Environmental Management Plan requirements to the development.

A Long Term Environmental Management Plan [LTEMP] has been prepared to address the requirements of Conditions of Consent E32. The plan has been prepared by a certified Contaminated Land Consultant addressing the requirements outlined in Condition of Consent E32[c]. The LTEMP has been reviewed and approved by the NSW EPA Accredited Site Auditor. In accordance with Condition of Consent 32, please find attached a copy of the approved LTEMP. A copy of the LTEMP will be forwarded to the Council to address Condition of Consent E33.

Should you require further clarification on the Long Term Environmental Management Plan, please feel free to contact either Katherine Daunt or Edward Clode at dwp Australia Pty.

Yours sincerely,



Edward Clode
Design Director

Registered Architect – NSW ARBN 4100

Email: edward.c@dwp.com

File: 17-0347_A-d01-20_let

Encl.: Douglas Patners LTEMP 10.09.2021

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Integrated Practical Solutions

Long-term Environmental Management Plan

Nihon University
9 Church Street, Newcastle

Prepared for
Nihon Daigaku Australia Newcastle

Project 91667.03
September 2021



Document History

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
Author		10 September 2021
Reviewer		10 September 2021



FS 604853

Douglas Partners Pty Ltd
 ABN 75 053 980 117
www.douglaspartners.com.au
 15 Callistemon Close
 Warabrook NSW 2304
 PO Box 324
 Hunter Region Mail Centre NSW 2310
 Phone (02) 4960 9600

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Appendix A: About This Report

Appendix B: Table 2: Emergency Contacts

Table 3: Capping/Condition Inspection Guide

Letter from Azusa Sekkei Co Ltd (acting on behalf of Nihon University) dated 10 September 2021

Table 10 DP(2020c) - Results of Chemical Analysis of Soil (Contamination)

Appendix C: Drawing 1 – Test Location Plan

Moir LP02 (Rev M) - General Arrangement dated 21.05.2021

Moir - LP17 (Rev M) - Remediation Action Plan dated 30.08.2021

Geosurv Asbuilt Remediation Layers Plans (191196-AB-R-01 (E) dated 6.09.2021)

Report on Long-term Environmental Management Plan

Nihon University

9 Church Street, Newcastle

1. Introduction

This Long-term Environmental Management Plan (LTEMP) provides procedures for long term management of contaminated soils, which are present within the subject site shown on Drawing 1 attached.

Contaminated soils/fill containing bonded asbestos-containing materials (ACM) are present across the site due to uncontrolled historic fill and historic demolition of structures within the site. Based on the results of previous assessments at the site, the remediation strategy for the proposed redevelopment comprised the management of bonded asbestos impacted soils under structures, pavements, or beneath 'clean' soil capping. While Polycyclic Aromatic Hydrocarbons (PAH), heavy metals and petroleum hydrocarbon (TRH) impacts were identified within fill on site exceeding the adopted Tier 1 health based and ecological investigation / screening levels (refer to DP 2020a for details), remediation for these contaminants was not warranted based on statistical analysis and consideration of the ecological setting and the proposed development.

On-site management (capping) of contaminated soils was conducted in a controlled manner with reference to regulatory requirements and the NSW EPA Auditor approved Remediation Action Plan (RAC) for the site (DP, 2020a) to render the site suitable for use as a university campus. Details of remediation and validation works are provided in the validation report for the site (DP, 2021). In summary, significant volumes of fill material were removed from site during construction, and the remaining potentially impacted soils were capped beneath existing and proposed buildings, new pavements and landscape areas, as shown on Geosurv Asbuilt Remediation Layers Plan in Appendix C. It is noted that the capped area excludes a variable width easement for services along the western boundary of Lot 1, DP1199904, which falls outside the development footprint and is not covered by the LTEMP.

The objective of the LTEMP is to provide awareness of the contamination managed on site and prevent and manage breaching of the cap. The LTEMP promotes awareness of the contamination management and the requirements to avoid disturbance (where possible) and provides an outline of maintenance requirements. It is noted that only passive management measures are required.

The preparation of this LTEMP is a requirement under Clause E32 of the final development consent conditions (SSD 9787 dated 11 December 2019) for the Nihon University development, as is the notation of this LTEMP on the Section 10.7 certificate for the site by Council. Ongoing management of the site by Nihon Daigaku Australia Newcastle Pty Ltd (Nihon) is required in accordance with this LTEMP and SSD-9787 Consent Condition E34 and F7. The draft LTEMP was reviewed by Nihon, who agreed to implement it (see letter from SureScope dated 9 September 2021 on behalf of Nihon University in Appendix B).

The LTEMP should be incorporated as part of documentation to fulfil WHS regulation requirements for an asbestos management plan (AMP) and register for asbestos remaining on the site.

This LTEMP must be incorporated into the Nihon University overall property management plans/procedures to allow implementation of the management procedures within this plan for routine maintenance and for targeted subsurface works if and when required within the site. The requirement for ongoing site management must be noted on the appropriate planning certificate. Consideration should be given to recording the requirements on the title information for the site.

Implementation and enforcement of this LTEMP must remain until such time that specific additional assessment is conducted at the site that finds that the LTEMP is no longer required. Any such additional assessment and subsequent removal of the LTEMP requirements must be subject to review and approval by an NSW EPA-accredited Auditor, or the NSW EPA.

The remediation and validation and long-term environmental management plan is subject to review by Mr Ian Gregson, a NSW EPA-accredited Auditor.

2. Site Description

The site is described as part Lot 1 DP 1199904, 9 Church Street, Newcastle, NSW and comprises a rectangular shaped area of approximately 4880 m². The site (for the purposes of this LTEMP) excludes a variable width easement for services along the western boundary of Lot 1 which falls outside the development footprint.

The site was formerly known as the Newcastle Courthouse and comprised three adjoining structures – the original Courthouse, the Administration Building and the Supreme Court Building with a rear carpark (south-east corner) and landscape areas.

The site is shown on Drawing 1 in Appendix C and Figure 1 below.

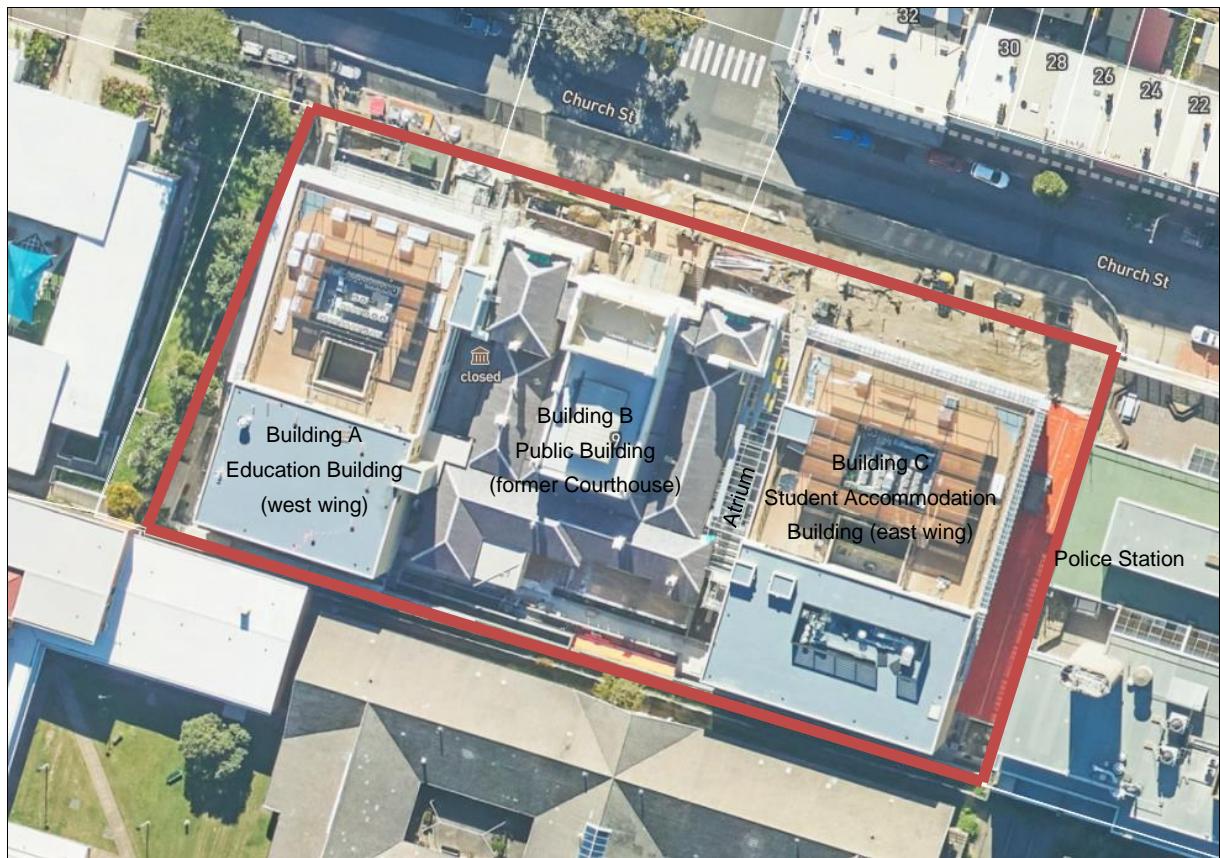


Figure 1: Approximate extent of development area ('the site') in red, Nihon University (Metromap Image dated 6 June 2021)

3. Site Development / Location of Capping

The university development included construction of two four-storey buildings consisting of a 108 bed 'Student Accommodation Building' (east wing) and an 'Education Building' (west wing), both connected to the central 'Public Building' (former Courthouse building that was retained) by atria. A carpark for 20 cars is contained on the lowest level of the 'Education Building'. The three buildings are surrounded by landscape areas and pavements.

The site condition as of 20 August 2021 (final inspection date) is shown in Figures 2 to 22 below.

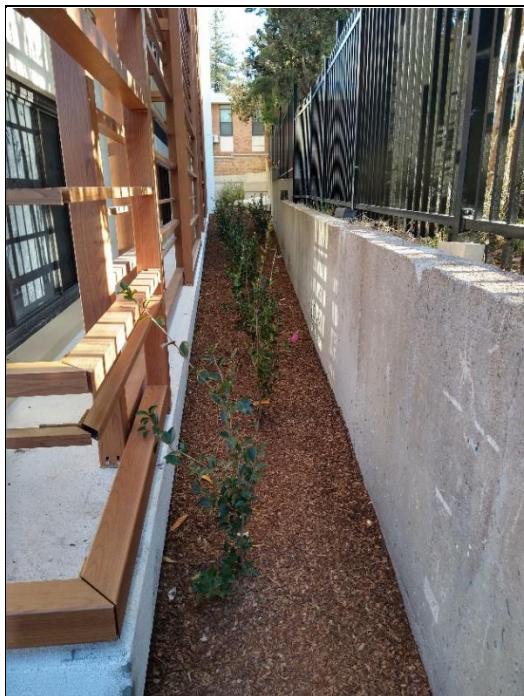


Figure 2 – Looking south at garden bed and mulch along western investigation boundary adjacent Education Building (20 August 2021)

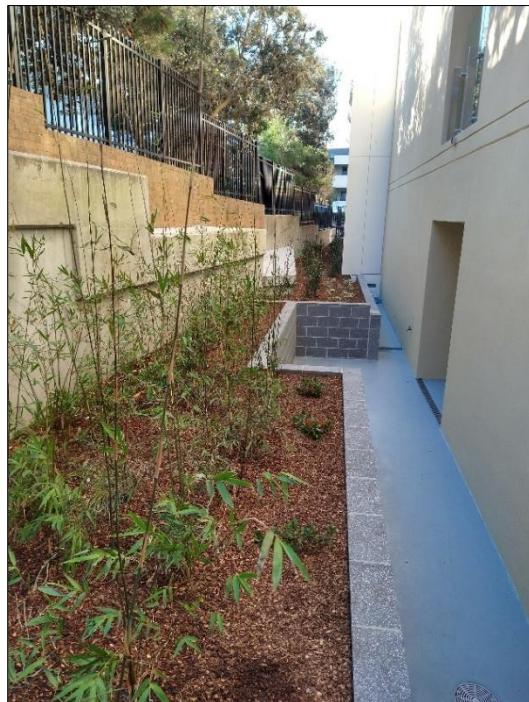


Figure 3 – Looking north at garden bed along western investigation boundary adjacent Education Building. (20 August 2021)

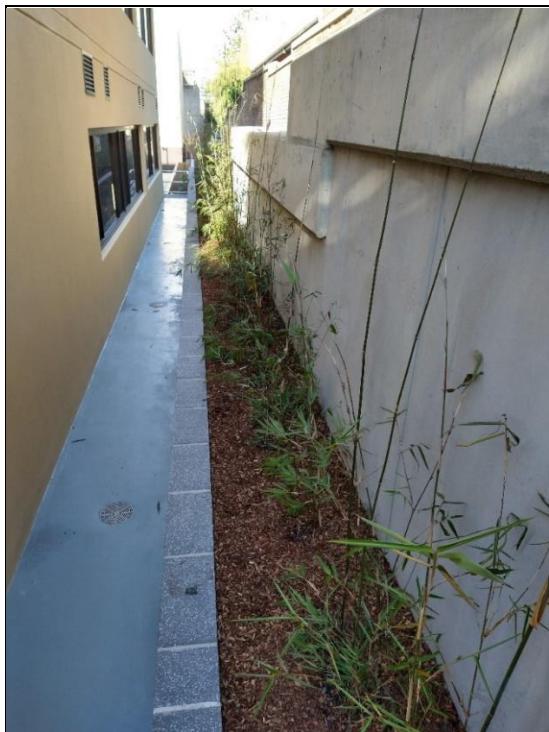


Figure 4 – Looking east at garden bed along southern site boundary adjacent Education Building.



Figure 5 – Looking north at garden bed and walkway along southern side of Education Building. (20 August 2021)



Figure 6 – Looking east at garden bed and walkway along southern side (rear) of central building (20 August 2021)

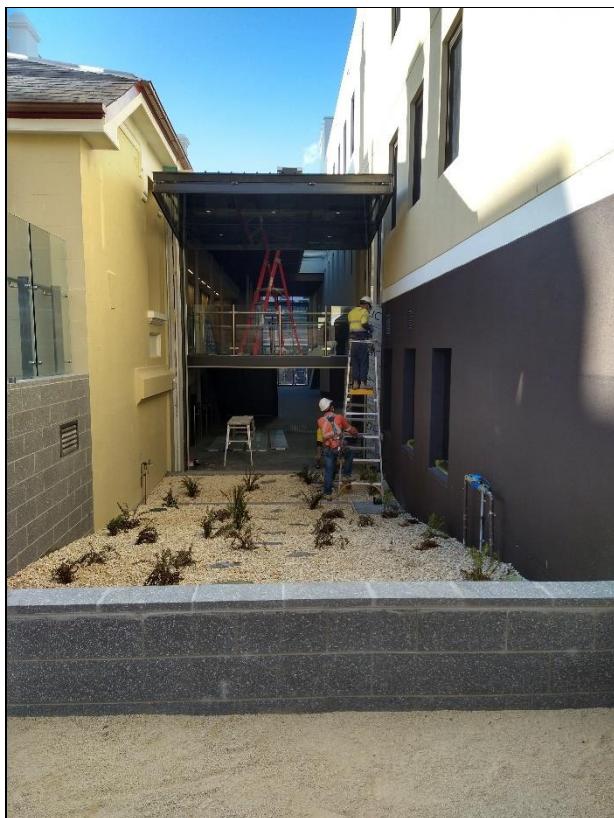


Figure 7 – Looking north at garden bed and walkway along southern side of Atrium (20 August 2021)

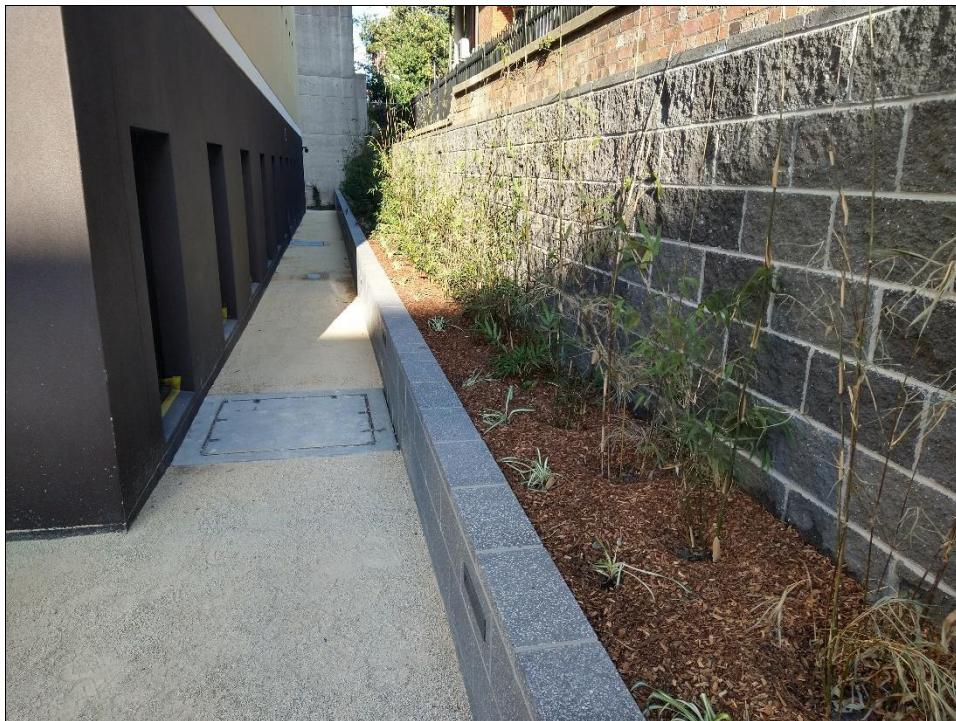


Figure 8 – Looking east at garden bed and walkway along southern side of Student Accommodation Building (20 August 2021)



Figure 9 – Looking east at garden bed and walkway in south eastern corner of site (20 August 2021)

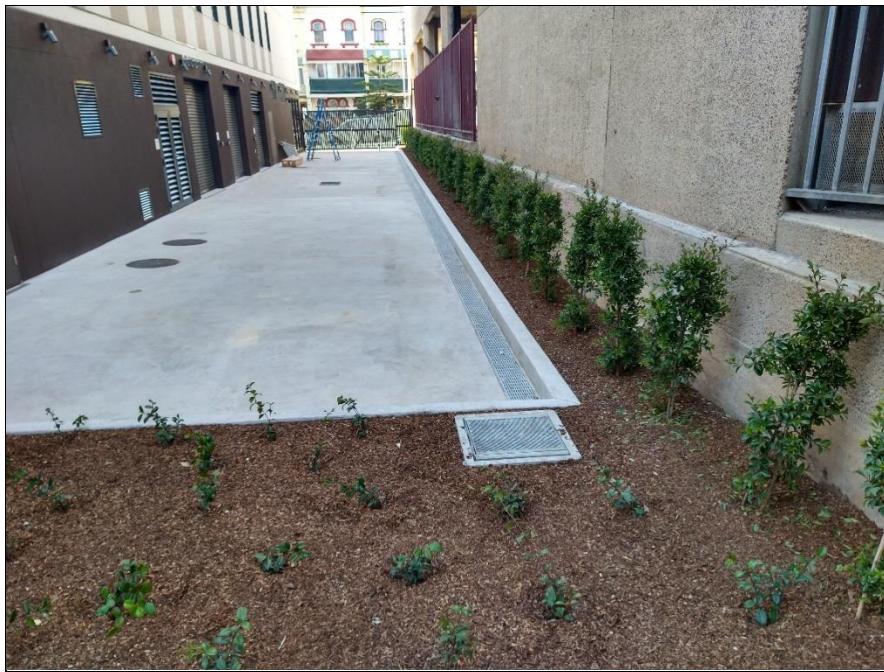


Figure 10 – Looking north at concrete driveway and adjacent garden bed along the eastern site boundary (20 August 2021). Student Accommodation Building to the left and the Newcastle Police Station to the right.



Figure 11 – Looking southeast at concrete paved driveway and adjacent garden bed along the eastern site boundary (20 August 2021)



Figure 12 – Looking west at concrete paved driveway/footpath along the north side (front) of the Student Accommodation Building (20 August 2021)

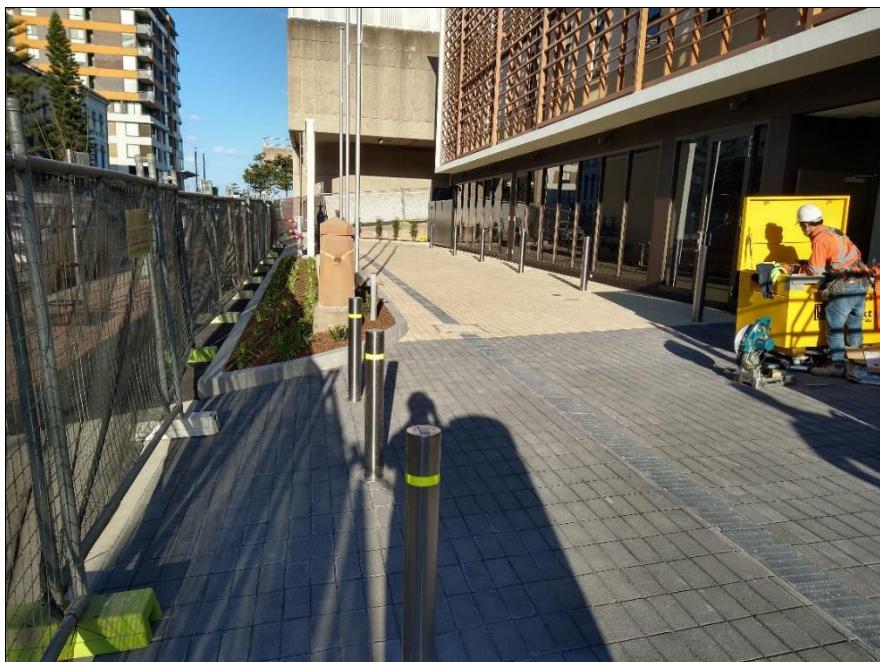


Figure 13 – Looking east at concrete paved driveway/footpath and adjacent garden bed along the northern side (front) of the Student Accommodation Building (20 August 2021)

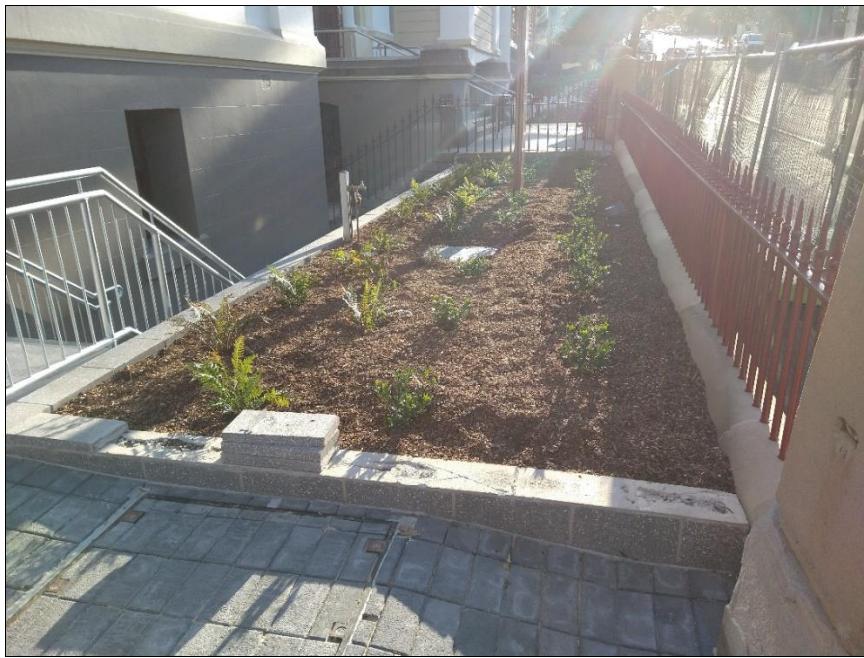


Figure 14 – Looking west at concrete paving and adjacent garden bed along the northern side (front) of the central building (20 August 2021)

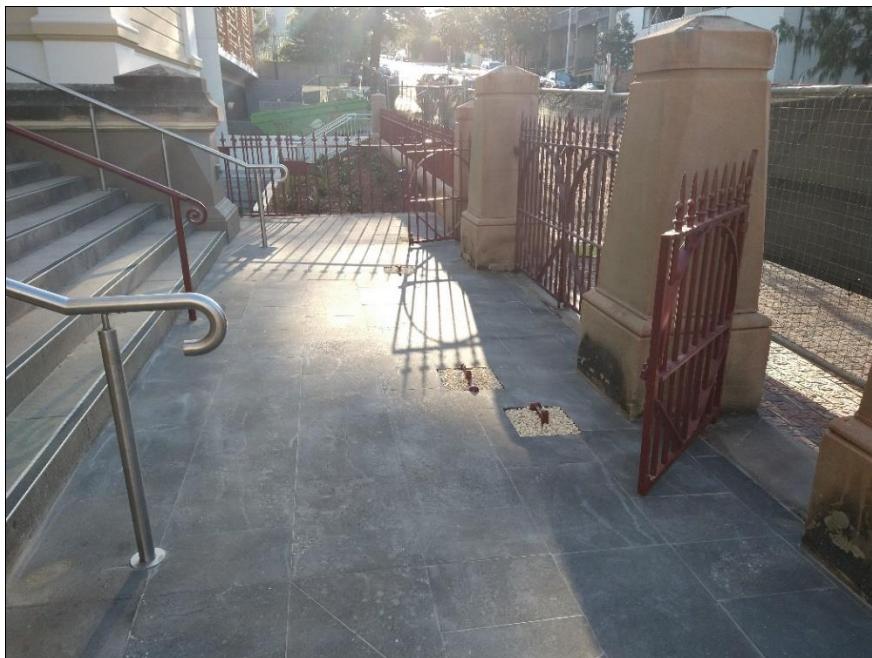


Figure 15 – Looking west at Bluestone paving and adjacent garden bed along the northern side (front) of the central building (20 August 2021)

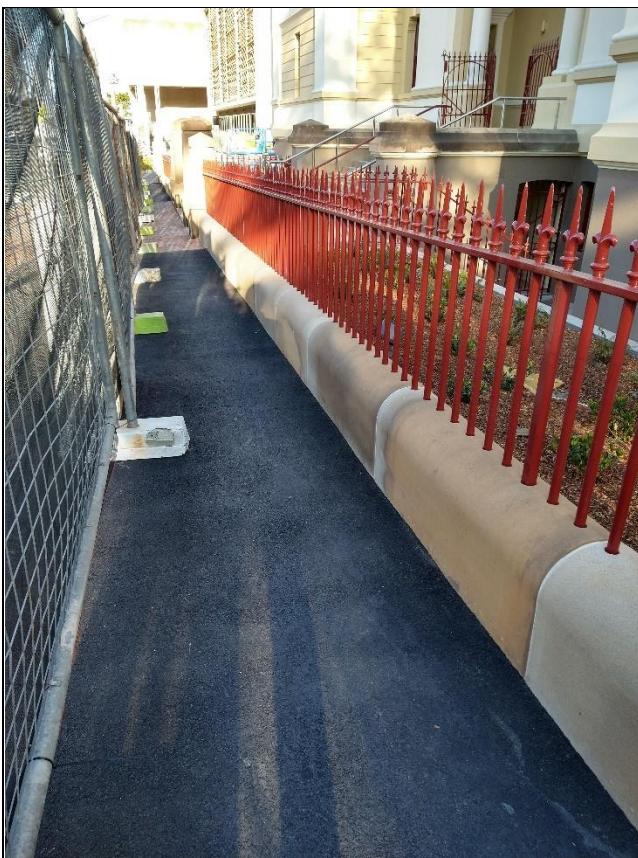


Figure 16 – Looking east at asphalt paving and adjacent garden bed along the northern side (front) of the central building (20 August 2021)

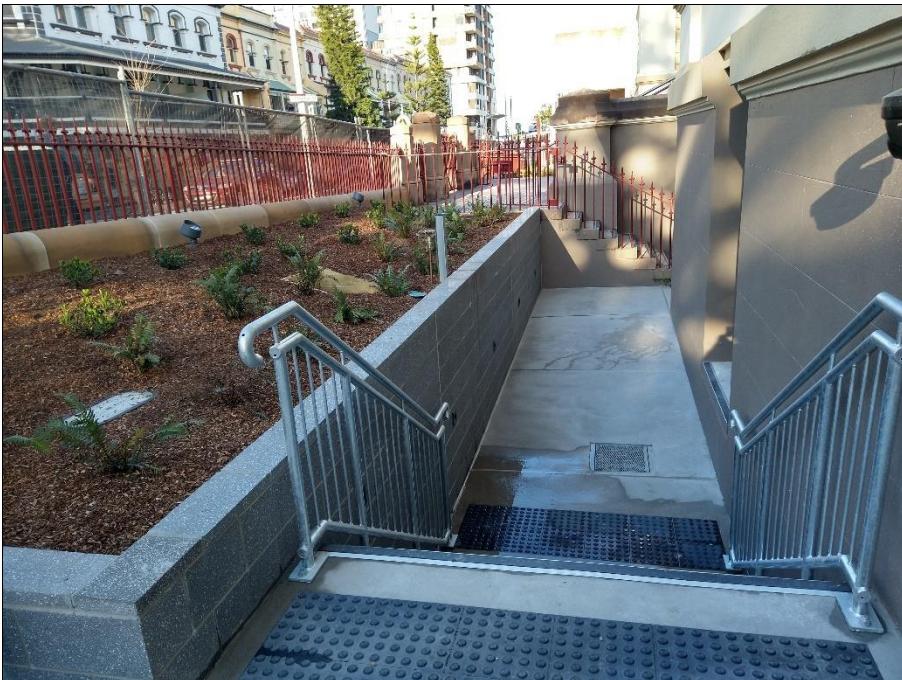


Figure 17 – Looking east at garden bed and concrete footpath pavements along the northern side (front) of the central building (20 August 2021)



Figure 18 – Looking west at electrical kiosk along the northern side (front) of the Education Building (20 August 2021)



Figure 19 – Looking east at garden beds along the northern side (front) of the Education Building (20 August 2021)

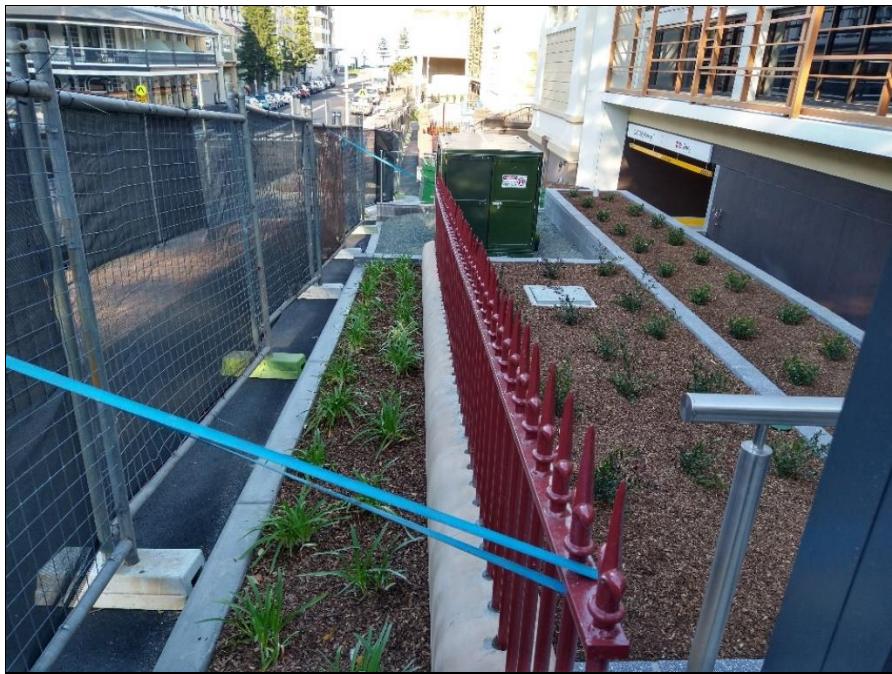


Figure 20 – Looking east at asphalt pavement and garden beds along the northern (front) boundary and northern side of the Education Building (20 August 2021)

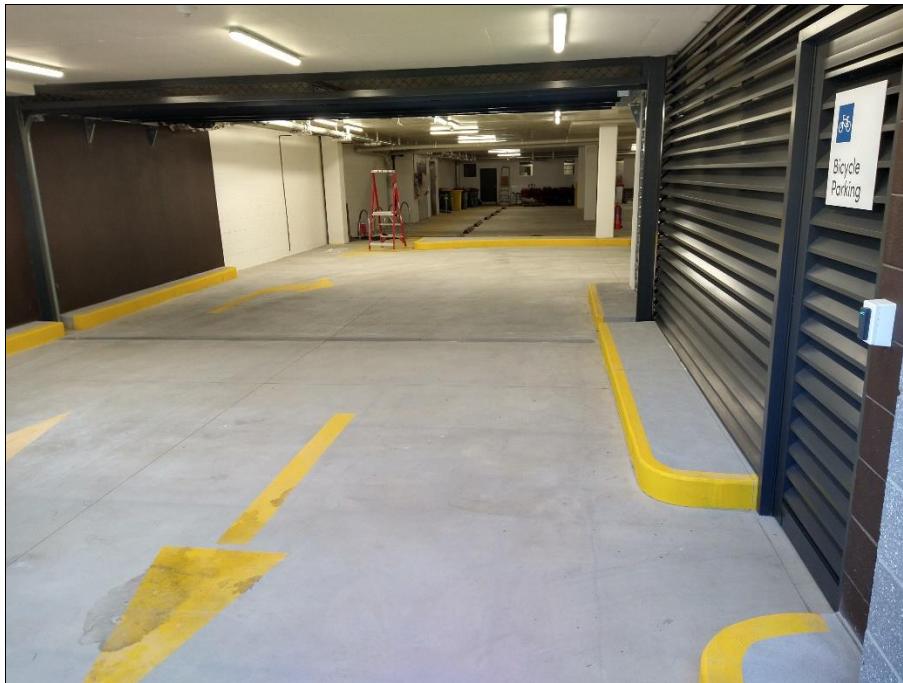


Figure 21 – Looking south at concrete pavements within the underground carpark of the Education Building (20 August 2021)



Figure 22 – Looking south east at Church Street and the Nihon University development site (20 August 2021). Newcastle Police Station to the left.

Management of contaminated soils within the site has been achieved as follows:

- Via capping with a minimum of 125 mm of pavement thickness, comprising concrete, placed over the black plastic marker layer within the internal pavements / building slabs / footpaths / some landscape areas and raised garden beds. Some of these concrete pavements were further overlaid with landscaping materials (ie roadbase and white granite in pathways, imported soil and mulch in garden beds etc – refer to Geosurv survey plans and Moir landscape plans for details);
- Via capping within landscape areas. Capping was generally greater than 300 mm. Minor exceptions to this occurred in the landscape area immediately south of the Atrium (minimum 193 mm) and the localised landscape area immediately north of the Atrium (minimum 191 mm) (Refer to Geosurv Asbuilt Survey Plan in Appendix C). Garden beds comprised imported soil (Hills premium garden mix) and either surficial woodchips (mulch) or white scoria gravel over an orange geo-fabric marker layer which was placed over the ground surface in the landscape beds across the site. Moir Landscape Architecture (Moir, 2021) indicated that sufficient landscape depths were present to sustain the planting installed as per the landscape design;
- Via Approximately 219 mm to 382 mm (average thickness for each area) of imported roadbase and asphalt placed over an orange geofabric marker layer which was placed over the ground surface in asphalt footpaths along the northern (front) site boundary;
- Via approximately 396 mm (average thickness) of imported roadbase from Boral Seaham and 10 mm blue metal gravel from Saddingtons - Quarry Products (Newcastle) was placed over an orange geofabric marker layer over the ground surface in the vicinity of the electrical kiosk in the north western portion of the site.

The provided survey information (in Appendix C) confirms that appropriate capping has generally been achieved as required by the RAP.

The minimum thickness of capping as presented in the RAP has generally been achieved across the site with the minor exception of the two landscape areas to the north and south of the Atrium (min 191mm as shown on Geosurv Asbuilt Plan in Appendix C). The survey plan provides accurate levels indicating the depth to the geofabric marker layer. This depth should be considered during any future disturbance/maintenance of soils within the site on Geosurv Asbuilt Remediation Layers survey plan in Appendix C. Any changes to depth (eg. as a result of landscaping requirements) should be documented as part of LTEMP review and maintenance.

Typical placement of the orange geofabric marker layer beneath capping materials within landscape areas is shown in Figures 23 to 24 below.



Figure 23 – Orange geofabric marker layer in garden bed at the rear of the Atrium (16 July 2021)



Figure 24 – Orange geofabric marker layer within garden bed on northern (front) side of the Student Accommodation Building (22 July 2021 – supplied by Built)

Typical placement of black plastic marker layer beneath concrete pavements within buildings and driveways is shown in Figures 25 to 27 below.

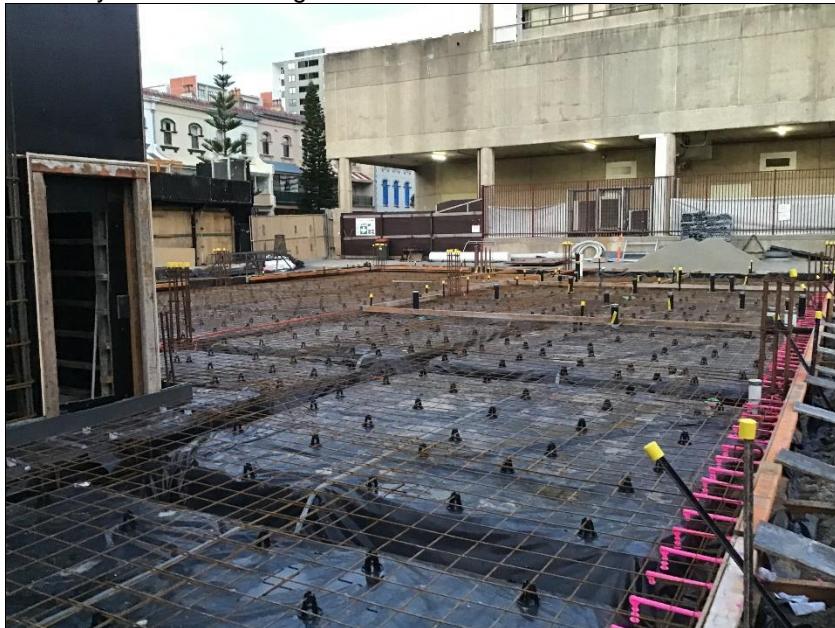


Figure 25 - Black plastic marker layer beneath Student Accommodation Building concrete slab (30 July 2020 - supplied by Built)



Figure 26 - Black plastic marker layer beneath Atrium concrete slab (25 August 2020 - supplied by Built)



Figure 27 – Black plastic marker layer beneath concrete pavement on northern (front) side of Student Accommodation Building (26 June 2021 – supplied by Built)

It is noted that crushed demolition waste (concrete/brick) together with imported fine crushed rock was also utilised on-site during construction beneath capping in some areas.

Drawings showing the capping and landscaping undertaken for the site are as follows:

- Moir LP17 (Rev M) Remediation Action Plan in Appendix C shows the nature of various capping within the site (ie concrete capping and plastic marker layer or imported material capping over an orange geofabric marker layer);
- Moir LP02 (Rev M) – General Arrangement Plan in Appendix C shows finished materials at surface although it is noted roadbase and crushed granite was not laid over the concrete footpath in the south western corner adjacent to the Education Building as shown on this plan;
- Geosurv Asbuilt Remediation Layers Plan (191196-AB-R-01 (E) dated 6.09.2021) in Appendix C shows thickness of capping within site and marker layer present.

Geosurv Asbuilt Remediation Layers Plan and Figure 1 above indicates the location of the areas to be managed under this LTEMP. As a precautionary measure, all materials beneath the marker layers, pavements or buildings across the site as indicated in Geosurv Asbuilt Remediation Layers Plan and Figure 1 must be treated as potentially contaminated in the event that the capping is penetrated. It is noted that the stormwater pipeline trench excavated within the HWC easement located parallel to the eastern side of the former Courthouse (Now central Public Building) was backfilled with ‘clean’ materials in the event that future maintenance or replacement was required (albeit unlikely). Further details on the management of the HWC easement is provided in DP (2020b).

4. Nature of Capped Material Requiring Management

The detailed site investigation (DP, 2020c) conducted for the proposed Nihon University identified the following pertinent site conditions:

- Presence of fill within all bores / pits to depths of 0.1 m to >3.3 m;
- Presence of ash, slag and asphalt within some fill materials;
- Presence of building materials (brick, concrete, tile, metal, wood, glass) within some fill materials across the majority of the site spatially which may be an indicator of the presence of hazardous building materials (HBM) including asbestos;
- Presence of elevated lead and PAH impacts within fill / soil;
- Bonded ACM has been confirmed within filling under both buildings and within the car park and landscape areas (ie all areas of the site proposed for development);
- The groundwater table on the site is variable in height (ranging in depth from approximately 6.5 m to 11.2 m depth and present within the upper highly weathered bedrock. It should be noted that groundwater levels are affected by factors such as climatic conditions and soil permeability and will therefore vary with time);
- Groundwater testing was generally within the adopted guidelines with the exception of heavy metal concentrations (namely nickel and zinc) which were marginally above the adopted criteria (GILs for marine waters). It is noted that the groundwater concentrations in the up-gradient well (Bore 203) was typically higher or commensurate with concentrations detected in downgradient wells. It is also noted that no obvious visual or olfactory indications of impact to groundwater (ie no obvious staining, odours, slicks or free product) were detected during purging / sampling and no detectable concentrations of hydrocarbons (TRH, BTEX, PAH, VOCs) were identified within groundwater samples;
- Ground gas monitoring has indicated the general absence of mine gases or volatile hydrocarbons associated with USTs associated infrastructure and wash bay on the adjacent Police Station, within the bores and buildings / site grounds.

The results of chemical analysis undertaken on soil samples including previous soil analysis results (Prensa, 2016) were summarised in Table 10 (DP, 2020c) with comparison to the adopted site assessment criteria (SAC) for contamination. Table 10 (DP, 2020c) is provided in Appendix B for completeness.

Bonded ACM impacted fill materials were identified during the DSI (DP, 2020c) across all areas of the site (ie both the Administration Building, the Supreme Court Building, landscape areas and the car park). The bonded ACM impacts appeared to be associated with the fill materials across the site which contained extensive building wastes. ACM was also observed to have been utilised as formwork for existing footings/structures below ground. We understand that a licensed contractor was engaged by Built to validate the removal of hazardous building materials (HBM) from all the buildings including the Administration building and Supreme Court building which were demolished as part of the Nihon University development.

Bonded ACM materials, where encountered in fill, were typically observed to comprise a few to numerous fibro sheeting fragments (general in sound condition). Based on a qualitative assessment, the frequency of ACM were considered to exceed the NEPC (2013) concentration limits in the absence of a detailed asbestos assessment (ie field sieving for bonded ACM). Based on these observations and the presence of widespread building wastes within fill across the site, the presence of further bonded ACM impact was anticipated across the site as evidenced during exposure of fill materials beneath the former Administration Building. The ACM encountered was generally observed to be in sound condition. Friable asbestos (ie AF/FA) was not detected within the soil samples analysed. The identified asbestos impacts at the site were therefore associated with bonded ACM.

It is noted that the bonded ACM utilised as formwork on the external walls of the former Courthouse building and on the external walls of the tunnel extended beneath the ground surface. Given the tunnel and Courthouse are to remain in-situ, it was not considered practical to remove ACM in these areas. ACM therefore remained beneath the ground surface and was managed beneath the site capping as instructed by the client.

It is noted that significant volumes of fill material were removed from site during construction, however, no areas were stripped and validated to verify removal of potentially impacted fill materials at the client's request. All fill materials were excavated from the trench excavation for the new stormwater pipeline in the easement beneath the new Atrium. The trench was backfilled with clean imported materials (refer to DP, 2020b for further details). All soils remaining beneath the site capping (ie beneath existing and new buildings, new pavements and landscape areas, as shown on Geosur Asbuilt Remediation Layers Plan in Appendix C) should therefore be considered as potentially ACM impacted soils unless investigation and testing confirms otherwise.

While Polycyclic Aromatic Hydrocarbons (PAH), heavy metals and petroleum hydrocarbon (TRH) impacts were identified within fill on site exceeding the adopted Tier 1 health based and ecological investigation / screening levels (refer to DP 2020a for details), remediation for these contaminants was not warranted based on statistical analysis (see below) and consideration of the ecological setting and the proposed development.

The statistical analysis of lead and B(a)P TEQ concentrations undertaken for the DSI (DP, 2020c) included consideration of the following:

- All test results across the site;
- Results of both fill and natural soils independently;
- Soil properties at different depths and spatially across the site.

The analysis (DP, 2020c) was conducted using USEPA ProUCL Version 5.1 and considered non-detects. The results of statistical analysis indicated the following:

- Maximum concentrations detected for lead (1400 mg/kg) and B(a)P TEQ (9.8 mg/kg) are less than 2.5 times the HIL-B criteria (1200 mg/kg and 4 mg/kg respectively) and are therefore not considered to represent a 'hot spot' with reference to NEPC (2013);

- The 95% UCL of the mean for B(a)P TEQ were within the HIL-B criteria (ie 4 mg/kg) as follows:
 - All fill samples (3.09mg/kg);
 - All fill samples including natural samples 203/0.5, D3 and 201/7.9 (likely to be associated with cross contamination from upper fill material) (3.54 mg/kg);
 - All fill and natural samples (3.068 mg/kg).
- The standard deviation (SD) for all B(a)P TEQ scenarios above ranged from 2.35 to 2.68 which is >50% of the HIL-B criteria (considered a possible exceedance of the HIL with reference to NEPC (2013) Schedule B1 Section3.2.1);
- While some scenarios show marginal exceedances of the SD values (ie above 50% of the HIL-B criteria), the results are not considered to be significant based on the following:
 - No 'hot spots' were detected;
 - The PAH impact is aged (ie which would allow a theoretically higher HIL with reference to the PAH HIL derivation outlined in Schedule B7, Appendix A2 of NEPC (2013)).
- The 95% UCL of the mean for Pb were within the HIL-B criteria of 1200 mg/kg as follows:
 - All fill and natural samples (303.3 mg/kg);
 - All fill samples (490.3 mg/kg);
 - All fill and natural samples within the upper 3 m (407.7 mg/kg);
- Given that no 'hot spots' were detected for lead and the 95% UCL values for all scenarios were below the conservatively derived HIL-B criteria, the elevated lead result at Bore 5/0.1 m does not constitute significant contamination requiring remediation.

Based on the above findings, remediation of the site was deemed necessary to remediate the bonded ACM impacts across the site. Risks associated with ACM impacts are subject to the condition of the materials and the manner in which they are treated. The pathway to human receptors for asbestos impacts is via the respiratory route. The impacted materials were assessed to be suitable to remain on the site subject to appropriate management/capping, on the basis of the low potential to cause environmental impact and subject to long-term management to minimise potential human health impacts (DP, 2020c).

On-site management of the bonded ACM impacts was proposed and was undertaken with reference to the RAP (DP, 2020a). On the basis of the remediation and validation works completed, the site is considered to be suitable for the proposed university campus with respect to site contamination.

The site is subject to long-term management (as shown in Figure 1 above and Geosurv Asbuilt Remediation Layers Plan in Appendix C) due to the potential presence of bonded asbestos containing materials (ACM) impacted soils beneath building slabs, pavements or landscape areas.

5. On-site Management (Capping) of Contaminated Soils

5.1 Introduction

The capping layer installed across the site provides a physical barrier between underlying potentially contaminated soils and the ground surface. The high visibility orange geofabric marker layer at the base of the capping layer in landscape areas readily identifies the base of this capping layer to minimise accidental penetration into underlying potentially contaminated soils. Under the normal use of the site (including landscaping maintenance such as plant removal/reinstatement) this capping will prevent exposure of personnel to the remaining potentially contaminated soils on site. Exposure to underlying potentially contaminated soils would only occur in soils beneath the orange marker layer if landscape areas are disturbed or if the concrete capping and underlying black plastic marker layer are penetrated in building slabs, pavements and other concrete paved landscaping areas such as may be required for maintenance or redevelopment.

The long-term management of contaminated soils located within capping across the site will be achieved by maintaining the cap. This will confirm that the site remains suitable for use as a university campus. A summary of affected parties and responsibilities is provided in Table 1 below.

5.2 Responsibilities

Table 1: Responsibilities/Actions for Personnel

Personnel	Responsibilities
Newcastle City Council	<ul style="list-style-type: none"> Notification on planning certificates. Maintain a copy of the current approved LTEMP.
Nihon University – Chancellor/Executive	<ul style="list-style-type: none"> Updating property management records and procedures; Provision of university policy for management of impacted soils; Notification of site management in university-specific documentation, capital works programs, maintenance etc; Informing staff of the soil management; Create/amend university policy for maintenance staff and subcontractors; Preparation of site-specific maintenance procedures and record keeping with university maintenance staff; Documenting changes and/or disturbances to capping. Providing Council will a copy of any updated versions of the LTEMP.

Table 2: Responsibilities/Actions for Personnel

Personnel	Responsibilities
Nihon University – Maintenance Staff	<ul style="list-style-type: none"> • Reading and compliance with LTEMP; • Preparation of site-specific maintenance procedures and record keeping; • Routine checks of managed areas to confirm cap integrity (eg quarterly or during routine maintenance inspections); • Implementation of induction procedures for new maintenance staff, subcontractors and site workers; • Reinstatement of capped areas following cap penetration; • Generation of records to confirm reinstatement of capping; • Documenting changes and/or disturbances to capping.
Subcontractors/site workers	<ul style="list-style-type: none"> • Reading and compliance with LTEMP; • Preparation of SWMS for site works, taking into account working in managed areas; • Reinstatement of capped areas following cap penetration; • Generation of records to confirm reinstatement of capping; • Documenting changes and/or disturbances to capping.

5.3 Notifications / Implementation Requirements

The site management (Nihon University, University Chancellor and maintenance staff) will be responsible for the implementation of the LTEMP as per Conditions E34 and F7 of the final development consent conditions (SSD 9787 dated 11 December 2019) for the Nihon University development. The Chancellor or designated representative will also be responsible for notifying all personnel whose activities may impact on managed areas under building slabs, concrete pavements or capped landscaped areas. All designated personnel must read and understand the provisions of the LTEMP.

A notation must be placed on the Section 10.7 certificate for the site by Council as required under Condition E33 of the final development consent conditions (SSD 9787 dated 11 December 2019) for the Nihon University development, indicating that the site is subject to the requirements of this LTEMP.

The LTEMP should be incorporated as part of documentation to fulfil WHS regulation requirements for an asbestos management plan (AMP) and register for asbestos remaining on the site.

Regular inspections must be conducted within the site to confirm the integrity of capping (refer to Table 3 attached). Capping must be repaired as soon as possible if damaged.

Any activities which require excavation/disturbance of greater than the thickness of capping shown on the Geosurv Asbuilt Remediation Layers Plan (191196-AB-R-01 (E) dated 6.09.2021) or which have the potential to penetrate the capping and marker layers (ie excavations, repairs or installation of additional services), must be conducted in the manner described below.

As a precaution, a contractor licensed to handle asbestos waste should be engaged. The contractor must prepare a safe work method statement (SWMS) prior to conducting the work in accordance with relevant regulatory and statutory requirements (including the Worksafe Australia Asbestos Code of Practice), which will generally include the following:

- Prepare temporary areas to receive clean and contaminated soils resulting from excavations;
- Careful excavation and segregation of overlying clean soils (ie to expose the orange geofabric marker / separation layer without damaging it) in areas managed via soil capping;
- Cut orange geofabric marker / separation layer and carefully excavate and segregate contaminated soils to minimise cross contamination with clean soils;
- All materials below concrete slabs or marker layer in the capped areas must be assumed to be contaminated;
- Conduct the works with minimal disturbance of contaminated soils;
- Remove, classify, transport and dispose any excess contaminated soils in accordance with regulatory requirements;
- Reinstate contaminated soils beneath the geofabric marker layer where practical, and reinstate the orange geofabric marker / separation layer, clean cap and/or concrete slab above the contaminated soils;
- Any imported materials must be suitable for their intended purpose and be lawfully received at the site (eg VENM, ENM, material subject to a resource recovery exemption (RRE) or compliant with an appropriate standard such as for landscaping materials);
- Provide documentation of the activities that disturb capping (ie location, depth, evidence of cap reinstatement, transport and disposal records, records of imported material and photographs of work);
- A brief unexpected finds protocol, eg in the unlikely circumstance that excavations encounter unexpected contamination that has not previously been identified at the site, as apparent from staining, odour or other observations. A suitably qualified environmental consultant should be engaged to assess the contamination and recommend appropriate management requirements in the event of an unexpected find.

All operations and activities conducted on the site must comply with the provisions of relevant NSW WHS legislation, and must include measures to minimise migration/cross contamination of contaminated soils. The SWMS must be reviewed by the principal/project manager prior to the works.

A qualified contaminated land consultant must undertake inspections during and following the completion of the works to confirm the following:

- The work was conducted in accordance with the approved SWMS;
- The work has not resulted in any adverse human health or environmental impact;
- Site capping has been appropriately reinstated;
- Site remains suitable for use as a university campus.

Any observed defects or damage to the capped area must be reported to the Chancellor and university maintenance staff.

Emergency contact details for relevant personnel including the Nihon University, Chancellor, Maintenance Manager, Council and after hours contact are to be provided in Table 3 attached.

The above LTEMP has been prepared in general accordance with current professional and industry standards for the management of land contamination.

Notwithstanding the above recommendations, any work associated with the handling or disposal of contaminated soils must be conducted in accordance with the relevant statutory and regulatory requirements.

5.4 Review of the LTEMP

This LTEMP must be regularly reviewed (at least annually and if any incidents occur which indicate the LTEMP needs updating) to confirm its suitability for continued use. The LTEMP must be revised/updated should the provisions of the LTEMP not cover site activities adequately. Any revisions to the LTEMP must be submitted to Council within one month of the update. Any revisions of the LTEMP that decrease the level of site management will require the approval of a NSW EPA-accredited site auditor or the NSW EPA.

Site management (Nihon University, University Chancellor, designated representative and maintenance staff) will be responsible for the continued implementation of the LTEMP and any revisions made as per Conditions E34 and F7 of the final development consent conditions (SSD 9787 dated 11 December 2019) for the Nihon University development.

5.5 Record Keeping

Records of implementation and review of the LTEMP and submission of revised versions to Council should be maintained together with the LTEMP, including documentation of any activities that disturb capped material (ie location, depth, evidence of cap reinstatement), routine inspection records (refer to Table 3 attached), incidents and responses and any changes to the LTEMP.

Any observed defects or damage to the capped area must be reported to the Chancellor and university maintenance staff as per Section 5.3.

6. References

DP. (2020a). *Remediation Action Plan, Proposed Nihon University, 9 Church Street Newcastle*. Document No. 91667.02.R.004.Rev1: Douglas Partners Pty Ltd.

DP. (2020b). *Stormwater Easement Management Strategy, Proposed Nihon University, 9 Church Street, Newcastle*. Document No. 91667.03.R.001.Rev1: Douglas Partners Pty Ltd.

DP. (2020c). *Report on Detailed Site Investigation, Proposed Nihon University, 9 Church Street Newcastle*. Document No. 91667.02.R.003.Rev2: Douglas Partners Pty Ltd.

DP. (2021). *Report on Validation of Remediation, Nihon University, 9 Church Street, Newcastle*. Document No. 91667.03.R.002.Rev0: Douglas Partners Pty Ltd.

Moir. (2021). *Landscape Soil Depth Confirmation - Nihon University, Newcastle*. Letter dated 9 September 2021: Moir Landscape Architecture Pty Ltd.

NEPC. (2013). *National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]*. Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW EPA. (2017). *Guidelines for the NSW Site Auditor Scheme (3rd Edition)*. NSW Environment Protection Authority.

NSW EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land*. Contaminated Land Guidelines: NSW Environment Protection Authority.

7. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at 9 Church Street, Newcastle with reference to DP's proposal dated NCL190520.P.001.Rev1 dated 16 September 2019 and subsequent email budget update of 1 July 2020 and acceptance received from Sita Vasanthakumar of Built Pty Ltd dated 30 October 2019 on behalf of Nihon Daigaku Australia Newcastle Pty Ltd. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Nihon Daigaku Australia Newcastle Pty Ltd and Built Pty Limited for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions

across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Asbestos has been detected by observation and by laboratory analysis, either on the former surface of the site, or in filling materials at the previous test locations sampled and analysed. Building demolition materials, such as concrete, brick, tile etc, were, also, located in previous below-ground filling, and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for this investigation is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and analysed. This is either due to undetected variations in ground conditions or to budget constraints (as discussed above), or to parts of the site being inaccessible and not available for inspection/sampling, or to vegetation preventing visual inspection and reasonable access. It is therefore considered possible that HBM, including asbestos, may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that asbestos is not present.

Douglas Partners Pty Ltd

Appendix A

About This Report

About this Report



Introduction

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

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

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

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

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

Groundwater

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

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

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

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

Reports

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

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

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

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

About this Report

Site Anomalies

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

Information for Contractual Purposes

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

Site Inspection

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

Appendix B

Table 2: Emergency Contacts

Table 3: Capping/Condition Inspection Guide

Letter from Azusa Sekkei Co Ltd (acting on behalf of
Nihon University) dated 10 September 2021

Table 10 DP (2020c) - Results of Chemical Analysis of Soil
(Contamination)

Table 3: Emergency Contacts

Name	Contact Phone Number
Emergency Services (Fire Brigade, Ambulance, Police)	000
Nihon University	TBC
Chancellor – Nihon University	TBC
Maintenance Manager – Nihon University	TBC
After Hours Contact	TBC
Newcastle City Council	(02) 4974 2000

This table is to be regularly updated by the site owner, managers or their representatives.

Table 3: Capping/Condition Inspection Guide / Form

Inspection Guide/Form					
Inspected by: _____		Company: _____		Date of Inspection: _____	
No.	Visual Check	Pass/ Fail	Fault / Action Required / Comments	Corrective Action	
				Corrective Action Undertaken	Date Completed
1	Building slabs (condition, cracking, staining, evidence of damage)				
2	Outdoor pavers condition (cracked, broken, shifted, uneven, visible bedding material)				
3	Asphaltic concrete and concrete footpaths (condition, cracking, staining, evidence of damage, visible bedding material or marker layer)				
4	Crushed granite walkways (condition, evidence of erosion, visible roadbase bedding material)				
5	Condition of garden areas (i.e. thickness of cap retained, evidence of visible marker layer at the surface, vegetation stress)				
6	Condition of stormwater/drainage infrastructure - pipes and subsurface grates/pits etc. (cracking, broken, evidence of flooding, siltation)				
7	Condition of slab penetrations (e.g. footings of outdoor structures, drainage/sewer pipes)				
8	Overall building condition				
9	Evidence of unauthorised excavation/penetration of capping and marker layer or pavements				
Update to LTEMP Required (Y/N?)					
Nihon Daigaku Australia Newcastle Pty Ltd Notification Date:					

Tokyo, Sept.10th, 2021

Att: Scott O'Donohue
A1 Accredited Certifier
Managing Director,
SureScope
Address: Suite 4C 250 Pacific Hwy Charlestown NSW 2290
E-mail: scott@scopecert.com.au

Subject: Long Term Environmental Management Plan (LTEMP)

Dear Mr.Donahue,

On behalf of Nihon University, and being nominated as their representative, I hereby attest that once the operation starts Nihon University would manage the site in accordance with the submitted approved LTEMP.

In the meantime, due to COVID restrictions of international travels, the site would be managed temporarily under caretaker mode by Built, whom will be managing the site in accordance with the LTEMP.

Warm regards,



Junichi YOKOBORI
Chief Project Manager
Azusa Sekkei Co., Ltd.
On behalf of Nihon University

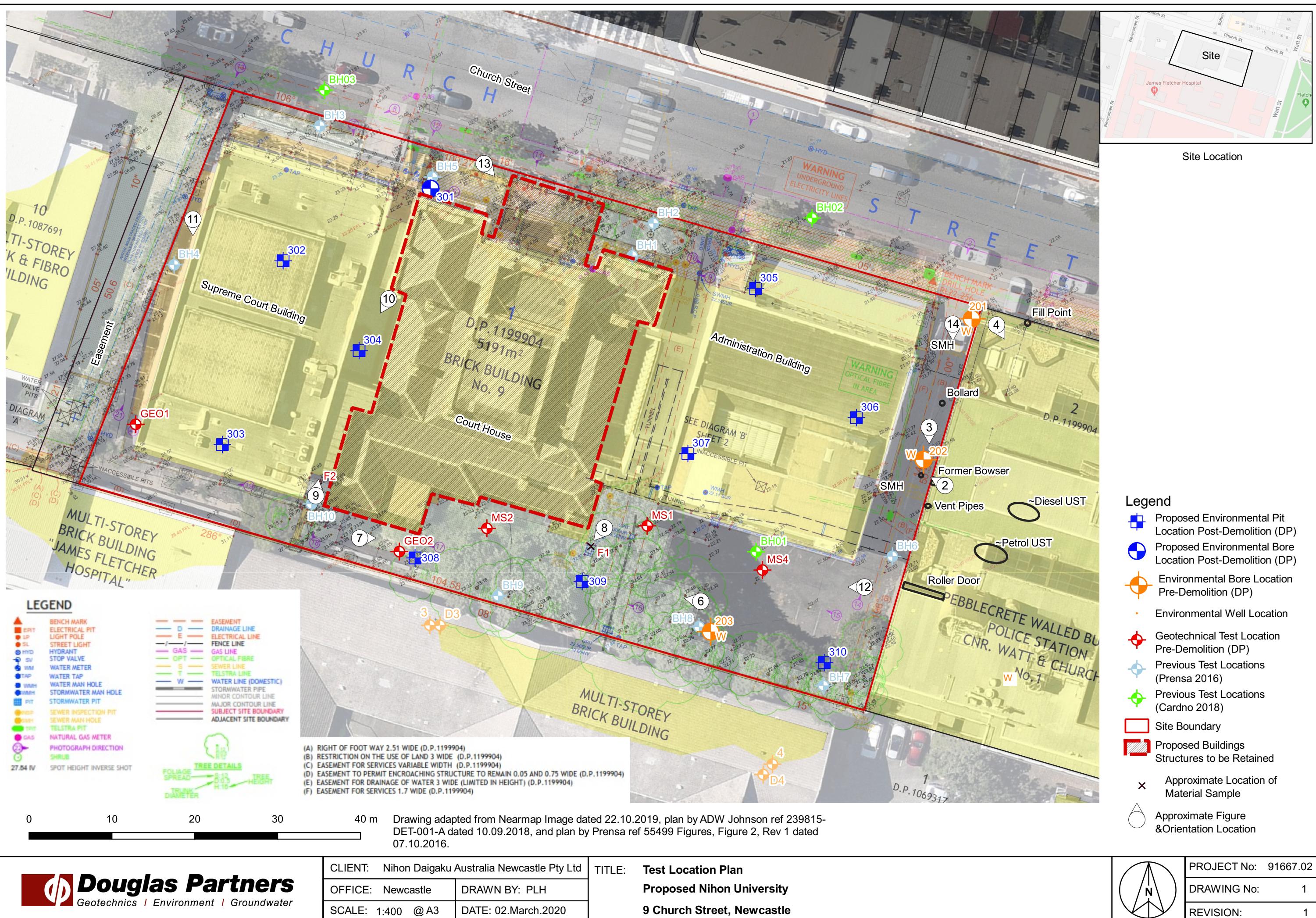
Appendix C

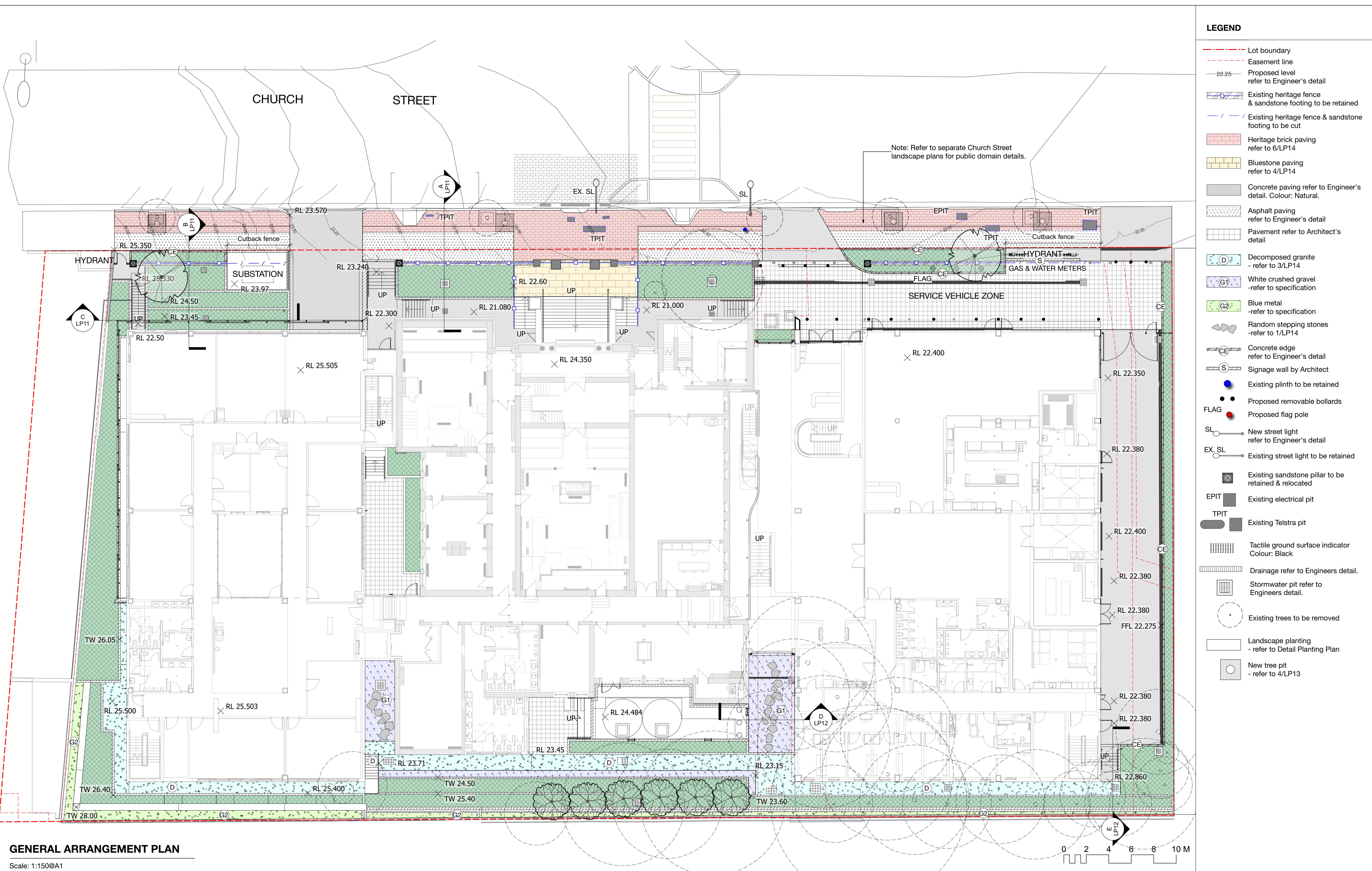
Drawing 1 – Test Location Plan

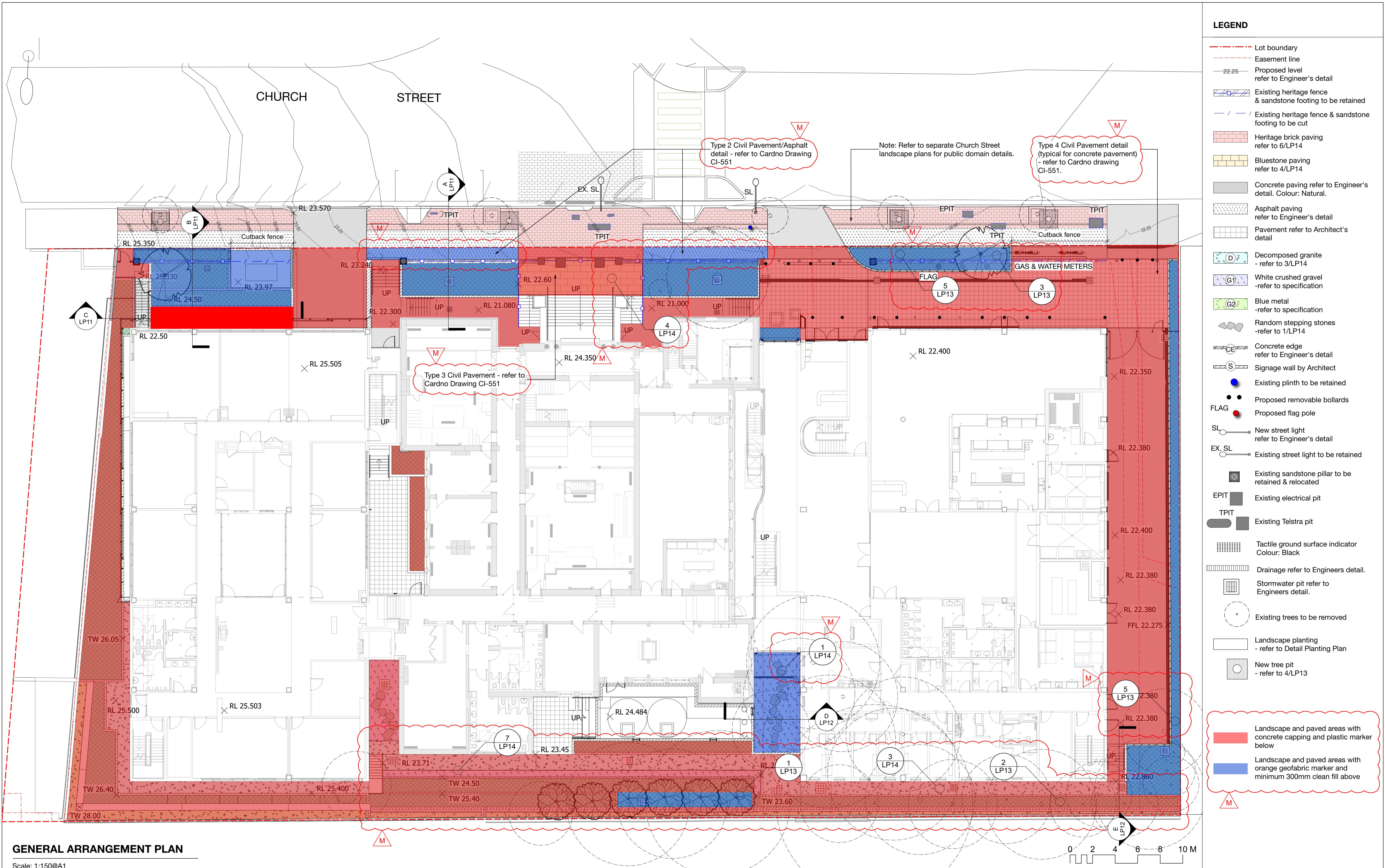
Moir LP02 (Rev M) - General Arrangement dated 21.05.2021

Moir - LP17 (Rev M) - Remediation Action Plan dated 30.08.2021

Geosurv Asbuilt Remediation Layers Plans (191196-AB-R-01 (E)
dated 6.09.2021)







GENERAL ARRANGEMENT PLAN

Scale: 1:150@A1



Studio 1, 88 Fern Street | PO Box 111
Islington NSW 2296
Phone (02) 4965 3500 Fax (02) 4965 3555
admin@moirla.com.au
www.moirandscapearchitecture.com.au



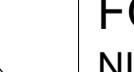
NO

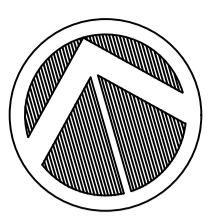
1. DO NOT SCALE OFF DRAWINGS. FOLLOW WRITTEN DIMENSIONS. IF IN DOUBT OBTAIN WRITTEN ADVICE FROM THE SUPERINTENDENT.
2. VERIFY ALL DIMENSIONS ON SITE.
3. TO BE READ IN CONJUNCTION WITH THE SPECIFICATION.
4. READ IN CONJUNCTION WITH ALL ARCHITECTURAL, CIVIL, STRUCTURAL, HYDRAULIC, MECHANICAL AND ELECTRICAL ENGINEER'S DRAWINGS AND SPECIFICATIONS.
5. CONFIRM LOCATION OF ALL SERVICES ON SITE PRIOR TO EXCAVATION.
6. DRAWINGS TO BE PRINTED IN COLOUR ONLY

Architect:



Engineer:

No.	Date	REVISION	By	 North	Status	REMEDIAL ACTION PLAN		
						FOR CONSTRUCTION	NIHON UNIVERSITY AUSTRALIA NEWCASTLE CAMPUS 9 CHURCH STREET, NEWCASTLE	Project No. 1691
M	21/5/21	FOR CONSTRUCTION	AL			SCALE: 1:150@A1	ORIGINAL DRAWING AT A1.	Drawing No. Rev LP17 M
						Drawn By: CX		
						Checked By: MW		



NORTH[APPROX]

LEGEND

- X 22.000 GEOFAB
- X 22.000 FINISHED CAPPING/SURFACE LEVEL
- X 22.000 PLASTIC

LANDSCAPE & PAVED AREAS WITH CONCRETE CAPPING & PLASTIC MARKER BELOW

LANDSCAPE & PAVED AREAS WITH ORANGE GEOFABRIC MARKER & NOMINAL CLEAN FILL ABOVE

ASPHALT CAPPED AREA WITH GEOFABRIC MARKER

GREGORY IRETON GIBSON SURVEY ID 1101
SURVEYOR REGISTERED UNDER THE SURVEYING AND
SPATIAL INFORMATION ACT, 2002 (NSW)

NOTES:

1. ALL SPOT LEVEL HEIGHTS SHOWN ARE ACCURATE AT TIME OF SURVEY
2. GEOSURV TAKES NO RESPONSIBILITY FOR THE ACCURACY OF THE SPOT LEVELS POST SURVEY DATA
3. THIS SURVEY IS FOR PURPOSE OF REMEDIATION LAYERS SPOT LEVEL AS-BUILT CHECKS ONLY AND SHOULD NOT BE USED FOR ANY OTHER PURPOSE
4. PLAN HAS BEEN PRODUCED AS A PRIORITY AS PER BUILDER'S REQUEST. FOR CLARITY OF THE OFFSET MARKS DRAWN PLEASE ENLARGE SECTION OF THE PLAN WHEN PRINTING. SEEK CLARIFICATION FROM GEOSURV IF UNSURE OF THE OFFSET OR THE DIRECTION OF THE OFFSET TO THE LOCATION OF THE MARK PLACED
5. FINISHED CAPPING/SURFACE LEVELS ARE COMBINED POINTS SURVEYED ON PAVING, TILES, CONCRETE CAPPING BEAM, BITUMEN & NATURAL SURFACE AREAS.

PLANS USED:
1691_CC_20210719_AL.dwg

E	02.09.21	HATCHING ADDED & POINT LAYERS COMBINED	GPAP
D	30.08.21	HATCHING & LEGEND UPDATED	GPAP
C	26.08.21	ADDITIONAL DATA & PAGE 2 ADDED	GPAP
B	16.08.21	ADDITIONAL DATA ADDED	GPAP
A	20.07.21	ISSUED FOR INFORMATION	BTP
REV	DATE	AMENDMENTS	INT.

PREPARED BY:

geosurv.
with you from beginning to end

www.geosurv.com.au 1300 554 675

PREPARED FOR:

Built.

PLAN OF:
ASBUILT
REMEDIATION LAYERS
NIHON UNIVERSITY NEWCASTLE
9 CHURCH STREET
NEWCASTLE
NSW

ORIGINAL SIZE: A1 Page 1 of 2

SCALE:	1:100	CO-ORD:	SITE
DATUM:	SITE	ORIG DATUM:	PM 19805
SURVEY BY:	SJF	DATE:	VARIOUS
DRAWN BY:	GPAP	DATE:	20.07.21
CHECKED BY:	SJF	DATE:	20.07.21
APPROVED BY:	ADF	DATE:	20.07.21
DRAWING #:	191196-AB-R-01	[E]	

