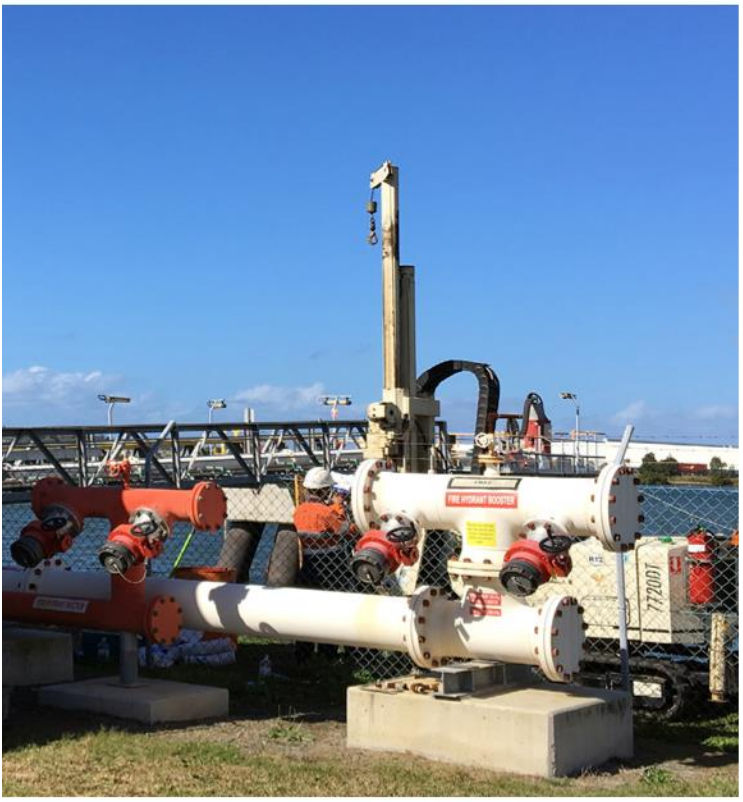
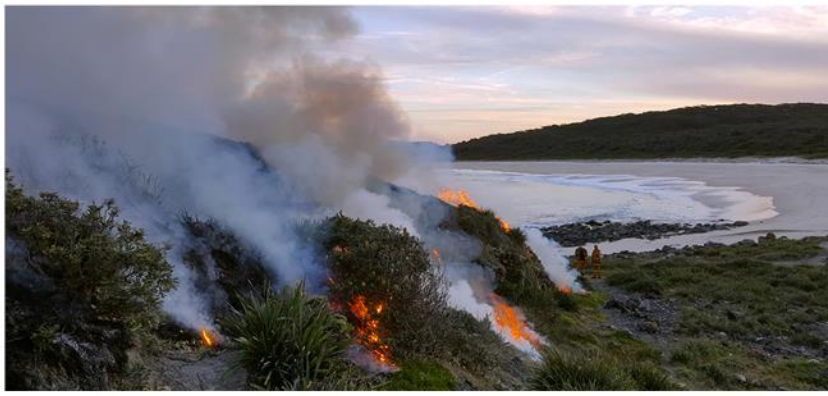
Long Term Environmental Management Plan
Hunter Indoor Sports Centre
State Significant Development (SSD-66595459)

2 Monash Road and 24 Wallarah Road, New Lambton, NSW

24002155.001A

2 May 2024





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Kleinfelder Project: 24002155.001A

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ABBREVIATIONS

Abbreviation	Definition
APP	APP Corporation Pty Limited
AS	Australian Standard
ASS	Acid Sulfate Soil
BANL	Basketball Association of Newcastle Limited
CoPC	Contaminants of Potential Concern
Council	Newcastle Council
DSI	Detailed Site Investigation
ENM	Excavated Natural Material
ha	Hectare
Kleinfelder	Kleinfelder Australia Pty Ltd
km	Kilometre
LOR	Limit of Reporting
LTEMP	Long Term Environmental Management Plan
m	Metre
m^2	Square Metres
mAHD	Metres Australian Height Datum

Abbreviation	Definition
mbgl	Metres Below Ground Level
Mg/kg	Milligram per kilogram
mm	Millimetre
N/A	Not Available
NATA	National Association of Testing Authorities
NEPM	National Environmental Protection Measure
NSW	New South Wales
NSW EPA	New South Wales Environment Protection Authority
PAH	Polycyclic Aromatic Hydrocarbons
RAP	Remediation Action Plan
TCLP	Toxicity Characterisation Leachate Procedure
TRH	Total Recoverable Hydrocarbons
VENM	Virgin Excavated Natural Material

1 INTRODUCTION

Kleinfelder Australia Pty Ltd (Kleinfelder) was commissioned by Basketball Association of Newcastle Limited (BANL) to prepare this report in accordance with the technical requirements of the Secretary's Environmental Assessment Requirements (SEARs), and in support of the State Significant Development (SSD-65595459) for the proposed Hunter Indoor Sport Centre with courts, indoor stadium, amenities and associated civil and landscaping works, at 2 Monash Road and 24 Wallarah Road, New Lambton, NSW (the site).

This report presents a Long Term Environmental Management Plan (LTEMP), to manage risks associated with heavy metals (copper and zinc), Polycyclic Aromatic Hydrocarbons (PAH) and Total Recoverable Hydrocarbons (TRH) identified within fill soils at the site, as identified in the site location figure presented in **Appendix A**.

A LTEMP is required for the site to ensure that the capping material covering impacted fill soils at the site remains intact. The LTEMP is required to ensure the following:

- Protection of future site users and the surrounding environment, following development of the site, via ongoing monitoring of site conditions and maintaining the integrity of the capping layer above the underlying impacted fill soils,
- Protection of the health of maintenance staff involved in any future sub-surface works, following development at the site. As the owner of the site, BANL will be the entity responsible for enforcement of the LTEMP.

This LTEMP has been prepared for the site with reference to the following guidance material:

- NSW EPA (2020) Contaminated land guidelines, consultants reporting on contaminated land.
- NSW EPA (2017) Contaminated Sites: Guidelines for the NSW Site Auditor Scheme, 3rd Edition.
- NSW EPA (2022) Preparing environmental management plans for contaminated land.

1.1 BACKGROUND

The site is located approximately 5.5 kilometres (km) to the west of the Newcastle Central Business District (CBD) and covers a combined area of approximately 3.196 hectares (ha). The proposal has been designed so that the project can be delivered as an initial block of six courts with subsequent additions to be delivered over several construction stages, as described below:

- Stage 1A

A single storey building with total GFA of approximately 10,218 m² comprising:

  - Ground floor: 6 x basketball courts, amenities to support the functioning of the complex including bathrooms, change rooms, lobby and foyer, retail tenancy and café.
  - Car park with 110 spaces

- Stage 1B
  - Ground floor extension to the west to provide 2 x courts with a GFA of approximately 1,630 m².
  - Additional 75 Car parks, total 185 spaces at completion of Stage 1b.
  - Mezzanine level: function rooms, administration space and training areas.

- Stage 2

Extension to the northern and southern sides of the existing building with total additional GFA of approximately 7,180 m² comprising:

  - Ground floor: 3 x courts including Show court with retractable grandstand seating over the 2 adjacent courts.

- Extension to the southern side of the building to provide 1 x court plus high-performance training area.
- Mezzanine level: extension of mezzanine to provide additional corporate spaces.
- Expansion of existing carpark to provide 240 spaces.

The staging approach will be dependent on available funding and full details will be provided in the EIS. BANL is committed to delivery of the full proposal subject to allocation of additional funding. Estimated construction start date for construction of the first stage is April 2025.

Kleinfelder were engaged by APP on behalf of BANL to prepare a Detailed Site Investigation (DSI) for the site. It is understood that no other environmental investigations have been conducted at the site prior to the DSI completed in 2023 by Kleinfelder.

The DSI identified numerous detections of copper, zinc, PAH, and TRH in fill soils, above the adopted criteria for the assessment of recreational land use. The source of elevated contaminant concentrations was determined to be potentially due to local sources of filling material, which include former collieries that operated in the Newcastle area, fill containing ash potentially from residential hearths/local commercial premises (historically) and impacted filling material associated with former railway lines to the north and east of the site. Observed TRH impacts within filling material were unlikely to have originated entirely from the filling material and may have been deposited on the site at a later date, either during placement of filling material or afterwards, by an unknown source.

A subsequent addendum DSI was conducted by Kleinfelder in January 2024, which determined that identified contamination within fill soils were stable and presented a low risk of leachability to underlying natural soils, groundwater, or offsite migration to the surrounding environment.

BANL's overall goal is to redevelop the site for continued recreational use as a sports complex. Given this, impacted fill soils will require remediation and/or management to mitigate potential ecological and human health risks from direct contact with filling material containing elevated contaminant concentrations (including future site users and construction/intrusive maintenance workers). As such, Kleinfelder were engaged by APP on behalf of BANL to prepare a Remediation Action Plan (RAP) for the site prior to redevelopment.

The RAP determined that capping of impacted soils was the most practical, efficient, and cost-effective option for the site considering the proposed future use of the land, and considering the investigation results, which indicated that the risk to human health of the identified contamination is via direct exposure. In addition, given the low leachability and stable condition of the identified contamination, the potential risk to the surrounding environment is considered low. The RAP noted that capping is considered sustainable and financially viable, however, the remediation option does rely on additional planning and design to assist with the proposed future development and requires a program of long-term management.

Based on the recommendations of the RAP, Kleinfelder were engaged by APP on behalf of BANL to prepare a LTEMP (this report) for the site, which is intended to be implemented to mitigate future exposure to impacted soils, manage potential human health or ecological concerns, and protect the safety of members of the public accessing the site.

1.2 Objectives and Scope of Work

The primary objectives of this LTEMP are to:

- Summarise the presence of known contamination within fill soils at the site,
- Document the site containment infrastructure (capping layer),
- Outline a program for ongoing monitoring of the capping layer, and
- Provide a framework for ongoing environmental management of the site during future disturbance of capped impacted fill soils.

1.3 Application of the LTEMP

The management procedure outlined in the LTEMP is considered a 'passive' or non-intrusive management, besides regular inspections, and maintenance of the integrity of the capping layer, there are no active

management requirements that would be required for the site. Given that nature of the contamination (stable, low leachability potential heavy metals, PAH and TRH) capped onsite, this LTEMP is to be implemented in perpetuity (unless retained impacted soils are removed or remediated in the future) to ensure the site continues to be suitable for the recreational/public open space land use.

Kleinfelder considers that the LTEMP is not required as part of Before You Dig Australia (BYDA) information, as the capped impacted fill soils are located within private site boundaries.

1.4 ENFORCEMENT OF THE LTEMP

In order for the LTEMP to be effective it must be legally enforceable. Kleinfelder understands that the LTEMP will be made enforceable following the submission, review, and approval of concept and design plans by submitted by APP to the planning authority.

It is anticipated that the LTEMP will be recorded on the relevant planning certificate for the land. The LTEMP will be publicly notified using this method (i.e., noted on the Section 10.7 Certificate for the property).

Stakeholders and potential future purchasers of the site will be notified of the existence of the LTEMP, and the obligations for implementation of the LTEMP, as noted on the Section 10.7 Certificate, which is legally required to be provided as part of the contract of sale.

2 SITE CHARACTERISTICS

2.1 SITE IDENTIFICATION DETAILS

Table 2-1 below provides a summary of site details.

Table 2-1: Site details

Site Location	Corner of Monash Road and Turton Road, New Lambton, NSW
Site Name	Wallarah Oval and Blackley Oval
Site Area	Approximately 3.196 hectares (ha)
Current Title Identification Details (Lot and Deposited Plan [DP])	Lot 2377 DP 755247 Lot 2378 DP 755247 Lot 2379 DP 755247 Lot 2380 DP 755247
Site Coordinates at the approximate centre of the site (GDA94 - MGA56)	Easting: 380540.349 Northing: 6356949.547
Current Land Use	The site is currently used as recreational ovals
Current Zoning	RE1 (Public Recreation)
Local Council	Newcastle City Council

2.2 SITE FEATURES

2.2.1 Present Land Use

The site was observed to comprise relatively flat terrain, which was predominantly covered in grassed surfaces. Built structures were present at the site, comprising a canteen building adjacent to the sites' southern boundary and lighting columns around the perimeter of the ovals. Three shipping containers were observed adjacent to the canteen, which are understood to be used for the storage of council property. No stockpiled or exposed soils were observed during the site inspection. No stressed vegetation or surface water was observed onsite during the site inspection.

Further detailed information on the current land use, including a photographic log of site conditions, are provided within the DSI (Kleinfelder, 2024a).

2.2.2 Surrounding Land Use

The land use surrounding the site is summarised in **Table 2-2** below.

Table 2-2: Adjacent surrounding land uses

Direction	Land Use
North	The north of the site is bounded by New Lambton High School. The area beyond New Lambton High School comprises mixed use urban residential properties and commercial properties. A 7-Eleven service station is located approximately 100 m north of the site.
South	The south of the site is bounded by Lambton Ker-rai Creek, which is a concrete-lined channel draining east into Styx Creek. Directly beyond Lambton Ker-rai Creek is Monash Road, with urban residential properties on the south side of Monash Road.

Direction	Land Use
East	The east of the site is bounded by Turton Road. The area beyond Turton Road comprises McDonald Jones Stadium, the Newcastle Harness Racing Club, Newcastle International Hockey Centre, and Styx Creek. Lambton Ker-rai Creek drains into Styx Creek approximately 450 metres east of the site.
West	The west of the site is bounded by Arthur Edden Oval. The area beyond Arthur Edden Oval comprises predominantly public ovals and recreation facilities, including Ford Oval, Harker Oval, the New Lambton Bowling Club, and Richard Ford Netball Courts. The recreation areas to the west of the site are bounded by urban residential properties.

2.3 Site History

A summary of the site history is presented below. Further details and information are presented in the following reports:

- Kleinfelder (2024a). Detailed Site Investigation 2 Monash Road and 24 Wallarah Road, New Lambton, NSW, Version 1.1, Final, Dated 2 May 2024.
- Kleinfelder (2024b). Supplementary Investigation – Detailed Site Investigation 2 Monash Road and 24 Wallarah Road, New Lambton, NSW, Version 1.1, Final, Dated 2 May 2024.

Historically, the site appears to have been used for recreational activities since at least 1954, with possible informal recreational use prior to this date. At the time of the DSI, no evidence was uncovered which identified that the site has been used for any other purpose.

Anecdotal information was obtained from local residents during additional site investigations undertaken during site sampling on 8 and 9 January 2024, which indicated the following:

- A coal mine previously existed approximately 100 m west of the site, and
- The site had been used during World War II as a heavy anti-aircraft gun dummy station.

An investigation was undertaken of these anecdotal claims on 8 February 2024. Based on the additional historical information obtained, and in conjunction with previously obtained information, it was considered possible that contamination present at the site could also be resultant from fill generated on the colliery peripheries, fill associated with the rail line construction and burnt coal originating from locomotives which historically operated on railway lines near the site to transport mined coal to Newcastle.

Historical information obtained from online searches as part of the supplementary investigation were not provided to Kleinfelder during the previously completed historical investigations, as part of Kleinfelder (2024a).

2.4 Site Contamination Summary

The following reports describe recent sampling and assessments undertaken in relation to the site, and summarised in the following contamination summary:

- Kleinfelder (2024a). Detailed Site Investigation 2 Monash Road and 24 Wallarah Road, New Lambton, NSW, Version 1.1, Final, Dated 2 May 2024.
- Kleinfelder (2024b). Supplementary Investigation – Detailed Site Investigation 2 Monash Road and 24 Wallarah Road, New Lambton, NSW, Version 1.1, Final, Dated 2 May 2024.
- Kleinfelder (2024c). Remediation Action Plan 2 Monash Road and 24 Wallarah Road, New Lambton, NSW, Version 1.1, Final, Dated 2 May 2024.

Previous environmental investigations completed at the site by Kleinfelder indicated that the site had been used for recreational activities since at least 1954, with possible recreational use prior to this date. No publicly available evidence was uncovered which identified that the site has been used for any other purpose.

In 2023, Kleinfelder prepared a DSI for the site that identified detections of heavy metals (copper and zinc), TRH (C_{10} – C_{16} minus naphthalene), TRH (C_{16} – C_{34}), benzo(a)pyrene, and total PAH were reported above the adopted

urban and public open space ecological screening levels for coarse grained soils in numerous samples across the site. Exceedances of the adopted criteria for TRH and PAH were reported in fill soils, with fewer exceedances reported in natural soils directly after the profile change from fill to natural, and no exceedances occurred in deeper natural soils.

Identified elevated concentrations of Contaminants of Primary Concern (CoPC) were prevalent across the entirety of site fill soils, indicating that no contamination hot spots were identified, and horizontal delineation was not achieved. However, vertical delineation appeared to have been achieved, with impacts restricted generally to fill soils and immediately underlying natural soils, from the site surface to an approximate maximum depth of 1.2 metres below ground level (mbgl).

The DSI recommended that further assessment of site soils should be conducted for additional CoPC not assessed during this investigation and to confirm the leachability of PAH compounds identified within fill soils, through the use of toxicity characterisation leachate procedure (TCLP) analysis. Information obtained from additional investigations would provide information regarding the leachability potential of identified contamination, and whether these contaminants have the potential to leach and migrate from the site.

Following this, in March 2024, Kleinfelder prepared an addendum DSI for the site. Additional historical investigations identified extensive coal mining operations in the immediate vicinity of the site. The site was surrounded by multiple railway lines used to service collieries in the area. Based on the information obtained, it is likely that some of the identified contamination was deposited as a result of historical coal mining activities and associated infrastructure (railway lines and coal fuelled locomotives) and subsequent demolition/clearance thereof and may have been present at the site for over 100 years.

Obtained leachability results from the addendum DSI indicated that elevated heavy metals and PAH concentrations identified during the DSI are bound within the soil profile and are not leaching into surface water or the shallow groundwater aquifer underling the site. Based on the stable, low leachability potential of impacted soils, the addendum DSI recommended a RAP for the site, with consideration of the potential containment of impacted fill material beneath a capping layer of clean material.

A RAP was completed by Kleinfelder in April 2024 following the completion of site investigation works detailed within the DSI and addendum DSI reports. The RAP outlined the measures required to assess, remediate, and validate the site (where relevant), so that it is suitable for continued recreational / public open space land use, in accordance with regulatory requirements.

2.5 Nature and Distribution of Identified Contamination

2.5.1 Heavy Metals (Copper and Zinc)

Concentrations of copper and zinc were identified exceeding the adopted ecological assessment criteria at select locations in fill materials across the site. The lateral spread of copper and zinc impacts was across the site, indicating that no single point source of contamination is present for copper and zinc. The vertical distribution of copper and zinc at the site was consistent with these metals being present within the filling material, noting that top-down contamination was possible prior to re-working of site surficial soils or due to importation of impacted filling material. Underlying natural soils, which comprised natural estuarine clay, were observed to have significantly lower concentrations of copper and zinc, which were at times reported below the laboratory Limit of Reporting (LOR). Furthermore, leachability testing indicated that metals are bound within the soil profile and are unlikely to leach into underlying natural soils, groundwater, or surface water.

It is noted that site-specific ecological investigation levels were not adopted for copper and zinc concentrations, with reported results assessed against the default guideline values for these metals. The default guideline values may be considered conservative with respect to assessing the level of risk posed to ecological receptors by identified copper and zinc concentrations at the site.

2.5.2 Petroleum Hydrocarbons (TRH)

Concentrations of TRH were identified exceeding the adopted ecological assessment criteria at select locations in shallow soils and fill materials across the site. The lateral distribution of TRH impacts was spread across the site, indicating that no single point source of contamination is present for reported TRH. The vertical distribution

of TRH impacts at the site was consistent with a pattern of top-down contamination arising from potential historical leaks and spills, possibly from site operations, such as maintenance activities conducted on the ovals.

The distribution of detected TRH identified a higher occurrence of long-chain (non-volatile fractions) of TRH C_{16} – C_{34}, indicating the source of TRH at these locations to be a mixture of diesel and heavy oils. In comparison, BTEXN and volatile/semi-volatile TRH F1 and F2 fractions were either absent or recorded at discrete locations.

2.5.3 Polycyclic Aromatic Hydrocarbons (PAH)

Concentrations of PAH were identified exceeding the adopted human health and ecological assessment criteria at numerous locations in fill materials across the site. A number of compounds classed as PAH were reported at the site to varying degrees, with the highest concentration of 644 mg/kg of total PAH reported at sampling location BH20. Given the degree of PAH contamination present, presenting both a human health and ecological risk, PAH was deemed to be the primary driver for remediation and long-term management of the site.

The lateral distribution of PAH impacts was spread across the site, indicating that no single point source of PAH contamination was present on the site. The vertical distribution of PAH impacts at the site was consistent with PAH being present within filling material, noting that top-down contamination was possible prior to re-working of site surficial soils or due to importation of impacted filling material. Underlying natural soils, which comprised natural estuarine clay, were observed to be free of PAH contamination, with PAH concentrations consistently reported below the laboratory LOR. Furthermore, leachability testing indicated that PAH is bound within the soil profile and is unlikely to leach into underlying natural soils, groundwater, or surface water.

The most common compounds of PAH identified at the site included Phenanthrene, Fluoranthene, and Pyrene. In comparison, Naphthalene, Acenaphthylene, Acenaphthene, and Fluorene were recorded at discrete locations. Identified PAH contamination is consistent with burnt coal or burnt wood and is most likely resultant of historical coal and/or wood burning activities (including coal mining, ancillary operations including railway operations, and residential/local industry burning) in the vicinity of the site prior to World War II.

3 CAPPING AND CONSTRUCTION

The RAP outlined the proposed construction methodology for limited impacted soil removal and capping and containment of residual impacted fill soils at the site. The program for remediation activities is provided in **Table 3-1**. Should different remediation methodologies be employed during the remediation program, the site works may differ to those presented below. Tasks have been set in an anticipated chronological order, where it has been identified beneficial to complete one task prior to another, to maximise the efficiency of the remediation methodology and to mitigate potential further environmental contamination.

Table 3-1: Remediation Program Overview

Task	Component
1	Remediation pre- work – including above ground site decommissioning, development of required documentation (e.g. remediation environmental management plans, work plans) and the application for required approvals (where required).
2	Stakeholder consultation including community consultation.
3	Regulatory approvals for proposed remediation work.
4	Mobilisation to site, establishment of environmental controls (where required).
5	**Stage 1 Remediation:** • Contaminated soils that are geotechnically unsuitable for reuse onsite may be stockpiled onsite with environmental controls (as described below), for waste classification assessment by a suitably qualified environmental consultant, prior to offsite disposal. • Environmental/erosion controls required for stockpiled soils will include, but may not be limited to, exclusion fencing, bunding around stockpiles such as sediment socks or haybales, covering material such as black plastic sheeting, appropriately weighed down). Protection of the adjacent creek from sediment run-off. • Excavation of soils for the installation of underground services, if these underground services cannot be installed within the capping layer of clean fill soils. • Excavation trenches for underground services (if emplaced in impacted soils) must be lined with a visual marker layer of geotextile fabric (walls and base) and backfilled with clean imported fill material (i.e., Virgin Excavated Natural Material (VENM), or Excavated Natural Material (ENM)).

Task	Component
6	**Stage 2 Remediation**: • Excavation (where required for footings, underground services, and to meet design specifications) and capping of the remainder of the site. • Excavation of the remainder of the site should be undertaken in a staged approach in conjunction with planned development works to limit the area of exposed soils at any one time. • Excavation of grass and surface materials which are geotechnically unsuitable for containment onsite may be stockpiled onsite with environmental controls (as described above), for waste classification assessment by a suitably qualified environmental consultant prior to offsite disposal. • Any excess soils, excavated to meet design specifications, which are suitable for re-use onsite may be stockpiled onsite with environmental controls (including exclusion fencing and covering material such as black plastic sheeting). • Exposed soil surfaces must be capped with either hardstand (i.e. concrete), VENM, or ENM, depending on the design specifications of the site. • A visual marker layer of brightly coloured (e.g., white or orange) geotextile fabric must be installed to visually delineate overlying clean fill soils from the underlying contaminated material. A visual marker layer will be installed in areas capped with fill soils and within service trenches only, no visual marker layer is required beneath hardstand surfaces as the hardstand itself will act as the clean capping material and the marker layer. • If capped with fill material, the filling material layer must be at least 500 mm thick for unsealed areas, and 250 mm for areas capped by hardstand surfaces. The thickness of capping material should be determined in conjunction with the planned earthworks strategy, with respect to the final site level required and the removal of any geotechnically unsuitable areas. The capping layer used should also account for the future maintenance of the site, such as subsurface drainage in unsurfaced areas, or the need for future resurfacing i.e. use of increased capping in areas where future excavation would potentially occur would avoid requirements for a contamination management plan and decrease future disposal costs for impacted soils. Excavation areas are to be restricted with fencing and warning signage. Construction workers within the excavated areas (e.g., concreters) must be made aware of the potential health risks of direct contact with, or ingestion of, remaining fill soils during capping works. Requirements for the validation of the capping layer are provided within the Kleinfelder (2024c) RAP.
7	Final Validation • Validation will include the confirmation of the thickness of capping material across the site via surveys prior to and after the completion of site remediation works, and records/images of trench protections. ENM/VENM certificates will also be required confirming the material was suitable for onsite use, as well as waste disposal documentation confirming the suitable offsite disposal of any unsuitable material. • Final validation of the site following removal of all stockpiled materials and the complete capping of the site with either hardstand, VENM, or ENM. • Soil samples to be collected from imported VENM or ENM, following the completion of remediation works, to confirm no cross-contamination of imported fill material and no risk to human health or ecological receptors from direct contact with surficial soils.
8	A Validation Report produced for the site, detailing the completed remediation works and the remaining presence of impacted soils at the site, which will be included on the Section 10.7(2) Planning certificate for the site.

4 LONG TERM ENVIRONMENTAL MANAGEMENT

This LTEMP relates to heavy metals (copper and zinc), PAH, and TRH within fill soils across the entirety of the site. The management plan has been prepared to ensure that the site remains safe for maintenance workers accessing the subsurface, during any maintenance or renovation works by BANL, and other site occupants, by providing role responsibilities and control measures that will support the long term integrity of the capping layer overlying the site.

4.1 LONG TERM ENVIRONMENTAL MANAGEMENT STRUCTURE AND RESPONSIBILITIES

This section of the LTEMP summarises the various parties who have been allocated a responsibility under this LTEMP. The responsibilities have been allocated according to our understanding of which party is best placed to manage the requirements. The responsibilities may be delegated, where appropriate.

BANL will manage these responsibilities by including the LTEMP and its requirements in a facilities management tool. BANL are required to ensure any maintenance employees and contractors have read and understand the LTEMP, agree to undertake the relevant obligations outlined in the LTEMP, and confirm that they are competent to discharge the same obligations. The roles and responsibilities of parties involved in the LTEMP are summarised in **Table 4-1**.

Table 4-1: Responsibilities

Party	Responsibilities
BANL	The key responsibility of BANL is to ensure the protection of site users and future maintenance workers. This will include: • Maintaining ultimate responsibility for the implementation of the LTEMP, • Reviewing the effectiveness of the LTEMP following any incident or any other event that suggests the LTEMP is ineffective, or in the event that the site configuration is to change, • Implementing and communicating improvements and amendments to the LTEMP, as required, • Providing sufficient resources, where required, to comply with the requirements of this LTEMP, and • Communicating with the facilities / maintenance employees of the existence of this LTEMP, and their roles within it.
Facilities / Maintenance Employees	The facilities / maintenance employees are responsible for the successful planning, implementation, and completion of maintenance activities in a manner that does not compromise the health of workers or site users. The responsibilities of facilities / maintenance employees will include: • Arranging for routine inspections of the site condition and capping integrity in accordance with **Section 6** of this report, and to ensure remedial measures are implemented, and notified where problems are identified, • Ensuring that all maintenance staff conducting works are briefed on the presence of contaminated soils beneath the site capping layer across the entirety of the site, • Maintaining records of maintenance and/or reports related to the site, • Reviewing subcontractor work method statements for compliance with the LTEMP and any other aspects required for the safe completion of works on each site, • Monitoring subcontractor compliance with their work method statements and inspecting completed works to ensure the capping is restored appropriately upon completion, and the integrity of the marker layer and capping layer is not compromised, or they are restored if compromised, and • Promptly notifying any concerns regarding the implementation of this LTEMP to the relevant BANL representative.

Party	Responsibilities
Sub-contractors	All subcontractors engaged to undertake intrusive works at the site have an obligation to carry out their own work with due diligence. They must: • Comply with statutory requirements applicable to their work, • Prepare their Safe Work Method Statement (SWMS) with reference to this LTEMP, • Have SWMS reviewed by the facilities / maintenance employees, and amend the SWMS, if necessary, prior to starting works, • Abide by their SWMS during all works, • Report any incidents that may result in a health or environmental risk arising during, or in connection with, their work, and • Implement practical ways to control health and environmental risks.

4.2 COMMUNICATION PROTOCOLS

This LTEMP will be implemented in consultation with relevant government authorities and key community stakeholders with respect to the implementation and update of this LTEMP and its protocols, where relevant. Stakeholders include:

- The NSW Department of Planning and Environment (NSW DPE),
- NSW Environment Protection Authority (NSW EPA),
- Newcastle Council,
- The landowner, the site lessee/site operator (current or any future owners/operators), and any individual, business, or organisation conducting works at the site, such as consultants, contractors, and subcontractors, and,
- Workers performing construction and maintenance activities.

Details regarding the emergency contacts and response for the site must be provided in a separate Emergency Response Procedures document for the site.

4.3 ENVIRONMENTAL TRAINING AND INDUCTIONS

Impacted soils will remain on the site beneath a capping layer of Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM), or handstand surfaces. If subsurface works or disturbances are to be undertaken at the site, maintenance personnel and any contractors must undertake an environmental awareness induction prior to the commencement of any intrusive works that are likely to involve penetration through the capping layer and into underlying impacted soils. The environmental awareness induction is to be completed by the site manager and/or the delegated person responsible for implementing this LTEMP. The awareness induction will cover:

- Outlining the objective and purpose of the works, and
- Contents of the LTEMP and the responsibilities of the intrusive worker(s).

The maintenance personnel and/or contractors must be aware that:

- Heavy metals, PAH, and TRH, above land use criteria, are present within soil beneath the capping layer,
- A geotextile marker layer is present to delineate the boundaries between clean capping material and underlying impacted soils. Impacted soils beneath hardstand surfaces should be treated as contaminated, with the hardstand surface to act as the marker layer,
- The capping layer comprises VENM or ENM within subsurface utility trenches, and areas of the site without hardstand cover (i.e., within grassed areas and landscaped surfaces), and
- If excavations extend beneath the geofabric marker layer or the base of hardstand, there is a risk of exposing contaminated soils.

The person conducting the work will use this LTEMP to prepare their own systems of work including a management plan with specific reference to their relevant work, which will be adhered to for the duration of the site works.

All works that penetrate capping layers must be carried out with due consideration of Work Health and Safety legislation, including all requirements of the NSW Work Health and Safety Act 2011. **Appendix B** provides an Acknowledgement and Agreement Register for the person conducting the work to sign, stating that they are aware of and understand the LTEMP, their responsibilities, and that they agree to abide by the provisions of the LTEMP, prior to commencing works onsite. Final design plans detailing areas of hardstand and areas of VENM/ENM capping must be provided with this LTEMP once they are finalised by APP.

4.4 Protection of Site Users

Based on the findings of assessment works conducted to date, there would be no anticipated unacceptable risk to future site users on the developed site as there is no direct access to contaminated soils contained beneath a barrier (capping layer).

Risk could potentially develop if the capping layer is disturbed (e.g. by uncontrolled intrusive works or redevelopment) or degrades over time (e.g., by erosion, flood impacts). As such the surface hardstand and VENM/ENM capping layers should be maintained in a healthy state to prevent exposure.

It is important that, if disturbed for any reason, the cap is reinstated upon completion of any works, so that the site remains suitable for its intended use as recreational / public open space. It is also important that some form of routine monitoring is carried out to inspect that the capping layer is not degrading or has not been interfered with.

4.5 Control of Future Maintenance Works

Before undertaking any subsurface works, all subcontractors will be required to prepare their own SWMS. These should reference the LTEMP, including a risk assessment, which will be reviewed by the site facilities / maintenance manager. Contractors will be required to prepare an induction process for their works so that risks are communicated with all staff involved in maintenance works.

Future maintenance or contract works need to be assessed for the potential to damage or compromise the capping layers or marker layers. Any proposed works should be assessed by BANL for the site, using the control measures provided in **Table 4-2**.

Table 4-2: Control of Site Works

Planned Works	Control Measure
Planned works will not penetrate through the capping layer, or will not impact upon the integrity of the capping layer	Carry out works in accordance with normal procedures not covered by this LTEMP.

Planned Works	Control Measure
Planned works will penetrate the capping layer, or may impact upon the integrity of the capping layer	If proposed works are minor and will not result in the alteration of the capping layer or marker layers, a SWMS should be obtained from the subcontractor which refers to the requirements of this LTEMP and notes protocols to reduce risks. The facilities / maintenance employees should review the SWMS to ensure controls and reinstatement measures for the works are acceptable. Facilities / maintenance employees should also supervise works to ensure the agreed SWMS is adopted and inspect all works at completion. If proposed works are significant and may result in the alteration of the capping layer or marker layers, discussions should be held with suitably qualified environmental consultants to ensure that proposed works are acceptable. Guidance should be obtained on how to appropriately undertake the works. If planned works are significant and involve spoil removal, appropriate controls will be required for impacted soil stockpiles. A waste classification certificate will also be required for any impacted soils that will be removed from the site.

4.6 PROTECTION OF MAINTENANCE PERSONNEL

This section contains provisions relating to protection of maintenance personnel with respect to identified contaminants within fill soils at the site. It is not intended as a full Work Health and Safety (WHS) plan for future works. The contents of this section should be incorporated into any future WHS plan prepared for the site and enacted through SWMS documentation prepared by BANL, contractors, and persons conducting a business or undertaking (PCBU) at the site.

4.6.1 General Legislation Requirements for Health and Safety

Any work that is carried out on the site should follow the current occupational health and safety regulations at the time. A list of work health and safety and environment protection documents relevant to the specific risks that should be consulted in preparation for intrusive works at the site are provided below. If at any time the advice in the relevant legislation conflicts with advice in this LTEMP, the advice/requirements of the relevant legislation will prevail over this LTEMP. Relevant legislation and guidance include:

- Work Health and Safety Act, 2011.
- Work Health and Safety Regulation, 2017.
- Contaminated Land Management Act 1997 No. 140
- National Environment Protection Council, 2013. National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013.
- NSW EPA 2014 Waste Classification Guidelines Part 1: Classifying Waste.

4.6.2 Minimum General Controls

Following development, in its undisturbed state, the site is suitable for use as a recreational / public open space property. Therefore, in carrying out routine site maintenance works on the surface (such as garden maintenance), there is no increased risk or need for additional health and safety or environmental protection controls.

Personal Protective Equipment (PPE) consistent with standard construction or maintenance requirements is considered suitable for site workers such as:

- Long sleeved shirts,
- Long pants,
- Gloves,
- Steel capped boots, and
- Eye protection (as required).

4.6.3 Personal Hygiene

During intrusive site works beneath the capping layer, personnel should be briefed on the requirements for good personal hygiene as part of the site induction. As with any work where contractors and maintenance staff are accessing soil, staff should be encouraged to avoid hand to mouth and hand to face contact until they have washed (e.g. eating, drinking and/or smoking). Wash water and soap should be available during intrusive site works.

5 GENERAL MANAGEMENT ACTIVITIES AND CONTROLS

The management activities and controls listed herein are generic controls intended to be employed at such times that the capping layer across the site requires ongoing maintenance and repair works, including minor excavation works. They are not intended for implementation during any major excavation, or major development which may occur at the site. Any major construction work should have a project specific Construction Environmental Management Plan (CEMP) prepared and implemented.

The controls relate to impacts present across the site to the site boundaries. Controls to prevent the migration of contaminants from the works area have also been included. To reduce the accidental spread of contaminants by workers from contaminated soils to clean areas, zones should be delineated on the site where different types of operations will occur, and the flow of personnel between the zones should be controlled. The establishment of work zones will help ensure that personnel are property protected against the hazards present where they are working, work activities and contamination are confined to appropriate areas, and personnel can be located and evacuated in an emergency. Hazardous work areas should be divided into as many different zones as needed to meet operational and safety objectives.

5.1 EXCAVATION

The key risks during excavation works at the site include:

- Damage to the engineered capping layer,
- Inadvertent exposure to contaminants by excavating through capping layers.

To mitigate these risks, the following are recommended:

- If excavation works are planned for the site, contractors are to familiarise themselves with this LTEMP, and the location and depth of capping layers at the site. Having reviewed this LTEMP, workers must prepare a SWMS, demonstrating how they will manage the safety of their staff and their methodology for reinstatement of the site upon completion of works.
- If works involve excavation below the engineered capping layer, then works are to be managed under NSW work health and safety legislation.
- During works beneath the capping layer, an exclusion zone must be established, and the work should be inspected by the facilities / maintenance employees to ensure that the nominated controls in the SWMS are being adopted and that the rectification works of the capping layer are in accordance with the specifications of the original design.
- Any soils excavated from the site must either be disposed of offsite or placed back into the excavation and the surface capping layer restored.
- Any soil removed from the site must be subject to a waste classification assessment by a suitably qualified environmental consultant, and disposed of to a landfill that is licensed to accept the waste. Whilst on site the impacted stockpiles should be appropriately managed to prevent migration of contamination through erosion.
- Contractors must wear appropriate PPE to protect them from dermal contact with soils.
- Good site hygiene practices must be maintained (no eating, drinking, smoking in the work area and hand wash facilities must be provided so workers can wash before having breaks).

5.2 REINSTATEMENT OF CAPPING LAYERS

Following excavations that have disturbed capping layers, reinstatement of capping layers is required to include the following:

- Capping materials must be reinstated to their original survey levels,
- If necessary, provide updated reference levels to ensure that capping thickness requirements have been met,
- Any damage to geotextile marker layers should be repaired, or the marker replaced, prior to reinstatement of the capping layer,
- If the capping layer is unpaved (i.e., VENM or ENM capping layers), any vegetation removed during the excavation should be replaced in order to stabilise the capping material, and
- Photographic evidence should be provided as a record of capping reinstatement following the completion of works.

It is noted that VENM or ENM will be used as capping material in unsealed areas of the site. This material can be excavated carefully to the top of the geotextile marker layer, stockpiled at the site, and covered separately for re-use as capping material within the excavation or re-use elsewhere on the site. Care must be taken to ensure that none of the capping material is mixed with or exposed to contaminated soil beneath the marker layers. If capping material is exposed to contaminated soil, then this material must be either placed beneath the marker layer or appropriately disposed of offsite in accordance with the NSW EPA (2014) Waste Classification Guidelines at an appropriately licensed landfill facility.

5.3 Stockpiling of Soils

With respect to stockpiling of soils from contaminated strata beneath the geotextile marker layer or beneath hardstand surfaces, the key risks are as follows:

- Transport or disposal of contaminated soil to other 'clean' portions of the site, and
- Washing of impacted soil into local waterways through sediment migration. This would not only present an environmental and health concern but would also present a commercial risk through fines or prosecution if allowed to occur.

In order to mitigate these risks, the following controls are recommended:

- Minimise the requirement for stockpiling of soil from beneath the geotextile marker layer or beneath hardstand surfaces. Consideration should be given to the use of alternative storage options, such as the use of lined skip bins or drums,
- Ensure stockpiles or excavated material remain onsite until testing has been completed and a final waste classification can be provided by a suitably qualified environmental consultant. Offsite removal of soils prior to receival of a waste classification may trigger an offence under the Protection of the Environment Operations Act 1997,
- Provide temporary fencing or barricading around stockpiles or skip bins to prevent public access,
- Stockpiles should be formed on medium-density polyethylene (MDPE) plastic sheeting to prevent contact with site surfaces and so that the stockpile footprints do not require validation upon removal,
- Once a stockpile is formed, the edges of the underlying MDPE should be raised up around the stockpile and pegged into place so that, should a rainfall event occur, overland flow will be diverted around the stockpile without coming into contact with the contents,
- Stockpiles should then be covered in MDPE plastic sheeting with sufficient overlap such that soil does not become exposed at the join. It is recommended that a minimum 0.5 metre overlap should be achieved,
- Plastic sheeting covering the stockpile should extend beyond the base of the stockpile, so all water is diverted away from the stockpile, and
- A program of daily inspections should be implemented while the stockpile is onsite to ensure the condition of the cover is maintained.

5.4 Decontamination Procedures

Decontamination, following works involving contaminated soils, including decontamination of PPE, and tools used during the works is an important process in eliminating or minimising dermal exposure to contaminants. Decontamination procedures will involve one of the following:

- Wet decontamination involves the use of damp rags to wipe down contaminated surfaces. Cleaning rags should only be used once, although they may be re-folded to expose a clean surface. The rags should be used flat and should not be wadded. If a bucket of water is used, the rags should not be re-wetted in the bucket, as this will contaminate the water. Care should be taken to avoid any potential electrical hazards when using this procedure. Large equipment such as excavators or graders should be cleaned with a pressure washer and/or hose. The large equipment must be placed in a plastic-lined sump so that runoff water is collected for offsite disposal as contaminated liquid waste. Any sediment collected during washing may be emplaced beneath the site capping layer or disposed of offsite at a licensed landfill facility.
- Dry decontamination should only be used where wet methods are not suitable or pose a risk because of other hazards, such as slips or electrical hazards. Dry decontamination procedures include carefully rolling or folding up and sealing plastic sheeting, or dry-wiping electrical tools with a cleaning rag.

The following sub-sections detail the decontamination procedures that must be followed for the decontamination of tools and PPE, which were in contact with contaminated soils beneath the capping layer at the site.

5.4.1 Decontamination of Hand Tools

All tools used during works beneath the capping layer should be cleaned under controlled conditions and decontaminated using either the wet or dry decontamination procedures, as described above, before they are removed from the work area. The method chosen will depend on its practicality, the level of contamination and the presence of any other hazards (i.e., electrical hazards). In some circumstances it may be better to dispose of contaminated tools and equipment, depending on the level of contamination and the ease of replacement.

5.4.2 Personal Decontamination Procedures

Personal decontamination involves the removal of all visible dust and soils from PPE. Personal decontamination must be undertaken each time a worker leaves the exclusion zone and at the completion of the works. Personal decontamination should be done within a nominated decontamination area to avoid re-contamination.

Contaminated PPE must not be transported outside of the exclusion area except for disposal purposes. Before work clothes and footwear worn during works beneath the capping layer are removed from the exclusion zone for any reason, they should be thoroughly brushed and then wet wiped to remove any dust and soils.

PPE should be used until all contaminated items are cleaned or disposed and personal washing has been completed. Any PPE used while carrying out work beneath the capping layer must **not** be taken home by a worker.

Personal hygiene and careful washing are essential. Particular attention should be paid to the hands, fingernails, face, and head. Personal decontamination procedures include:

- Remove any visible dust or soils from protective clothing by wiping down with damp cloths. Do no reuse or re-soak damp cloths,
- Use damp cloths to wipe down footwear and place cloths into a disposal bag.

5.5 Sediment and Erosion Control

It is important that sediment and erosion is controlled during any excavation works. The following provides some guidance for management of sediment sourced from soil excavated from beneath the site capping layer:

- Runoff:
    - Any drain in the immediate vicinity of excavation works must be blocked or barricaded and silt fencing, sandbags and/or hay bales installed to prevent offsite sediment movement to ensure compliance with the Protection of the Environment Operations Act 1997 (POEO Act), which would come into effect if pollution migrated offsite.
    - Runoff water, including that due to rain, which has not been in contact with any contaminated material, is not of concern.
    - Any surface water that comes into contact with contaminated soil must be collected and tested prior to disposal or discharge.

- Any works should be conducted with consideration for forecast weather conditions, with no works to be conducted during forecast heavy rainfall where potential erosion or flooding is possible.

- Erosion and sediment control structures:
  - Stockpiled soil which is awaiting offsite disposal or reinstatement into the excavation should be covered as per **Section 5.3**.
  - Any sediment accumulated from impacted soil run-off should be returned to the impacted soil stockpiles.
- Maintenance of surrounding roads:
  - During the transportation of any soil from site, care must be taken so that soil is not deposited on nearby roads.
  - Haul roads out of site are to be maintained in a clean manner at all times.
  - Trucks should be loaded on sealed or clean surfaces where possible and covered before leaving site.
  - Contractors shall monitor the exit points from site and any evidence of soil being transported offsite on truck tyres must be investigated immediately and corrective actions implemented.

5.6 Dust Control

Dust management is required to minimise the potential for soil-derived dust to be released to the atmosphere during excavation works beneath the site capping layer. Works must be conducted in a manner that mitigates dust generation. Potential sources of dust generation at the site include:

- Excavation works,
- Loading of soil on or off trucks, and
- Wind movement across stockpiled material and exposed soil areas.

In order to mitigate the risk of dust generation during intrusive works beneath the site capping layer, the following controls are recommended:

- Undertake regular dust inspections when excavation works are undertaken within contaminated soils beneath the site capping layer and visual marker layer,
- Ensure all exposed soils and any vehicle movement routes are regularly dampened to minimise dust generation,
- Monitor dust conditions during maintenance works where stockpiles are generated, or where bare earth is exposed,
- Plan works with consideration for forecast weather conditions, and cease works during unfavourable weather conditions,
- Apply wet suppression of soils to minimise dust generation, and
- Personnel working in areas of potential dust generation are to wear appropriate PPE.

5.7 Soil Disposal

Any soil generated at the site which requires disposal should be stockpiled appropriately (see **Section 5.3**) and classified by an appropriately qualified environmental consultant for disposal. Samples should be collected at a frequency in accordance with the guidance provided within NSW EPA (2022) Contaminated Land Guidelines: Sampling Design Part 1 – Application.

A qualified environmental consultant must provide a waste classification letter for the receiving waste facility as per the NSW EPA (2014) Waste Classification Guidelines Part 1: Classifying Waste. Once classified, the material can be disposed of by appropriately licensed transportation contractors to an appropriately licensed facility lawfully able to accept the waste.

At all stages, appropriate documentation should be maintained, including (but not limited to):

- Waste classification report,
- Waste consignment documentation, and
- Landfill disposal dockets.

5.8 IMPORTED FILL

Only certified landscaping products, VENM, or ENM are to be used as backfill on the site. With respect to VENM or ENM, should a certificate of analysis not be available from the source site, it is recommended that a suitably qualified environmental consultant is engaged to assess the imported soil to determine its suitability for use onsite.

5.9 REPORTING

The facilities / maintenance employees should maintain records of subcontractor works including compliance with the LTEMP and evidence of appropriate reinstatement of the capping layer (i.e., a photographic record of reinstatement works). Requirements regarding the monitoring program are outlined in **Section 6**.

6 MONITORING AND REVIEW

6.1 OUTLINE OF THE MONITORING PROGRAM

6.1.1 Routine Site Inspections

Routine site inspections should be conducted or arranged to be conducted by the facilities / maintenance employees every year, or immediately after penetration and reinstatement of the capping layer. This must be conducted to ensure that the integrity of the capping layer has not been compromised. The inspections should document the following:

- Condition of hardstand surfaces overlying contaminated soils,
- Condition of surface soils and surface vegetation cover in areas where VENM/ENM is utilised as capping material,
- Exposure of the marker layer, indicating that the integrity of the capping layer has been compromised, and
- Maintain an ongoing inspection schedule documenting the observations of inspections noted above.

If, at any time, the capping layer has been compromised and site occupants, visitors, or environmental receptors have been exposed to contaminants at the site (i.e., site occupants, visitors, or environmental receptors have come into direct dermal contact with contaminated soils), the NSW EPA and Newcastle Council must be made aware as soon as practicable.

6.1.2 Additional Inspections During and Following Intrusive Site Works

During any planned excavation works onsite, it is important that appropriate documentation pertaining to the works is reviewed and the works are inspected by site facilities / maintenance employees. Where works will penetrate or affect the structure of the capping layer, the facilities / maintenance employees should also conduct inspections of the works in progress to evaluate compliance with the SWMS and inspection of the completed works to ensure that all capping layers have been appropriately re-instated.

6.1.3 Environmental Records

Environmental records, which will be collated by facilities / maintenance employees, shall include the following:

- LTEMP distribution records,
- Training and induction records,
- Environmental incident reports,
- Environmental complaint reports,
- Non-conformances and corrective and preventative action reports,
- Inspection checklists/reports, and
- Environmental monitoring data and reports (such as waste classification results and site inspection reports).

6.2 LTEMP REVIEW AND UPDATES

This section outlines the process that will be used to review this LTEMP so that it remains relevant and up to date. The LTEMP is a live document which will be reviewed regularly so that it remains consistent with legislation and best practice and site changes over time. A review may be called for by BANL at any time, to assess the performance of the LTEMP and to suggest changes if required. A review must take place at a minimum of every five years to ensure that references to legislation, codes of practice, and environmental guidelines and standards remain up to date, or in the event that there is a significant change within legislation, relevant codes of practice, or relevant environmental guidelines.

This LTEMP must be updated in the following circumstances:

- Change of site owner/site operator, or
- Changes in LTEMP procedures, or
- Changes in site use, approved land use or development.

Changes in procedures, site use, approved land use or development must be reviewed and approved by a suitably qualified environmental consultant and requires reassessment to ensure that consideration is given to contaminated soils, and any changes to the site do not increase the risk of exposure. Updates and revisions of the LTEMP are the responsibility of the site lessee/site operator and are to be communicated to stakeholders and responsible parties.

7 SUMMARY

Kleinfelder was engaged by APP on behalf of BANL to prepare a LTEMP, to manage risks associated with heavy metals (copper and zinc), PAH and TRH identified within fill soils at the site. A LTEMP was required for the site to ensure that the capping material covering impacted fill soils at the site remains intact. The LTEMP was required to ensure the following:

- Protection of future site users and the surrounding environment, following development of the site, via ongoing monitoring of site conditions and maintaining the integrity of the capping layer above the underlying impacted fill soils, and
- Protection of the health of maintenance staff involved in any future sub-surface works, following development at the site. As the owner of the site, BANL will be the entity responsible for enforcement of the LTEMP.

The LTEMP provides a summary of the presence of known contamination within fill soils at the site, documents the site containment infrastructure (capping layer), outlines a program for ongoing monitoring of the capping layer, and provides a framework for ongoing environmental management of the site during future disturbance of capped impacted fill soils.

Table 7-1 below provides a summary of recommendations contained within the LTEMP. Detailed requirements are provided within the relevant sections of the report.

Table 7-1: Summary of Recommendations provided in the LTEMP.

Recommendation	Section within the LTEMP
Roles and Responsibilities	
BANL to provide oversight and ultimate responsibility for the implementation of the LTEMP	Section 4.1
Once the site is developed, the facilities / maintenance employees will plan, implement, and monitor contractor works in accordance with the LTEMP requirements. They will also review contractor SWMS prior to works and notify BANL of any incidents	Section 4.1
Subcontractors must prepare SWMS documentation with reference to this LTEMP and conduct their work in accordance with their SWMS. Subcontractors must notify their supervisor of any incidents	Section 4.1
Risk Assessment and Training	
All contractors to undertake a site-specific risk assessment as part of their SWMS preparation	Section 4.1 & Section 4.3
Once the site is developed, the facilities / maintenance employees will review contractor risk assessments and proposed work plans.	Section 4.1 & Section 4.5
Contractors are to implement an induction process for their works to communicate risks and mitigation/control measures	Section 4.3
Implementation	
Protection of site users by: • Fencing off work areas involving excavations through the cap / marker layer, • Covering stockpiles and controlling sediment, dust, and erosion, and • Reinstating the cap / marker layer upon completion.	Section 4.4, Section 5.2, Section 5.3, Section 5.5, Section 5.6

Recommendation	Section within the LTEMP
Protection of maintenance personnel by: • Abiding by any relevant Work Health and Safety and legislation in force, • Minimum PPE of long sleeves and pants, gloves, steel cap boots and eye protection, • Staff to adopt good personal hygiene (no eating, drinking, or smoking on the worksite).	Section 4.6
Protection of the environment by: • Implementing the mitigation measures during all maintenance / excavation works, • Ensuring sediment movement, dust, and erosion are controlled during all excavation and stockpiling works, • Keep roads clean and cover loads appropriately, • Waste classification of all spoil to be disposed offsite. Disposal to licensed facilities with records maintained, and • Only import VENM or ENM as backfill material, and if necessary, provide validation results certifying the material as VENM or ENM.	Section 5.5, Section 5.6, Section 5.7, Section 5.8
Monitoring Requirements	
Facilities / maintenance employees are to carry out the monitoring (site inspections) in accordance with the LTEMP and advise BANL of any recommendations	Section 6.1
Facilities / maintenance employees are to implement a program of routine site inspections to assess the condition of the capping layer. Further inspections are to be conducted during and following any intrusive maintenance works on the site.	Section 4.5 & Section 6.1
Review	
BANL are to maintain records of the activities onsite and monitoring results. BANL are to coordinate LTEMP reviews as needed to ensure the LTEMP is kept up to date.	Section 6.2

8 REFERENCES

- *Environmental Planning and Assessment Act* 1979, as amended in 1997 (EP&A Act, 1997).
- Kleinfelder (2024a), *Detailed Site Investigation, 2 Monash Road and 24 Wallarah Road, New Lambton, NSW, Version 1.1, Final, Dated 2 May 2024*.
- Kleinfelder (2024b), *Supplementary Investigation – Detailed Site Investigation, 2 Monash Road and 24 Wallarah Road, New Lambton, NSW, Version 1.1, Final, Dated 2 May 2024*.
- Kleinfelder (2024c), *Remediation Action Plan, 2 Monash Road and 24 Wallarah Road, New Lambton, NSW, Version 1.1, Final, Dated 2 May 2024*.
- National Environment Protection Council (NEPC), 1999. *National Environment Protection (Assessment of Site Contamination) Measure,* 1999 as amended in May 2013 (NEPM, 2013).
- NSW EPA, 2022a. *Sampling Design Part 1 – Application, Contaminated Land Guidelines.*
- NSW EPA 2022b *Preparing environmental management plans for contaminated land*.
- NSW EPA, 2020. *Consultants Reporting on Contaminated Land, Contaminated Land Guidelines*, as revised May 2020.
- NSW EPA, 2017. *Contaminated Land Management – Guidelines for the NSW Site Auditor Scheme (3rd Edition)*, as published October 2017.
- NSW EPA, 2014. *Waste Classification Guidelines – Part 1: Classifying Waste*, as published November 2014.
- NSW EPA, 2016. *Addendum to the Water Classification Guidelines (2014) – Part 1: Classifying Waste,* as published in October 2016.
- *Protection of the Environment Operations Act* 1997 (POEO Act, 1997).
- *Protection of the Environment Operations (Waste) Regulation*, 2005.

9 REPORT LIMITATIONS

This report has been prepared by Kleinfelder Australia Pty Ltd (Kleinfelder) and may be used only by the Client and its designated representatives or relevant statutory authorities and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report.

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

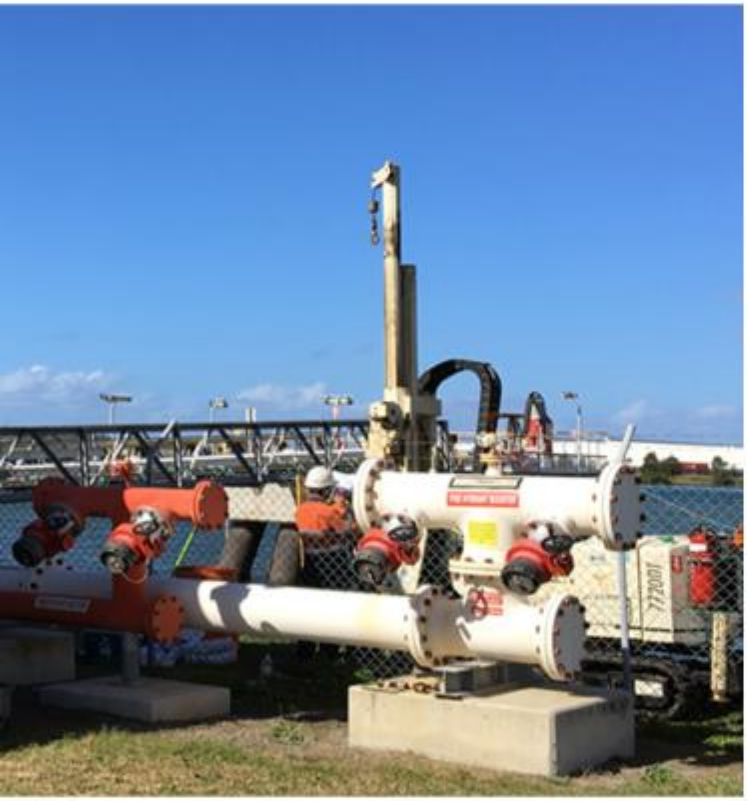
This report cannot be reproduced without the written authorisation of Kleinfelder and then can only be reproduced in its entirety.

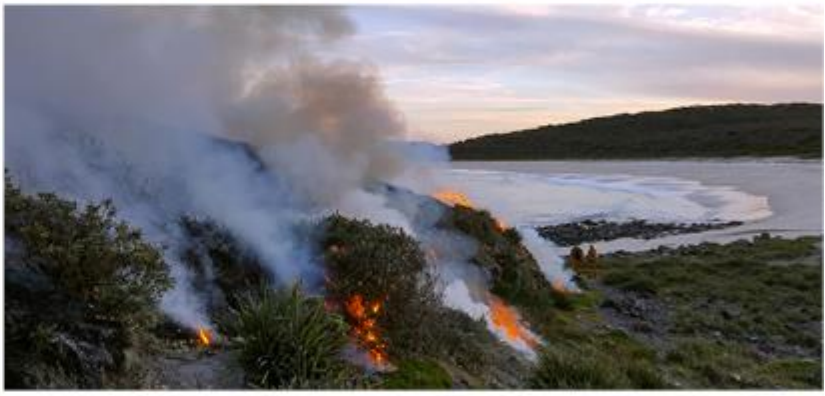
The findings and conclusions contained within this report are relevant to the conditions of the site and the state of legislation currently enacted in the relevant jurisdiction in which the site is located as at the date of this report.

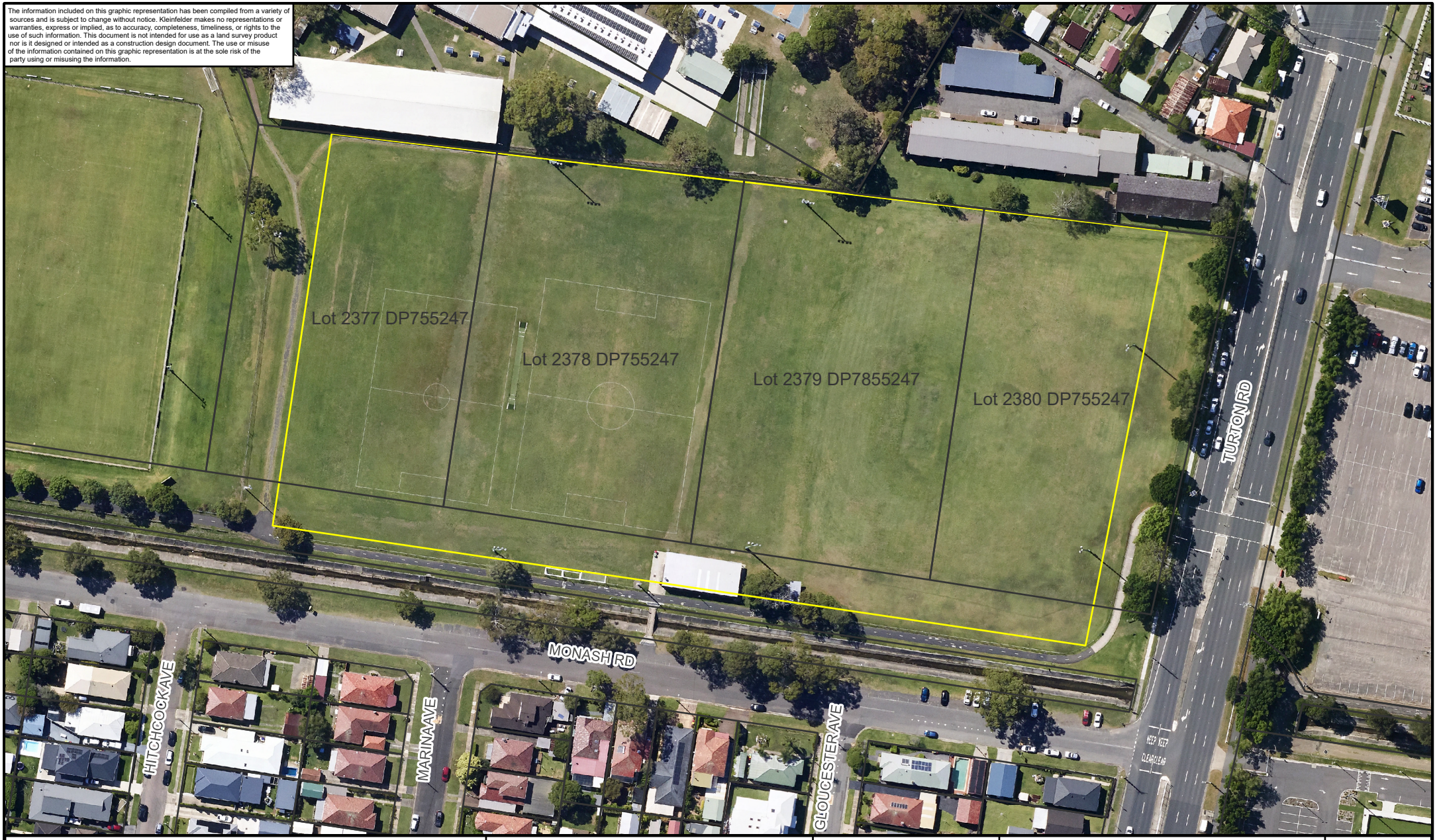
Additionally, the findings and conclusions contained within this report are made following a review of certain information, reports, correspondence, and data noted by methods described in this report including information supplied by the client or its assigns. Kleinfelder has designed and managed the program for this report in good faith and in a manner that seeks to confirm the information provided and test its accuracy and completeness. However, Kleinfelder does not provide guarantees or assurances regarding the accuracy, completeness and validity of information and data obtained from these sources and accepts no responsibility for errors or omissions arising from relying on data or conclusions obtained from these sources.

Any representation, statement, opinion, or advice expressed or implied in this report is made on the basis that Kleinfelder, its agents and employees are not liable to any other person taking or not taking (as the case may be) action in respect of any representation, statement, opinion or advice referred to above.

APPENDIX A: FIGURES







Legend

- Subject Area
- Lot Boundaries

0 7.5 15 30 45 60 75

Scale @ A4 1:1,500 Metres

GDA 1994 MGA Zone 56

N

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PROJECT REFERENCE:	24002155
DATE DRAWN: 9/11/2023	Version 1
DRAWN BY:	RHourigan
DATA SOURCE: Metromap - 2023	

Site Location

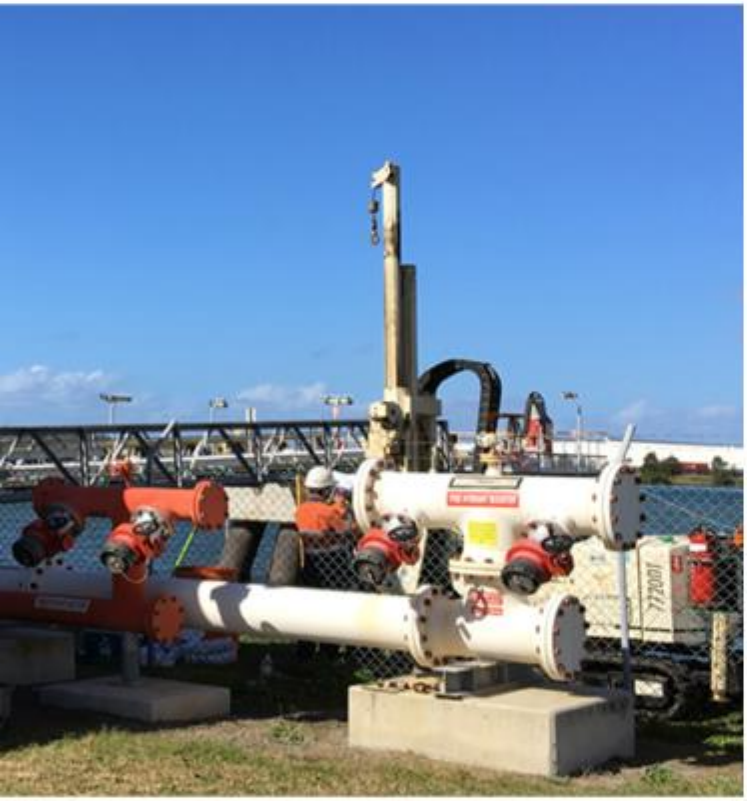
APP
Basketball Association of Newcastle Limited
New Lambton, NSW 2305

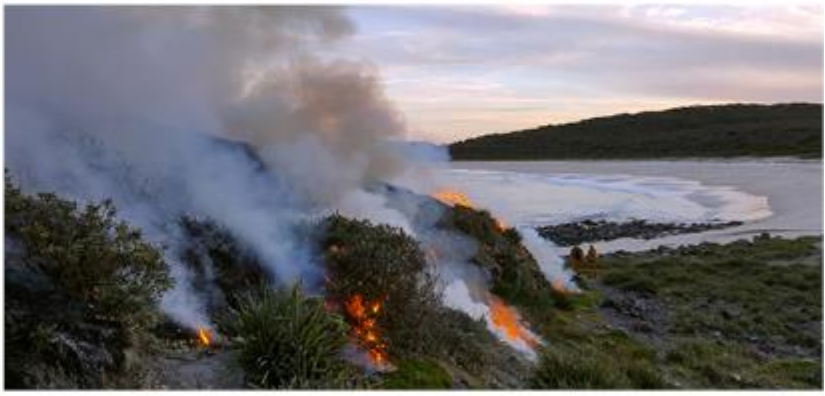
FIGURE:

1

J:\00 CLIENT FILES\89268_APP\24002155_BasketballAssociation\231106_BasketballAssociation_DSI.aprx (Fig01_SiteLocation_A4L)

APPENDIX B: LTEMP INDUCTION REGISTER





Kleinfelder Australia Pty Ltd
ABN: 23 146 082 500
240-244 Pacific Highway, Charlestown NSW

Declaration by Workers and Contractors

I have been given the opportunity to comment on the content of this LTEMP.

I have read and understand how I am to carry out the activities listed in this LTEMP.

I have been supplied with the personal protective equipment identified on this LTEMP and I have been given training in the safe use of this equipment.

I have read and understand the requirements set out in this LTEMP.

Name	Signed	Date	Name	Signed	Date