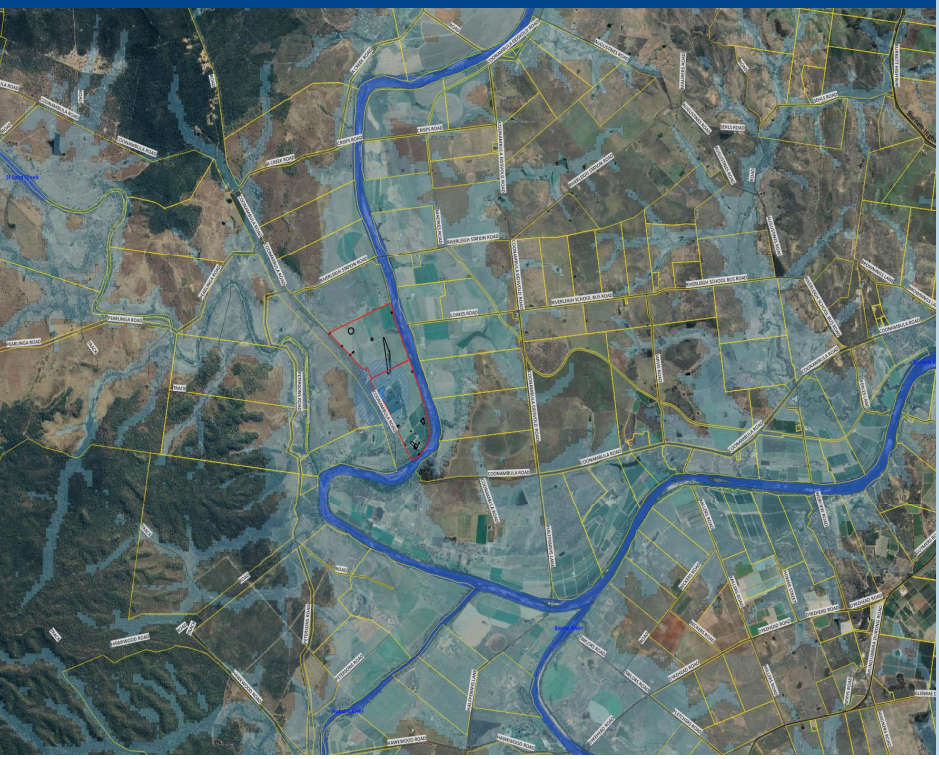
# CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Former Buckingham Arms
1 to 9 Walkerville Terrace
Gilberton, South Australia



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| Construction Environmental Management Plan<br>Former Buckingham Arms<br>1 to 9 Walkerville Terrace, Gilberton SA | JC1225_CEMP |
| **Written** | **Approved** |
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# 1.0 INTRODUCTION

## 1.1 Background

Citify Group Pty Ltd (Citify) engaged Agon Environmental Pty Ltd (Agon) to develop a Construction Environmental Management Plan (CEMP) for the property identified as the former Buckingham Arms Hotel located at 1 to 9 Walkerville Terrace, Gilberton SA ('the site').

Specifically, this CEMP to was developed to support the proposed development of the site for mixed commercial and residential purposes and applies to site activities which will disturb existing building material and underlying site soils inclusive of future building demolition, geotechnical preparation of the site's pavement, foundation installation and service trench excavations.

This CEMP (including the environmental controls proposed for implementation) is subject to the review and approval of the Citify, in-line with any changes to the future Construction Specification ('the Specification') which Agon understands is still yet to be developed.

The location of the site and the approximate bounds of the site are provided in Figure A1 within Appendix A respectively.

## 1.2 CEMP Objectives

The objectives of this CEMP are to:

- Provide a summary of known environmental site conditions deemed relevant to future construction works; and
- Provide a range of environmental controls to manage potential risks associated with known and unexpected environmental conditions at the site.

The environmental management controls prescribed within this document will serve to inform the development's future Principal Construction Manager (PCM), the expectations and environmental performance criteria required of future construction works.

Agon notes that this document does not serve as a supplementary engineering nor construction specification. Where included, construction or engineering assumptions have been included to provide context to environmental management controls prescribed.

Ultimately, this CEMP serves to maintain the environmental suitability of the site for the proposed development.

## 1.3 Legislative Framework

This CEMP was developed in accordance with the following:

- AS 2436- 1981: Guide to Noise Control on Construction, Maintenance and Construction Sites;
- Environment Protection Act 1993;
- Environment Protection Policy (Waste-to-Resources) 2010;
- Environment Protection Act 1993;

- How to Safely Remove Asbestos Code of Practice 2020;
- How to Manage and Control Asbestos in the Workplace Code of Practice 2020;
- SA EPA Handbook for Pollution Avoidance on Building Sites 2004;
- National Environment Protection (Ambient Air Quality) Measure 2003;
- National Environment Protection Measure Diesel Vehicle Emissions 2009;
- NEPC (1999) National Environmental Protection Council (2013) National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999, Amended 2013;
- Occupational Safety and Health Administration (OSHA) (2020) Air Contaminants;
- South Australia Environmental Protection Authority (SA EPA) 1999 Stormwater Pollution Prevention Code of practice for the building and construction industry;
- SA EPA (2007) Environment Protection (Noise) Policy (EPP);
- SA EPA (2010) Guideline for stockpile management: waste and waste derived products for recycling and reuse;
- SA EPA (2013) Standard for the production and use of Waste Derived Fill, Oct 2013;
- SA EPA (2014) Information Sheet, Construction Noise Updated EPA 425/17 February 2017;
- SA EPA (2015) Environment Protection (Water Quality) Policy;
- SA EPA (2021a) Environmental management of Dewatering During Construction Activities, Publication EPA 1093 (Updated June 2021);
- SA EPA (2021b) CEMP Industry Guideline, Publication EPA 1095 (Updated October 2021);
- SAEPA (2018) Guidelines for the Assessment and Remediation of Site Contamination (revised 2019); and
- Work Health & Safety Act and Regulations 2012.

Reviews of this document may be necessary to remain consistent and compliant with the Specification (i.e., through clarifications, tender addenda) or to Contracted Works (variations) and will be coordinated with the Project Principal.

## 1.4 Supporting Documents

The environmental management framework provided in this document has relied upon information from the following sources:

- Agon (2022) Preliminary Site Investigation, Buckingham Arms Hotel, 1-9 Walkerville Terrace, Gilberton. Ref: JC1083_PSI.01, dated 22 June 2022; and
- Agon (2023) Due Diligence Environmental Assessment, Buckingham Arms, 1-9 Walkerville Terrace, Gilberton, South Australia. Ref: JC1225_DDEA.02, dated 7 November 2023.

The reports listed above contain the most up to date site-specific data, which is considered representative of the site and are sufficient in characterising likely soil, groundwater and soil vapour environmental characteristics with the bounds of the proposed development area.

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## 1.5 CEMP Structure

This document has been structured into the following sections for ease of implementation during redevelopment works at the site:

- **Section 1: Introduction:**
  - Identification of the site, legislative framework, objectives and structure of the CEMP document.
- **Section 2: Roles and Responsibilities:**
  - Outlines roles and responsibilities to be followed during the construction works.
- **Section 3: Site Description:**
  - A brief description of the site, the proposed construction scope and identification of a range of contaminants.
- **Section 4: Assessment Criteria**
  - A summary of selected soil, groundwater and soil vapour criteria adopted for the site.
- **Section 5: Site Environmental Summary:**
  - A summary of environmental observations and testing undertaken at the site and an overview of the range of contaminants likely to be encountered on the site.
- **Section 6: Induction Training and Awareness Assessment:**
  - A summary of communication and training requirements required by this CEMP.
- **Section 7: Reporting:**
  - A summary of reporting and record keeping requirements.
- **Section 8: Environmental Risk Assessment:**
  - A qualitative assessment of environmental risks associated with project environmental aspects.
- **Section 9: Prescribed Environmental Control Plans:**
  - A suite of prescribed plans describing actions required to mitigate risks associated with expected project environmental aspects.
- **Section 10: Unexpected Finds Protocol:**
  - Outline of other materials that could be encountered on the site during construction works and the appropriate response process if they are detected.
  - Outline a range of management actions depending on a range of possible unexpected finds (should they be identified) discovered.

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# 2.0 ROLES AND RESPONSIBILITIES

This section defines key responsibilities, terms and general specification of requirements for the environmental management of the Project. It complies with the SA EPA's CEMP Industry Guideline 1095/21 requirements for identification of a person or persons with responsibility for implementing the CEMP.

### Project Principal – Citify

The Project Principal ('the Principal'), as the custodian, will oversee the construction of the development. The Principal has the responsibility and is accountable for:

- Overall project delivery and meeting all the necessary environmental requirements;
- Driving environmental awareness;
- Delivering a culture of environmental harm minimisation throughout the project team; and
- Reporting environmental incidents to the Environmental Consultant and/or the SA EPA (where or if applicable).

### Principal Construction Manager – To Be Engaged

The Principal Construction Manager (PCM) will be responsible for developing and implementing the CEMP as required by the Project Principal and has the responsibility for:

- Ensuring they and their subcontractors, comply with all requirements of the CEMP and their general environmental duty of care under the Environmental Protection Act 1993;
- Communicating these environmental requirements and ensuring that all personnel are aware of their environmental responsibilities and authorities;
- Communication of environmental conditions to the Principal and Environmental Consultant including the discovery and removal of unexpected finds (Section 10) which may be present underneath the site;
- Advising and supporting construction personnel and subcontractors to meet their environmental objectives and comply with all CEMP requirements;
- Verifying that all workers and visitors to the site have been inducted to the environmental requirements of the site;
- Identifying potential or existing problems and initiating appropriate corrective and preventive actions;
- Verifying that environmental corrective and preventive actions have been undertaken in correspondence with Principal's approval;
- Providing all required environmental records and other relevant documents to the Environmental Consultant; and
- Immediately reporting all environmental incidents and unexpected discoveries to the Principal.

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### Environmental Consultant – Agon Environmental

Agon will provide environmental oversight at the request of the Principal for items not limited to:

- Undertaking prescribed environmental sampling/monitoring programmes (Section 9) as required by the PCM (with approval from the Principal);
- Provide immediate environmental support in the event of an unexpected discovery (Section 10);
- Assistance in resolving environmental-related complaints (where encountered);
- Develop additional environmental management scopes of works or documentation as required by the Project Principal; and
- Provision of a Licensed Asbestos Assessor to undertake all works associated with the assessment, handling and removal of ACMs in particular during building demolition activities. This also includes undertaking of air fibre monitoring (AFM) events and provision of Asbestos Clearance Certificates (ACCs)

All actions performed by the Environmental Consultant will be subject to the Principal's approval. Agon will also undertake the following key tasks (detailed in Section 9.7) to further inform the Principal regarding any environmental management requirements, including any necessary works required to remediate the site or manage any potentially contaminated materials discovered.

### All Employees and Subcontractors

All employees (including subcontractors) have an obligation to protect people and the environment through carrying out their own work with due diligence. In particular, they must:

- Comply with environmental project requirements, as identified at the time of induction, as they apply to the type of work they are conducting;
- Be aware of and meet the requirements this CEMP as identified at the time of induction and as they apply to the type of work they are conducting;
- Implement practical ways to control environmental risks as per the PCM's risk management systems; and
- Report any incident that may result in environmental harm that arises in the course of, or in connection with, their work immediately to their supervisor, manager or other nominated representative.

Should major changes to the project management structure occur, an update of this section of the CEMP may be required and roles and responsibilities defined for potential new parties involved.

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# 3.0 SITE DETAILS

## 3.1 Site Description and Land Use

The site is the premise of the former Buckingham Arms Hotel, is situated within the suburb of Gilberton and is located approximately 2.1 km north of the Adelaide Central Business District (CBD).

The main Buckingham Arms Hotel facilities are located on the corner of Walkerville Terrace and Northcote Terrace with Pokies and an alcohol takeaway Sip'n'Save store at the rear of the building. The original extent of the Buckingham Arms Hotel located in the south-west corner of the site (see Figure A1, Appendix A) and is a listed SA Local Heritage Place. We understand that this portion of the site will be retained and likely refurbished as part of the future development. The remainder of the site is an asphalt sealed carpark servicing the hotel. There is also a bulk warehouse and maintenance shed/warehouse towards the north-west portion of the site.

The site was in operation during Agon's first site visit during 20 June 2022. Hotel, restaurant and retail operations have since ceased and at present the site has been vacated, the site secured with temporary fencing and all infrastructure remaining in place.

## 3.2 Environmental Site History

An initial PSI undertaken by Agon included the review of historical information which identified the southern portion of the site has historically been associated with the Buckingham Arms Hotel facilities dating back to the 1840's. The remaining northern portion of the site was historically owned by a series of private individuals and comprised numerous residential dwellings dating back prior to the mid 1930's. From the 1950's the site was acquired by private business entities and was progressively redeveloped from the 1950's to the late 2000's into a bituminised carpark servicing the hotel facility.

Agon's PSI identified a range of potentially contaminating activities (PCAs) and associated potential sources of contamination resulting from historical and current land uses of the site which could be considered an environmental encumbrance to the proposed site development. The on-site PCAs previously identified include:

- Potential uncontrolled fill soils underlying the site (including the underlying pavement and foundations of the hotel building and across the rest of the site where former residential properties were located); and
- Hazardous building materials within the fabric of the existing onsite buildings inclusive of asbestos containing materials (ACMs) and lead-bearing paint.

Agon also identified two off-site sources of potential groundwater contamination as part of the review of historical uses of adjacent (<60 m) properties. These properties identified as 2 Walkerville Terrace (approximately 30 m to the south-east of the site) and 5 Northcote Terrace (approximately 25 m southwest of the site) are both considered potential sources of migratory hydrocarbon impacts as a result of historical uses associated with dry cleaning and service station operation respectively.

In support of the finding of the PSI, Agon undertook subsequent scopes of intrusive soil, groundwater and soil vapour assessments within site bounds. These investigations included the collection and analysis of soil samples from 37 soil bores , groundwater samples from 3 well locations and soil vapour samples from 4 soil

vapour wells on-site to establish whether former on and off-site PCAs may have adversely impacted the site (Agon, 2023).

Agon's investigation was also supplemented by limited scope of works conducted by AME Consulting (AME) who conducted a soil validation assessment and limited soil vapour assessment works. Collectively, these investigations formed part of the previous DDEA scope (Agon, 2023) and concluded:

- Soils underneath the site are composed of granular fill to a depth 0.6 meters below ground surface (mbgs) which is underlain by a range of clays where groundwater has been identified to occur. Excluding some non-soil inclusions in fill, underlying soils generally did not present olfactory nor other visual evidence of contamination;
- Laboratory analysis of soils for a range of site-specific potential contaminants of concern (PCOCs) did not report chemical concentrations which would constitute site contamination. Detected concentrations were limited to a range of heavy metals, total recoverable hydrocarbons (TRH). polycyclic aromatic hydrocarbon (PAHs) and organochlorine pesticide compounds (OCPs) at levels which does not indicate the presence of a human health or ecological risk in the context of a future residential use;
- Localised fill at former borehole A-BH01 which was previously identified with elevated benzo(a)pyrene concentrations at a depth of 0.3-0.4 m has since been excavated with resultant soils, temporarily stockpiled on-site awaiting future off-site disposal. These soils are currently being re-assessed by Agon to formalise soil waste classification and facilitate proposed off-site disposal. Results of the soil waste classification will be provided under separate cover;
- In similar nature to soils, groundwater samples collected from the three wells onsite were generally not reported with groundwater contaminant concentrations in excess of the adopted criteria. Elevated boron, manganese and selenium concentrations identified within on-site wells and has been demonstrated to be attributable to background sources rather than on-site activities and is not considered a form of contamination.
- Soil vapour samples collected and analysed as part of the previous DDEA (Agon, 2023) were reported to contain minor concentrations of VOCs in the site's subsurface. Whilst the exact nature of these soil vapour concentrations could not be ascertained the reported VOC concentrations are below the adopted criteria and do not indicate an unacceptable risk to human health noting:
    - VOCs were not identified in soils; and
    - groundwater - confirmed via following a second round of sampling,

Furthermore, the potential of unacceptable risk from vapour from the identified potential off-site sites namely the former dry clears to the east and former service station to the south-west is considered to be low, noting:

- Contamination consistent with service stations or drycleaners was not identified in onsite groundwater; and
- Both the former dry cleaner and service station sites are located down inferred hydraulic gradient from the site.

Overall, the data collected to date does not suggest that there exists an environmental condition within onsite underlying soil, groundwater and soil vapour media that would preclude the development of the site for residential purposes.

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## 3.3 Site Specific Geology

Based on the previous soil observations, the following geological conditions have been identified underneath the site:

- Fill was present underneath the site in the form of yellow gravelly sand sub-grade to an average depth of 0.3 mbgs which was underlain by pale red to brown clayey sand fill with non-soil inclusions including ash, cinders and brick fragments to depths up to 0.7 mbgs. No inclusions of ACMs were identified within fill soil;
- This was underlain by natural soils in the form of pale brown clayey sands and sandy clays with intermittent bands of gravel to the maximum investigative depth of 15 mbgs;
- Groundwater was encountered at an approximate depth of 12 mbgs and occurs within a primarily clay lithology with minor sand and gravel lenses;

Outside of the non-soil inclusions identified within fill, other visual nor olfactory evidence for soil contamination was not identified within remaining fill or any natural soils.

The geological profile observed beneath the site is consistent with published geology.

## 3.4 Site Specific Hydrogeology

Hydrological conditions underlying the site were collected during the previous groundwater sampling events are provided in the following subsections.

### 3.4.1 Groundwater Gauging Data

Groundwater gauging data collected during the previous groundwater assessment period have been summarised as follows:

- Non-aqueous phase liquids (NAPL) were not observed during previous gauging, purging and development activities undertaken at each well during groundwater development and sampling activities (during either phase of groundwater sampling);
- The latest depth to standing water levels (SWLs) and calculated groundwater elevations across the area of investigation were measured as shown in Table 1 below:

*Table 1: Groundwater Gauging Results*

| Monitoring Well | Measured SWL (mbtoc*) | Groundwater Elevations (mAHD) | Inferred Hydraulic Location |
|---|---|---|---|
| **MW01** | 12.201 | 23.434 | Down to up hydraulic gradient |
| **MW02** | 12.148 | 23.698 | Up hydraulic gradient |
| **MW03** | 12.173 | 23.409 | Down hydraulic gradient |

*mbtoc = metres below top of casing

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### 3.4.2 Inferred Groundwater Flow

Groundwater flow characteristics inferred during the previous investigation have been summarised as follows:

- Agon has adopted the following published groundwater parameters (Domenico and Schwarz, 1998) based on a clayey aquifer horizon:
  - A hydraulic conductivity (K) range of $1x10^{-4}$ to $1x10^{-5}$ m/day; and
  - An average effective porosity of 10%.
- The groundwater gradient beneath the site was previously calculated as $4.2x10^{-3}$ m/m towards the south, south-west.

Based on the above groundwater parameters, the groundwater seepage velocity calculated beneath the site is approximately between 1.5 x $10^{-4}$ to 1.5 x $10^{-3}$ m/year towards the south, south-east towards the River Torrens. This result was expected noting the low transmissivity of clay dominated aquifers.

### 3.4.3 Field Groundwater Quality

The latest on-site field groundwater quality data have been previously summarised as per Table 2 below:

*Table 2: Groundwater Field Quality Results*

| Monitoring Well | Dissolved oxygen (DO) | Redox Potential (Eh) | Electrical conductivity (EC) | pH Values | Temperature |
|---|---|---|---|---|---|
| **MW01** | 4.28 | 151.7 mV | 3,918 ug/cm | 8.26 | 18.6°C |
| **MW02** | 5.01 | 54.3 mV | 3,963 ug/cm | 8.06 | 19.3°C |
| **MW03** | 5.41 | 115.5 mV | 3,458 ug/cm | 7.58 | 19.3°C |

Evidence for the presence of contamination in groundwater, such as odours and discoloration, were not observed during the previous groundwater sampling event (Agon, 2023).

## 3.5 Proposed Scope of Civil works

Based on the information obtained to date and Agon's understanding of the future development programmes, the following civil works are likely to be undertaken at the site:

- Demolition of the non-heritage portions of the former hotel complex building currently on-site;
- Development of the site's pavement including geotechnical preparation;
- Construction of footings to support the future site buildings; and
- Installation of underground services inclusive of the excavation of service line trenches and pits.

The above civil scope excludes the management of unexpected finds, the details of which have been provided in Section 10.

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# 4.0 ASSESSMENT CRITERIA

The following chemical screening criteria have been adopted by Agon in-line with the site's proposed residential use with recreational landscaped features. These criteria have been selected to provide the PCM with a soil, groundwater and soil vapour assessment framework to be utilised as part of a prescribed range of sampling programmes outlined in Section 9 specific to:

- Establishment of on-site reuse suitability of soil materials with visual/olfactory evidence of contamination and/or soils with conditions not previously observed (i.e., from an unexpected find);
- Importation of soils from a non-quarry source to achieve site level; and
- Activities which may require access to groundwater. This will be limited to the installation of deep piles should it be considered as part of future building design (if required).

The screening assessment criteria described below are for comparative purposes only and should not be regarded as "clean-up" levels. Where concentrations of a targeted contaminants exceed the adopted assessment criteria, the PCM will be required to undertake management actions as prescribed in Section 9.7.

## 4.1 Soil Screening Criteria

### 4.1.1 Human Health Screening Criteria

The results of future soil assessments (should it be required) will be subject to the following soil screening criteria established as part of the previous DDEA (Agon, 2023):

- ASC NEPM (NEPC 2013) Health Investigation Levels (HILs) B (residential land use without access to site soils); and
- ASC NEPM (NEPC 2013) Health Investigation Levels (HILs) C (Recreational land use);

Discussion of results during previous works have also been assessed against the ASC NEPM Health Screening Levels (HSLs)) for vapour intrusion for further evaluation of potential risks to human health resulting from intrusion of hydrocarbon vapours emanating from on-site soil impacts. HSLs have been adopted based on potential receptors, subsurface lithology and depth of impacts to soil.

In addition, to assess the top 2 metres of soil for potential risks associated with dermal contact with petroleum hydrocarbons and vapour intrusion for maintenance workers, the CRC CARE (2011) direct contact and vapour intrusion HSLs have been adopted. It is considered likely that both current and future site workers have a high likelihood of exposure to shallow soils (up to 2.0 m in depth) through the installation or maintenance of structures such as underground utilities, associated trenches and footings. To assess the top 2 metres of soils for potential effects of petroleum hydrocarbons, the ASC NEPM (2013) Management Limits for TRH have also been considered following application of ESLs and HSLs.

### 4.1.2 Ecological Screening Criteria

In consideration of minor landscaping works proposed for the site, Agon has adopted the ASC NEPM (NEPC 2013) generic Ecological Investigation Levels (EILs) and Ecological Screening Levels (ESLs) both of which are relevant only to soils that will be within 2 m of the surface. In-line with the sites current and future proposed use, the residential criteria have been adopted.

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Please note that Agon has not undertaken additional laboratory analysis to determine site-specific EILs. As previously determined, landscaping forms a minor proportion of the site and establishment of sensitive ecological areas have not been considered as part of the future development. In this regard conservative assumptions (low CEC, neutral soil pH) have been assumed to establish generic EILs.

## 4.2 Soil Waste Disposal

For the purposes of establishing off-site soil disposal classification, the following criteria will apply:

- SA EPA (2010) Waste Disposal Information Sheet: Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil; and
- SA EPA (2013) Standard for the production and use of Waste Derived Fill (WDF)

Agon also notes that soils to be imported to the site (if required) will need to meet the SA EPA 2013 criteria unless it is sourced from virgin quarry materials. Please note that as a site requirement, soils (should they be disposed off-site) are to be free of asbestos otherwise the SA EPA disposal criteria may include the asbestos contamination classification.

### 4.2.1 Aesthetic Considerations

The following physical and aesthetic screening criteria (based on the SA EPA and ASC NEPM 2013) are recommended for application at the site primarily for soils which are to be rehabilitated or imported for on-site use to achieve site levels:

- Rehabilitated and/or imported materials should consist of clay, rock, sand, soil or other inert mineralogical matter (as per the SA EPA's definition of soil) with aggregate sizes less than 100 mm;
- The combined concentration of natural and foreign inclusions in soils is recommended not to exceed 2% v/v; and
- Soil staining or odorous condition should not be present.

Agon understands that non-soil inclusions are currently present within underlying fill soils. Considering that the majority of site soils will likely be under a hardstand or overlain with subgrade, aesthetic condition of soils is unlikely to present a detriment to future visual aesthetics. The use of site derived soils with inclusions in excess of 2% v/v will be left at the discretion of the Principal (assuming that the material also meets geotechnical requirements).

## 4.3 Groundwater Screening Criteria

The SA EPA Guidelines for Contaminated Site Assessment and Remediation (the "GAR", October 2018 and amended in November 2019) is used to describe the legislative and policy approach to risk-based assessment and remediation of site contamination in South Australia.

This guideline supports the Objects of the *Environment Protection Act 1993* and provides information to assist consultants and auditors to adopt a consistent and compliant interpretation of relevant legislation, policy and guidance. This guideline also provides information to ensure the assessment and remediation of site contamination is conducted to an appropriate standard in South Australia.

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In order to establish whether there is actual or potential harm to groundwater (that is not trivial) exists, the GAR requires site-specific environmental values (EVs) to be established. These EVs have been previously established by Agon's PSI which have been applied below:

*Table 3: Environmental Values Selected*

| Environmental Value | Adopted Criteria |
|---|---|
| **Recreation and Aesthetics** | GMRRW – NHRMC (2011) and WHO (2017) |
| **Aquatic Freshwater Ecosystems** | ANZG (2022) |

### 4.3.1 Recreation and Aesthetics Criteria

The following should be noted regarding the selected recreational groundwater criteria:

- Both the NHMRC 2011 (where it supersedes the ANZECC 2000 criteria) and the ANZECC 2000 (where NHMRC 2008 criteria are not available) have been the main source of Primary Contact Recreation criteria; and
- The GAR specifies primary contact recreation uses and objectives using the NHMRC published values (NHMRC Guidelines for Managing Risks in Recreational Groundwater 2011 (NHMRC, 2011)) which in turn are derived from NHMRC 2004 Australian Drinking Water Drinking Guidelines (ADWG 2004) which since been superseded in 2022 (ADWG 2022).

Criteria have therefore been derived from NHMRC 2011, the values of which have been based on ADWG 2022 health-based drinking water and aesthetic criteria.

### 4.3.2 Aquatic Freshwater Ecosystems

In accordance with the ANZG, the River Torrens is considered a highly disturbed environment (noting its function for stormwater detention and treatment). However, noting its heritage and perceived environmental value, Agon has selected an 95% protective value of freshwater receptors.

In addition to the above EV, Agon has adopted the ASC NEPM Groundwater HSL for residential land use (A) to appraise potential hydrocarbon detections within underlying aquifer.

## 4.4 Soil Vapour Screening Criteria

The soil vapour screening criteria adopted was established as part of the DDEA (Agon, 2023)

- ASC NEPM Interim soil vapour health investigation levels (interim HILs), Residential B
- ASC NEPM HSL level A/B (residential) for vapour intrusion; and
- US EPA Vapor Intrusion Screening Level (VISL) in the absence of other standards.

Please note that soil vapour assessments are only likely to be undertaken subject to the nature of unexpected finds. Previous soil vapour assessments on-site have not identified a condition which would preclude the use of the site for a mixed commercial and residential purposes.

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# 5.0 SITE ENVIRONMENTAL SUMMARY

## 5.1 Environmental Soil Conditions

The following site soil condition were identified in the subsurface as part of previous investigations:

- Soils underneath the site are composed granular fill occasionally containing brick, concrete and other wastes to an average depth of 0.6 mbgs which is underlain by a range of clay lithologies horizon where groundwater has been identified to occur. Fill and natural soils generally did not present evidence of contamination. Whilst field screening for VOCs identified elevated readings, laboratory testing has demonstrated that these field readings are not associated with volatile contaminants;
- Concentrations of soil analytes above the laboratory limit of reporting (LOR) were limited to a range of heavy metals (on every soil sample previously analysed) and a range of TRH, PAH and OCPs;
- The majority of the previously reported soil chemical concentrations were below the adopted human health or ecological screening criteria with the exception of sample A-BH01_0.3-0.4 collected from fill;
- Former sample A-BH01_0.3-0.4 was reported to contain concentrations of benzo(a)pyrene (BaP) TEQ of 8.9 mg/kg exceeding ASC NEMP HIL B criteria (4 mg/kg) and concentrations of b(a)P of 6.0 mg/kg exceeding the adopted ASC NEPM ESL criterion (1.4 mg/kg). Underlying soil sample (A_BH01_0.7-0.8) reported detectable concentrations of Bap TEQ below the HIL B criterion of 4 mg/kg. This result vertically delineates the elevated concentrations of PAHs to within the fill horizon;
- Fill soils associated with this localised area of BaP have since been excavated and temporarily stockpiled on-site as part of AME's soil validation scope. To date, this stockpile remains within site bounds (pending future formal classification and disposal). These soils are currently being re-assessed by Agon to formalise soil waste classification and facilitate proposed off-site disposal. Results of the soil waste classification will be provided under separate cover; and
- Concentrations of other target contaminants inclusive of BTEX, VOCs, VHCs and OPPs were not reported above the laboratory LOR. Please note, VHC and VOC analysis of soils were undertaken within samples with elevated field screening results. None of these samples were reported with VOC or VHC concentrations in excess of the laboratory LOR providing further lines of evidence that intrusive soil vapours were not present in the subsurface.

In general, the reported chemical concentrations of underlying site soils suggest that known on and off-site PCA's have not significantly impacted the site. Furthermore, site soils as a single body of waste (exclusive of the hot spot area around A_BH01 which has previously been excavated and stockpiled on-site) were deemed chemically suitable for Waste Fill disposal.

## 5.2 Environmental Groundwater Conditions

The following site groundwater condition were identified as part of previous investigations:

- Groundwater beneath the site occurs in a largely clay lithology approximately 12 meters below current site levels. The calculated direction of local groundwater flow is inferred toward the south, south-east towards the River Torrens;
- In similar nature to soils, groundwater samples collected from the three wells onsite (MW01 to MW03, see Figure A1, Appendix A) were generally not reported with groundwater contaminant

concentrations in excess of the adopted criteria. Boron, and manganese concentrations which were reported at concentrations above the adopted water quality screening criteria has been demonstrated to be attributable to background sources rather than on-site activities and is not considered contamination;

- Furthermore, evidence for the presence of hydrocarbon-based impacts (including in the form of intrusive vapours) as a result of former dry cleaning and service station activities off-site have not been identified noting:
  - Groundwater analytical results were not reported with concentrations of dissolved hydrocarbons (inclusive of volatile fractions) which would suggest that groundwater from either potential sources of off-site impacts have migrated within site bounds;
  - Both the former dry cleaner and service station sites are located down the inferred hydraulic gradient from the site; and
  - Overall, there was no evidence to suggest that there exists an environmental condition within underlying soil, groundwater media that would preclude the development of the site to future residential use.

## 5.3 Environmental Soil Vapour Conditions

Agon's soil vapour assessment reported the presence of residual VOC concentrations in the subsurface. These VOC concentrations comprised a range of compounds including toluene, ethylbenzene, xylenes, naphthalene, styrene, bromodichloromethane, chlorodibromomethane, chloroform, tetrachloroethene, 1-methyl-4 ethyl benzene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, styrene, propanol, ethanol, heptane and acetone. These VOC concentrations were largely residential in nature and were below available screening criteria hence does not pose an unacceptable risk to on-site receptors.

Considering that an onsite soil nor on or offsite groundwater source of these vapours were not previously identified, these vapours (which are solely within underlying soil pore space) are likely to attenuate overtime and disperse once the site's future geotechnical pavement is constructed.

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# 6.0 INDUCTION, TRAINING AND AWEARNESS

## 6.1 Training

The following shall apply regarding future employee and subcontractor training, awareness and competency at the site:

- All employees and subcontractors shall receive suitable environmental induction/training to ensure that they are aware of their responsibilities and are competent to carry out the works;
- Persons performing tasks which have the potential to cause significant environmental impact shall have sufficient competency or accreditation based on an appropriate level of education, training and experience;
- Environmental requirements shall be explained to employees during site induction, and on-going training via toolbox meetings, pre-starts, briefings, notifications and other communication forums; and
- All training and toolbox meetings shall be recorded, and the records maintained by the PCM

## 6.2 Induction

All employees (including any subcontractors) will receive induction/training that includes, but is not limited to:

- Environmental policies established by the PCM;
- Site environmental objectives and targets;
- Individual authorities and responsibilities;
- Site environmental rules established by the PCM;
- Emergency procedures and response (e.g., spill clean-up);
- Legal obligations;
- Detailed requirements/ obligations required of personnel to ensure high risk environmental aspects are effectively managed;
- Specific environmental commitments and obligations of personnel on-site; and
- Specific on-site controls for the protection of cultural and environmental values (e.g., tagged ownership of physical barriers established to protect on-site environmental values).

All employees and subcontractors will be required to sign the Site Induction Register. The Site Induction Register and records of inductions will be retained by the PCM.

All visitors are required to attend a visitor's induction prior to entering the workplace and/or Site. Where relevant, environmental issues, risks and management controls should be included in the visitor induction. Visitors are to be escorted by an inducted person at all times whilst on site or in the workplace. The Site Office will retain a Visitors Logbook, which is to be signed by all visitors upon entry and exit from site.

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## 6.3 Safety/Toolbox

Environmental and Safety 'Toolbox' meetings will be conducted each morning as activities and weather conditions change continuously on site. The toolbox meetings should include discussion on how the changes may impact safety risks. Environmental and human health considerations should be part of periodic meetings and planning sessions (i.e., daily pre-start meetings, weekly toolbox sessions).

Topics for toolbox talks may include but not limited to:

- Environmental and human health topics;
- Project Manager directions;
- Verify specific requirements for permits, licences, approvals and contractual conditions prior to the start of work activities;
- Site visitors;
- Changes in Plant, vehicle, equipment;
- Changes in site ground conditions;
- Environmental monitoring and laboratory testing results (where required);
- Refuelling plant and machinery and spill response procedures;
- New precautions to prevent sediment-laden run-off reaching stormwater;
- Waste management and tracking requirements;
- Noise complaints;
- Dust control;
- Unexpected find management should one be identified; and
- Environmental non-conformances.

The Toolbox Meeting Record will be used to record and register agenda, content and attendees and copies must be retained by the PCM.

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# 7.0 REPORTING

The following complies with the communication and complaint resolution requirements of the SA EPA's CEMP Industry Guideline 1095/21.

## 7.1 Incidents and Complaints

When an environmental incident or complaint occurs, appropriate action shall be undertaken immediately to address the complaint and/or minimise further impact.

Corrective action is to be implemented, and an assessment conducted to determine what preventative action can be taken to prevent a similar incident from occurring again.

All environmental incidents and complaints are to be reported by the PCM to the Superintendent and Environmental Consultant as soon as possible via an incident report and in accordance with the reporting requirements established in the Specification.

The incident report is to include (at minimum):

- The name and address of any complainant;
- The time and date the complaint was received;
- A description of the complaint;
- The activity/ activities and any associated equipment that gave rise to the complaint;
- The action that was taken to resolve the issues that led to the complaint; and
- The date the complaint was resolved and documentation of complainant's level of satisfaction with the actions to resolve the issue.

All environmental complaints and incidents shall be reported within 24 hrs to the Principal and investigated in line with the WHS requirements of the Specification. Actions will be implemented as soon as possible.

All incident reports shall be filed in a complaint/incident register to be kept on, or is readily accessible from, the site.

## 7.2 Environmental Inspections

Non-conformance or corrective actions detected during monitoring tasks shall be reported within 24 hrs to the PCM.

The PCM's responses to non-conformance or corrective actions will be recorded on the form and reported to management.

## 7.3 Non-Conformances and Corrective Actions

Non-conformance or corrective actions detected during monitoring tasks such as site inspections and regular internal or external audits shall be reported within 24 hrs to PCM via a Non-Conformance and Corrective Action Request form.

The PCM's responses to non-conformance or corrective actions will be recorded on the form and reported to management.

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## 7.4 Document Control

Documentation resulting under this CEMP including, but not limited to, correspondence (both incoming and outgoing), reports, licenses / permits and receipts / certificates, are to be filed and easily retrievable. Documentation, particularly reports, must provide details of revision/ version numbers to avoid confusion and to ensure the appropriate version is used.

A formal register for updating the CEMP will be maintained. All references made to the CEMP in written form must also reference the revision/ version number. Similarly, any further control plans developed under the CEMP, in addition to the Environmental Control Plans (ECPs) detailed in Section 9, should also be recorded on the register with reference to revision/ version number.

## 7.5 Emergency Response

The PCM must have an Emergency Response Plan for the accounting and management of personnel during emergencies and managing the emergency to minimise risk to personnel, plant, the public and the environment. The Emergency Response Plan shall contain as a minimum:

- Emergency procedures;
- Emergency contact names and phone numbers, both internal and external;
- Emergency preparedness checklist;
- Emergency assembly areas;
- Emergency site plan;
- Responsibilities before / after an emergency; and
- Immediate actions in response to specific threats (fire, spill, bomb threat, power failure etc.).

## 7.6 Emergency Procedures

The Emergency Response Plan shall identify likely and potential emergency situations for the site and procedures to minimise the likelihood of those events occurring. The procedures should also provide direction for personnel on how to react in an emergency, including:

- Account for all site personnel;
- Remove site personnel from danger to assembly areas;
- Contact emergency services;
- Contact all surrounding neighbours and more remote sensitive locations (e.g., kindergartens, schools, elderly communities which could be affected);
- Contact environmental authorities where required;
- Mitigate the possible environmental impacts of emergency situations; and
- Deal with specific emergencies likely to occur at the site (e.g., product spills).

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# 8.0 ENVIRONMENTAL RISK ASSESSMENT

## 8.1 Environmental Aspects

This document addresses environmental aspects routinely mandated as part of standard construction practices. The environmental management and monitoring aspects prescribed in this document include workplace health and safety, groundwater management, air quality, noise and vibration, surface water, erosion, sediment, site contamination, hazardous material and waste. These are the minimum aspects prescribed within the SA EPA's CEMP Industry Guideline 1095/21.

Agon have also taken consideration of unexpected finds (Section 10).

## 8.2 Environmental Aspects

Environmental risks associated with impact events, which could occur in association with each of the nine project aspects, have been assessed using a qualitative (or semi- quantitative) approach where numerical values are assigned to both the likelihood and consequence of an impact event, where:

### Likelihood

- The approximate probability of an environmental impact event occurring estimated on a scale of 1 to 5 (Table 4).

### Consequence

- The approximate level of environmental impact which would result if the event did occur estimated on a scale of 1 to 5 (Table 5).

The consequence and likelihood ratings are then plotted on the Risk Rating Matrix (Table 6). The higher the risk score, the higher the priority the identified issue is; the lower the risk score the lower the priority for management.

Table 7 describes the level of management and possible actions required for each risk assessment rating.

An assessment of the risk associated with each aspect and a summary of measures to address these key risks are presented in Table 8**Error! Reference source not found.**. A more detailed description of a framework of actions required to mitigate these risks identified are in prescribed Environmental Control Plans (ECPs) presented in Section 9.

*Table 4: Likelihood Scale*

| Rating | Descriptor | Likelihood of the Hazard |
|---|---|---|
| 5 | **Almost Certain** | The event is **expected** to occur in most circumstances |
| 4 | **Likely** | The event will **probably** occur in most circumstances |
| 3 | **Possible** | The event **might** occur at sometime |
| 2 | **Unlikely** | The event **could** occur at sometime |
| 1 | **Rare** | The event **may** only occur in exceptional circumstances |

*Table 5: Consequence Scale*

| Rating | Descriptor | Definition |
|---|---|---|
| **5** | **Catastrophic** | High degree of environmental harm |
| **4** | **Major** | Substantial environmental harm |
| **3** | **Moderate** | Moderate environmental harm |
| **2** | **Minor** | Insignificant environmental harm |
| **1** | **Insignificant** | No environmental harm |

*Table 6: Risk Rating Matrix*

| Likelihood | Consequence | | | | |
|---|---|---|---|---|---|
| | **Catastrophic (5)** | **Major (4)** | **Moderate (3)** | **Minor (2)** | **Insignificant (1)** |
| **Almost certain (5)** | Extreme 25 | Extreme 20 | High 15 | High 10 | Low 5 |
| **Likely (4)** | Extreme 20 | Extreme 16 | High 12 | Medium 8 | Low 4 |
| **Possible (3)** | High 15 | High 12 | Medium 9 | Medium 6 | Low 3 |
| **Unlikely (2)** | High 10 | Medium 8 | Medium 6 | Low 4 | Low 2 |
| **Rare (1)** | Medium 5 | Low 4 | Low 3 | Low 2 | Low 1 |

*Table 7: Management Level*

| Risk Rating Description | Risk Rating Number | Indicative Management Action |
|---|---|---|
| **Extreme** | **16-25** | Immediate action required, senior management should be involved |
| **High** | **10 -15** | Senior management attention needed and management responsibilities specified for further action |
| **Medium** | **5-9** | Manage by specific monitoring or response procedures, develop more detailed actions as resources allow |
| **Low** | **1-5** | Manage by routine procedures, unlikely to need specific application or resources |

## 8.3 Risk Assessment

A risk assessment was undertaken to identify risks associated with the identified environmental aspects and determine associated risk ratings using the Risk Assessment Method described above.

Table 8 summarises the potential risks to the environment in relation to the nine specific environmental aspects which are described in more detail are described in more detail in Section 9.

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Note: The Residual Risk rating in Table 8 was calculated by re-assessing the likelihood and consequence of each aspect/impact subject to the implementation of the management actions identified in the Environmental Control Plans documented in Section 9.

*Table 8: Environmental Risk Assessment*

| Environmental Aspects | | Potential Environmental Consequences | Initial Risk Rating | Summary of Qualitative Risk Assessment and Management Action (specified in Section 9) | Residual Risk Rating |
|---|---|---|---|---|---|
| **1** | **Workplace Health & Safety** | Injury of loss of life to site workers and site visitors.<br>Spread of disease. | **15 – High (5 x 3)** | Strict adherence to the site safety management system (under the direction of the PCM) will be required to mitigate Health and Safety Risks associated with construction hazards including the operation of earth moving equipment. Site safety management systems will adhere to COVID-19 prevention measures as stipulated by government guidelines. | **5 – Low (5 x 1)** |
| **2** | **Groundwater Management** | Potential for contamination of underground waters.<br>Potential exposure to existing dissolved groundwater chemicals. | **15 – High (5 x 3)** | It is the intent of the CEMP to maintain the relatively sound condition of underlying groundwater and mitigate the introduction of contaminants into the subsurface as a result of future construction activities. Groundwater, in the context of this CEMP, may be affected through deep piling should it be required. | **2 – Low (1 x 2)** |
| **3** | **Air Quality (Dust and Odour)** | Nuisance and potential health impacts to onsite workers and the nearby community (including residential properties and schools). | **15 – High (5 x 3)** | Noting the lose nature of exposed soils across the site and without strict dust management, it is almost certain that there will be high level consequences from dust generated by construction works particularly during soil works (i.e., during bulk excavations) and even more so during inclement weather.<br>Appropriate monitoring of dust levels is recommended during construction works to mitigate potential nuisance and potential health impacts on site workers and the nearby community from dust exposure.<br>An Air Fibre Monitoring (AFM) programme will be implemented during activities which may disturb ACMs or should it be discovered as part of an unexpected find (Section 10). | **5 – Low (4 x 1)** |
| **4** | **Noise and Vibration** | Reduction in amenity to adjoining community. | **3 – Low (3 x 1)** | The existing ambient noise levels and vibration are expected to be dominated by ongoing site construction, road and internal vehicle traffic. Agon notes that the site is surrounded by a combination of residential and commercial allotments so noise and vibration must be taken into consideration. For this reason, noise and vibration management measures have been suggested by Agon to the satisfaction of the zoning requirements. | **3 – Low (3 x 1)** |
| **5** | **Surface Water, Erosion & Sediment** | Unacceptable levels sediment in stormwater leaving the site. | **9 – Medium (3 x 3)** | There is the potential for sediment-laden runoff to leave the site in stormwater flows during construction and discharge into the local stormwater infrastructure. An Erosion and Sediment Control Plan is required by the Specification which will include controls such as the use of silt traps, road sweepers, cattle grids and other sediment control infrastructure. | **3 – Low (3 x 1)** |
| **6** | **Soil Management (including potentially hazardous soil)** | Exposure to potentially hazardous substances within soil media. | **9 – Medium (3 x 3)** | Previous site investigations have identified elevated concentrations of PAHs in site soils which could affect its waste disposal classification. There is also potential for further environmental impacts to be discovered as part of an unexpected find. To mitigate potential risks associated with future environmental-related discoveries, an unexpected finds protocol has been developed in Section 10. | **2 – Low (2 x 1)** |
| **7** | **Site Contamination Management** | Harm to human health and/ or the environment from residual site contamination. | **8 – Medium (4 x 2)** | Contamination in the context of human-health has not been identified within underlying soil media. This CEMP aims to maintain this relatively sound condition. In the case of future discoveries of potential environmental impacts, an unexpected finds protocol has been recommended to be included in future environmental control plans developed in Section 10. | **3 – Low (3 x 1)** |
| **8** | **Hazardous Materials Management** | Harm to human health and/ or the environment from exposure to hazardous materials. | **12 – High (4 x 3)** | Measures are required to control handling and disposal of hazardous materials if identified. These Hazardous materials in the context of this CEMP are a range of potential unexpected finds (Section 10) including but not limited to ACMs, lead-bearing paint, soils with aesthetic impacts and residual site infrastructure. | **4 – Low (4 x 1)** |
| **9** | **Waste Management** | Harm to human health and/ or the environment from exposure to waste. | **9 – Medium (3 x 3)** | Measures are required to control handling and disposal of general wastes which may be generated during the construction process. These have been developed in Section 9. | **3 – Low (3 x 1)** |

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# 9.0 ENVIRONMENTAL CONTROL PLANS

## 9.1 Workplace Health and Safety

All work is to be conducted in accordance with legislative requirements and any specifications outlined in the Civil Works Specification, including measures to protect people and property as required under the general conditions of contract (AS4000-1997). These measures will include establishment of an appropriate perimeter fence and gates to restrict access to the site and ensure public safety. All site workers and visitors have a duty of care for workplace health and safety. The PCM will be responsible for ensuring and verifying that all works are carried out in accordance with legislative requirements and any specifications outlined in the Civil Works Specification.

## 9.2 Groundwater Management

Groundwater at the site may be impacted by the following:

- Spills and leaks from chemicals introduced at the site during construction activities such as fuels and lubricants (from plant or temporary chemical stores); and
- From the ingress of contaminant-laden stormwater from on and off-site sources.

The PCM is required to comply with the following groundwater management measures to outline actions to mitigate and manage risks to and from underlying groundwater quality as follows.

*Table 9: Groundwater Management Measures*

| Groundwater Quality | Description |
|---|---|
| **Objectives** | To avoid introducing additional chemical compounds into underlying groundwater above established background or ambient conditions. |
| **Performance Criteria** | No recorded gross releases of chemicals which may immediately threaten groundwater. A gross release will be defined as product spills more than 10 L into site soil and any product release directly into groundwater.<br>No releases of untreated groundwater into the local stormwater and/or marine environment. |
| **Management Actions** | All site workers involved with construction activtiies are to be inducted by the PCM, including discussion of the environmental condition of the site.<br>Chemicals to be introduced by the PCM into the site should be contained in approved vessels and recorded within a chemical register.<br>Construction activities are to be compliant with Sediment Control Plans.<br>The PCM will have chemical spill kits available for use on-site.<br>The PCM must advise/contact the Principal if visual or olfactory observations indicate the potential presence of additional contamination at a particular location. |
| **Monitoring & Reporting** | PCM to engage the Environmental Consultant to immediately test underlying soils following product releases which may threaten the current conditon of groundwater. Should soils tests provide sufficient evidence to suggest an environmental threat to groundwater, a suitable groundwater sampling programme will be estabslished to identify the extent and severity.<br>PCM to engage to the Environmental Consultant to conduct treated water testing should stormwater discharge options be required. |
| **Corrective Actions** | Spills and leaks will be immediately contained and reported as an incident. |
| **Relevant Legislation, Guidelines & Standards** | Environment Protection Act 1993<br>SA EPA 2015 Environment Protection (Water Quality) Policy.<br>SAEPA (2019) Guidelines for the Assessment and Remediation of Site Contamination (revised 2019) |

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## 9.3 Air Quality

Air quality at the site may be impacted by the following:

- Vapours and odours emanating from any containment losses associated with potential chemicals (i.e., fuels) to be introduced at the site;
- Vapours and odours in the form of exhaust fumes from future site plant; and
- Dust generated from general construction activities with the most likely from the disturbance and movement of site soil materials.

Prescribed actions to mitigate and manage risks to air quality are summarised in Table 10.

*Table 10: Air Quality Management Plan*

| Air Quality and Emissions | Description |
|---|---|
| **Objectives** | To control, minimise or avoid impacts caused by vapours, odours and dust during construction works.<br>To comply with legislative and contractual requirements and ensure construction activities do not cause nuisance external to the site. |
| **Performance Criteria** | Visually acceptable levels of airborne dust.<br>No internal and/or external complaints concerning odours and dust.<br>Agon recommends a quantitative air sampling programme be undertaken to meet the following SA EPP 'ground level' dust criteria (should dust be determined as critical aspect of expected adverse site conditions):<br>• 50 ug/m3 based on 24-hour equivalent exposure to PM10;<br>• 25 ug/m3 based on 24-hour equivalent exposure to PM2.5; and<br>• 8 ug/m3 based on 12-month equivalent exposure to PM2.5.<br>For the purposes of this CEMP, the 24-hour exposure criteria have been selected as appropriate noting the expected period of proposed bulks soil excavation and removal activities.<br>Agon notes the proximity of the site to existing residential properties and dust (without any management controls in place) may be a source of community complaint(s). |
| **Management Actions** | **With regards to vapours and odours:**<br>Chemicals to be introduced by the PCM into the site should be contained in approved vessels and recorded within a chemical register. Chemicals on-site must be collected and disposed by appropriately licensed subcontractors at the cessation of construction activities.<br>Ensure all plant and equipment are regularly serviced and well maintained to reduce potential odour which may emanate from exhausts and leaks.<br>Should odorous soils be identified excavated material should be placed in covered stockpiles to prevent the escape of odours.<br>Odour suppressant agent should be available at the site for immediate use should odorous soils require to be temporarily stockpiled prior to off-site disposal.<br>**With regards to dust (including air fibre) generation:**<br>Use of dust barriers such as shade cloth or concrete barriers (with gawk screens) along the site perimeter.<br>Suspension of dust generating activities during dry and windy conditions.<br>Application of dust suppression techniques over exposed soils. This may include spraying with water (through both a boundary and internal irrigation/sprinkler system) or stabilisation solution and application of dust covers such as a geofabric.<br>Reduce or mitigate stockpiling of dust generating materials (i.e., concrete) by immediately loading surplus materials onto trucks for immediate offsite disposal.<br>Trucks transporting dust-generating materials to and from the site may be wetted down or covered to reduce dust and material loss.<br>Ensure all material deliveries such as fill, soil, sand, or gravel, etc., are transported to/from the site with loads appropriately secured/covered and/or dampened down.<br>Ensure work areas, and any stockpiles of soil, gravel, sands, etc., are regularly dampened down to reduce dust. |

| Air Quality and Emissions | Description |
|---|---|
| | If practical, all surplus materials generated during construction works are to be immediately loaded onto trucks ready for off-site transport and disposal.<br>Limit tracking of soils around the site perimeter. |
| **Monitoring & Reporting** | Visually assess dust and implement additional controls if visible dust is observed moving off the site boundaries.<br>Log any observations of dust leaving site boundary (the construction area).<br>Air monitoring programme to be implemented if required following the start of civil earthworks to be undertaken and reported by the Environmental Consultant. |
| **Corrective Actions** | Assess all dust and odour complaints on a case-by-case basis and implement preventive actions as required. Complaints will be raised by the PCM to the Principal.<br>Ensure that construction workers have an adequate supply of both respirators and dust masks the use of which will be as per the WHSEQ Plan to be developed by the PCM. |
| **Relevant Legislation, Guidelines & Standards** | AS 2986.1-2003 Workplace air quality - Sampling and analysis of volatile organic compounds by solvent desorption.<br>AS 2986.2-2003 Workplace air quality – Part 2: Diffusive sampling method<br>National Environment Protection (Ambient Air Quality) Measure 2003.<br>National Environment Protection Measure Diesel Vehicle Emissions 2009.<br>Occupational Safety and Health Administration (OSHA) (2020) Air Contaminants. |

## 9.4 Noise and Vibration

Noise may be generated through operation of vehicle, equipment and machinery. Noise may also be generated during construction or loading waste materials onto trucks for transportation from site. Vibration may occur during excavation, earthmoving and compaction of soil, and in some instances, drilling and jack-hammering activities.

Actions to mitigate and manage noise and vibration risks are summarised in Table 11.

*Table 11: Noise and Vibration*

| Noise & Vibration | Description |
|---|---|
| **Objectives** | To control, minimise or avoid impacts caused by noise and vibration during construction activities. |
| **Performance Criteria** | No internal and/or external complaints concerning noise or vibration.<br>No damages to existing site buildings or stacked container modules. |
| **Management Actions** | Ensure engine driven machinery is switched off when not in use.<br>Only use designated access ways, parking areas and roads during construction activities.<br>Where practical, use noise attenuating barriers such as solid fences at the site boundary or employ sound-reducing products not limited to noise reducing blankets on machinery.<br>Other required management actions as listed in the Specification. |
| **Monitoring & Reporting** | Undertake regular inspection of access areas and roads/walkways to assess the condition of noise attenuating barriers to be employed by the PCM.<br>PCM will investigate noise and vibration complaints.<br>Specific noise and vibration assessments are to be conducted to support noise and vibration complaint investigations. These will be established and developed on a case-by-case basis with consultation with the PCM and the Environmental Consultant with the Principal's approval. |
| **Corrective Actions** | Assess all noise or vibration complaints on a case-by-case basis.<br>Fit noise suppression devices or change compaction machinery to a lower capacity, where possible.<br>Plan high vibration activities so that works are undertaken in the shortest time reasonably possible.<br>Change timing of noise producing activities. |

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| Noise & Vibration | Description |
|---|---|
| **Relevant Legislation, Guidelines & Standards** | SA EPA (2014), Information Sheet, Construction Noise Updated EPA 425/17 February 2018.<br>SA EPA (2007) Noise EPP.<br>AS 2436:1981, Guide to noise and vibration control on construction, maintenance and construction sites.<br>Local Nuisance and Litter Control Act 2016 (LNLC Act). |

## 9.5 Erosion and Sediment Control

Soil erosion can occur as a result of disturbance to the soil structure and subsequent movement of soil by erosive forces, such as water, wind and vehicle movement. Soil structure can also be disturbed by activities such as excavation. Sedimentation occurs when soil and waste particles are transported to water courses or drainage systems, usually by overflow of surface water.

A separate and detailed Sediment Control Plan complying with the SA EPA Code of Practice for the Building and Construction Industry (Stormwater Pollution Prevention), should be developed by the PCM with reference to this CEMP and he controls stated below. Table 12 outlines the key requirements for this plan.

*Table 12: Erosion and Sediment Control Plan*

| Erosion & Sedimentation | Description |
|---|---|
| **Objectives** | To avoid or minimise sediment runoff during construction activities, thereby controlling and minimising discharge of sediment or (potentially contaminated) sediments into established drainage systems. |
| **Performance Criteria** | No sediment laden (discoloured) stormwater runoff should enter surrounding offsite stormwater drains.<br>No discharge of sediment into established drainage systems. |
| **Management Actions** | Install sediment control measures around the perimeter of work site(s), stormwater drains, temporary stockpiles and on slopes subject to run off, including sandbags, silt fences, silt booms, or other sediment control measures, as appropriate/practical.<br>Periodic street sweeping of vehicular roadways leading in and out of the site.<br>Use of a combination of vibration grids and rock pads to reduce vehicular drag out of sediments at site exit locations.<br>Monitor and promptly maintain sediment controls.<br>Ensure stockpiles (soil or materials) are located within sediment control zone (i.e., upslope of sediment barrier or control fence) or install sediment fencing around the base of stockpiles.<br>In the event of a significant rain event (i.e., storm) postpone construction work and/or install additional control measures down slope of construction activities.<br>Minimise bulk exposure of bulk excavation surfaces to limit sediment generation. This will also assist in limiting potential for dust generation. |
| **Monitoring & Reporting** | Visually inspect work site and any stockpiles daily to identify any areas of soil erosion and/or sedimentation following periods of precipitation. |
| **Corrective Actions** | Regularly inspect and monitor the condition of all erosion and sediment controls.<br>PCM to undertake sediment control audits including the collection of photographs especially following periods of high precipitation. |
| **Relevant Legislation, Guidelines & Standards** | PCM to undertake sediment control audits including the collection of photographs especially following periods of high precipitation.<br>South Australia Environmental Protection Authority (SA EPA) 1999 Stormwater Pollution Prevention Code of practice for the building and construction industry |

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## 9.6 Soil Management

It is the intent of this CEMP to maintain the existing condition of site soils and mitigate the introduction of additional contaminants and exposure of site workers to deleterious soil condition which may yet to be discovered onsite.

Table 13 presents the requirements for Soil Management at the site to be considered by the PCM.

*Table 13: Soil Management Measures*

| Soil Management | Description |
|---|---|
| **Objectives** | To control handling, reuse or disposal of waste soils (where required).<br>To minimise risk associated with the exposure of site workers to potential soil contaminants. |
| **Performance Criteria** | Site soils are not exposed to introduced hazardous materials such as fuel products and wastes generated as part of the construction process.<br>Compliance with regulations and SA EPA / industry guidelines & codes of practice.<br>Chemical compliance of all imported soils not sourced from a licensed quarry source to screening criteria stipulated in Section 4.1.<br>Soil stockpiling to be conducted in accordance with the SA EPA Guideline for stockpile management.<br>Compliance with Unexpected Finds Protocol with regards to additional hazardous materials or contaminated soils discovery. This includes suitable classification of soils for off-site disposal. |
| **Management Actions** | Compliance with Unexpected Funds Protocol (Section 10) to mitigate further contamination of site soils. This includes suitable assessment of soils in-line with the SA EPA WDF and the NEPM to establish off-site disposal classification or on-site reuse suitability.<br>Ensure that construction staff utilise impervious gloves when handling site soils.<br>Construction staff to utilise respirators should vapours be identified within underlying soil matrix or if the potential to generate dust is considered likely.<br>Soil and other wastes to be tracked from exhumation/generation to reinstatement or disposal (where required).<br>Where required, soils are to be temporarily stockpiled in a designated area ensuring that stockpiles are both not a source of dust (Section 9.3) and sediment laden run-off (Section 9.5).<br>Agon recommends that the current soils stockpile representative of elevated BaP concentrations be formally classified and disposed off-site prior to major civil works being undertaken within site bounds. Soil should be classified in-line with prescribed SA EPA 2010 and 2013 guidance. |
| **Monitoring & Reporting** | The Environmental Consultant will undertake soil classification of surplus soil materials at the site should it be generated based on discovery of unexpected finds (Section 10).<br>The Environmental Consultant will undertake an assessment of imported, quarry-sourced material at rates between 1 per 250 to 1,000 $m^3$ based on the total volume and type of material to be imported at the site.<br>The Environmental Consultant will inspect all stockpiling areas at the site and provide guidance regarding any requirement for dust or odour management.<br>Soil movements are to be tracked and logged by the PCM. |
| **Corrective Actions** | Investigate incidents and implement preventive actions as required. |
| **Relevant Legislation, Guidelines & Standards** | SA EPA (2013) Standard for the production and use of Waste Derived Fill, Oct 2013<br>SA EPA (2010a) Guideline for stockpile management: waste and waste derived products for recycling and reuse<br>SA EPA (2010b), Waste Disposal Information Sheet: Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) Environment Protection Act 1993 |

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## 9.7 Site Contamination Management

Site contamination with regards to chemicals in soil, groundwater and soil vapour have not been demonstrated to be present within site bounds. This generalisation does not include unexpected finds which are yet to be found.

In general, this CEMP serves to maintain the generally sound condition of the subsurface (with regards to chemicals). Prescribed actions to maintain current soil, groundwater and soil vapour conditions and mitigate and manage potential contamination risks are summarised in Table 14.

*Table 14: Site Contamination Management*

| Site Contamination | Description |
|---|---|
| **Objectives** | To mitigate potential risks to the environment and human health from chemicals stored at the site and residual soil contamination during construction activities. |
| **Performance Criteria** | Prevention of potential harm to human health and the environment.<br>Compliance with legislative requirements.<br>Compliance with Unexpected Finds Protocol with regards to additional hazardous materials or contaminated soils discovery. |
| **Management Actions** | All site workers involved with construction activtiies are to be inducted into the CEMP, including discussion of the location of siet contamintion risk and requirements of the Unexpeced Finds Protocol.<br>The PCM must contact the Principal if visual or olfactory observations indicate the potential presence of additional contamination at a particular location. The Environmental Consultant will then undertake an intrusive assessment to determine whether the visual or olfactory evidence reported by the PCM are associated with actual site contamination.<br>The PCM may engage the Environmental Consultant to monitor the removal of the impacted material (should it be discovered). Any impacted material discovered will be tracked from exhumation to its final location (landfill or another location on-site), with Environmental Consultant oversight.<br>Ensure construction staff utilise appropriate PPE when handling site soils including impervious gloves and respirators should vapours be identified within underlying soil matrix.<br>Where required, soils are to be temporarily stockpiled in a designated area ensuring that stockpiles are both not a source of dust (Section 9.3) and sediment laden run-off (Section 9.5).<br>Agon recommends that the current soils stockpile representative of elevated BaP concentrations be formally classified and disposed off-site prior to major civil works being undertaken within site bounds. |
| **Monitoring & Reporting** | Environmental Consultant to conduct chemical testing of soils for the following purposes:<br>• Appraise environmental risk presented by soils in relation to or generated by unexpected discoveries (Section 10); and<br>• To appraise the suitability of soils exhumed from the site or suitability materials to be imported on-site should it be required.<br>Soil results will be assessed against soil chemical criteria established in Section 4.1. Concentrations exceeding adopted criteria will require further investigation and if necessary remedial considerations if onsite reuse is preferred. Remedial programmes will be communicated to the PCM, developed by the Environmental Consultant, approved by the Principal. |
| **Corrective Actions** | If visual/ olfactory observations indicate the potential presence of additional impacts in building materials and/ or soils, cease work immediately within this location and notify the Principal (see Section 10) |
| **Relevant Legislation, Guidelines & Standards** | SA EPA (2013) Standard for the production and use of Waste Derived Fill<br>SA EPA (2015) Environment Protection (Water Quality) Policy<br>NEPC (1999) National Environmental Protection Council (2013) National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999, Amended 2013<br>Environment Protection Act 1993 |

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## 9.8 Hazardous Materials Management

Hazardous materials can be in the in the form of a range of materials which includes but not limited to ACMs (known or as an unexpected find). Hazardous materials can also be introduced to the site as part of the future civil works programme. This can include a range of petrochemicals (fuels, lubricants and degreasers) and cleaning agents. The requirements for management of these hazardous materials are prescribed in Table 15.

*Table 15: Hazardous Materials Management*

| Hazmat | Description |
|---|---|
| **Objectives** | To control the identification and appropriate handling of hazardous materials (where identified, present or introduced to the site). This includes potential hazardous materials within existing site buildings. |
| **Performance Criteria** | Compliance with Safework SA, SA EPA and industry regulations, guidelines, and codes of practice.<br>Compliance with Unexpected Finds Protocol with regards to additional hazardous materials discovery including asbestos and coal tar.<br>AFM results (should it be required) are reported at concentrations below the laboratory detection limit of 0.01 fibres/ml for all activities requiring ACM removal.<br>Visual clearance of asbestos (following removal) is confirmed with an asbestos clearance certificate. |
| **Management Actions** | Conduct a pre-demolition hazardous materials audit of the hotel structure prior to formal demolition.<br>Remove and dispose of hazardous materials in accordance with relevant legislation and within site use tolerances. This includes contracting a suitably licensed asbestos removalist for asbestos-related discoveries including conducting AFM and subsequent provision of asbestos clearance certificates.<br>Should it be utilised, hazardous waste receptacles should be adequately labelled, covered and placed away from general waste bins (to avoid confusion or accidental disposal in the inappropriate bin) and 'sensitive' areas on-site including the staff lunchroom and break/smoking areas.<br>Ensure all hazardous materials introduced at the site (i.e., fuels and lubricants) are identified/labelled, stored in appropriate vessels, handled appropriately, and disposed of by a licensed contractor.<br>Plant/vehicle refuelling is to be conducted in one bunded area (should this process need to occur onsite).<br>Additional items suspected to be hazardous in nature should be isolated for formal assessment and reviewed by the Principal and Environmental Consultant. |
| **Monitoring & Reporting** | Track waste volumes of hazardous materials including the collection of waste disposal dockets.<br>The PCM will suitably engage a licensed asbestos assessor(s) to:<br>• Ensure that the existing sit surface has been cleared of ACMs (if identified) to reduce the potential for track rolling loose fragments and generating a friable ACM condition.<br>• Supervise and monitor the practical removal of ACMs should they be identified. ACM removal will be undertaken under asbestos conditions and will include Air Fibre Monitoring (AFM) events. An asbestos clearance certificate will be provided following appropriate ACM removal.<br>The PCM will contact the Principal and the Environmental consultant following the discovery of additional hazardous materials in the subsurface.<br>This is in line with the requirement of the Unexpected Finds Protocol (Section 10) |
| **Corrective Actions** | Investigate incidents and implement preventive actions as required.<br>Investigate incidents where hazardous waste has not been handled or disposed of appropriately. |
| **Relevant Legislation, Guidelines & Standards** | SA EPA Handbook for Pollution Avoidance on Building Sites.<br>Environment Protection Act 1993.<br>Work Health & Safety Act and Regulations 2012.<br>How to Manage and Control Asbestos in the Workplace Code of Practice 2011.<br>How to Safely Remove Asbestos Code of Practice 2011. |

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## 9.9 Waste Management

All waste must be managed (and disposed) to comply with relevant SA EPA regulations and in line with the best practice guidance for Building Waste in the SA EPA Handbook for Pollution Avoidance on Building Sites. This includes disposing of building waste, where feasible, in line with the Waste Hierarchy, including minimising waste generation (including packaging), maximising on-site reuse (where this does not cause other nuisance or environmental problems), and disposing of waste for recycling instead of to landfill.

The requirements for management of waste are presented in Table 16.

*Table 16: Waste Management*

| Noise & Vibration | Description |
|---|---|
| **Objectives** | To control the handling and disposal of site wastes.<br>To identify opportunities to reuse waste generated by construction activities. |
| **Performance Criteria** | Minimise waste generation, including packaging, and disposal to recycling facilities.<br>Compliance with regulations and SA EPA and industry guidelines and codes of practice. |
| **Management Actions** | Use or encourage building material suppliers to minimise their packaging or accept it back for reuse or recycling.<br>Ensure all waste is contained, transported, stored and handled appropriately, taking into consideration fire safety, OHS and protection of water and soil resources.<br>Ensure all hazardous and controlled wastes on the site are identified and handled appropriately and disposed of by a licensed contractor (as per Table 12).<br>Ensure general waste (cans, paper, etc.) are placed in separate covered recycle waste skips / bins.to prevent access to wild/feral fauna (i.e., seagulls)<br>Ensure construction waste materials are sorted and placed in separate covered waste skips / bins for recycling where feasible.<br>Be vigilant for waste management issues and report to Superintendent if required.<br>Keep the site free from waste materials by directing regular clean ups.<br>Ensure any portable toilets are serviced regularly and checked for leakages. |
| **Monitoring & Reporting** | Undertake monitoring of site to ensure regular clean-ups are being undertaken.<br>Inspect waste storage and disposal facilities to ensure they are functioning sufficiently and dealing adequately with the quantities of waste (i.e., ensure waste is not overflowing). |
| **Corrective Actions** | Investigate incidents and implement preventive actions as required.<br>Investigate incidents of inappropriate housekeeping practices.<br>Undertake practical segregation of wastes to maximise recycling capacity/recovery and minimise landfill waste potential. |
| **Relevant Legislation, Guidelines & Standards** | SA EPA Handbook for Pollution Avoidance on Building Sites.<br>Environment Protection Policy (Waste-to-Resources) 2010.<br>Environment Protection Act 1993. |

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# 10.0 UNEXPECTED FINDS PROTOCOL

## 10.1 Purpose

In general, environmental assessments are based on results between discrete sampling or investigation locations. Subsurface conditions between sampling points are inferred based on a range of informed assumptions. Regardless of the density of previous sampling activities, there exists a likelihood that unexpected conditions may still be encountered between each sampling location which are likely to be discovered during bulk excavation activities.

Unexpected finds (in this context) include subsurface conditions which have not been previously identified at previous sampling locations and have a potential to cause environmental harm.

## 10.2 Known Sources of Contamination

A defined source of contamination has not been identified at the site that has not been addressed (i.e. the stockpile. However, underlying site soils have been observed to include non-soil inclusions and may indicate potential localised areas of chemical contamination in the subsurface. The aforementioned conditions are expected of soils underneath the site, are not unexpected finds and are subject management controls provided in Section 9.

## 10.3 General Environmental Controls

In general, the discovery of any unexpected find will require the PCM to cease all works and contact the Environmental Consultant to assess the nature of the 'unexpected find'.

To minimise or mitigate potential construction delays, Agon have developed a range of environmental management measures targeting the most likely array of unexpected finds beneath the site (see Section 10.4). However, the following overarching environmental controls are applicable regardless of the nature of the find:

- Unexpected finds (proven or otherwise) are to be communicated to the Principal and the Environmental Consultant regardless of whether it falls within the range of finds in Section 10.4. The intent of this is to provide the PCM support in selecting valid controls, confirm authority to proceed with construction works should the find be considered of sufficiently low risk or allow immediate development of additional environmental controls should they be required.
- Confirmed finds are to be geo-located either by a handheld GPS or by a qualified surveyor to allow relocation of each find should works be required to proceed, regardless of the nature of the find (i.e., backfilling a partially assessed excavation for safety reason) or if further investigations are required; and
- For controls which require either material or soils to be temporarily stockpiled pending further assessment and/or disposal.

The PCM will ensure that materials (soil, recyclable resource(s) or waste(s)) generated from the management of unexpected finds will be tracked through vetted documentation which can be reviewed upon request by the Principal.

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## 10.4 Potential Finds and Specified Environmental Controls

The following range of unexpected finds have been collated for the PCM's review and consideration as part of future civil works. This range was developed based on the site setting and known environmental conditions.

A range of environmental management actions (depending on the quantum of unexpected finds, should they be identified) have been established for each item.

### 10.4.1 Asbestos Containing Materials (ACMs)

ACM if discovered are likely to be in the form of bonded ACM fragments. Any new ACM discoveries will be supported by ACM analysis to confirm the type of asbestos encountered.

There also exist a likelihood that ACMs are present within remaining portions of the site which has not been disturbed. As such, environmental management procedures that need to be undertaken as part of an unexpected ACM find include:

- Any in-situ and/or relatively intact underground infrastructure be discovered. In this case, ACM removal will be conducted under supervision by a licensed/qualified asbestos assessor who will also undertake an air fibre monitoring (AFM) event during the duration of the removal. The appointed asbestos assessor will provide a clearance certificate to support the removal of the identified ACM structure; and

- Discovery of much larger ACM pieces such as former corrugated fencing are likely along the site boundary (if present). Such a discovery will require further action including:

    - Engagement of a qualified and licensed/qualified asbestos assessor to assist in delineating the extent and concentration of ACMs in the subsurface. This also includes establishing the severity of the ACM contamination to establish practical levels of control;

    - Establishment of a remedial/management plan in-line with the assessed extent and severity of the discovered impact. Remedial measures can range between a supervised emu-pick to a bulk excavation and removal exercise which may necessitate an Asbestos Removal Control Plan (ARCP); and

    - Exhumed ACMs shall either be directly disposed off-site under license (in the case of manually separated pieces) or temporarily stored within a designated receptacle and suitably encapsulated.

In either case, asbestos disturbance and removal works shall conducted under asbestos conditions and will include Air Fibre Monitoring (AFM) events. An asbestos clearance certificate will be provided following appropriate ACM removal.

### 10.4.2 Construction and Demolition Waste

Construction and demolition (C&D) wastes in the context of this CEMP will comprise of inert building materials in the form of concrete, bricks, steel, processed timbers, plaster boards, plastic and general builders' waste. Residual bituminous materials, should it be present within any discovered waste mass, will also be classified as C&D waste.

Where identified, C&D waste shall be excavated and practically segregated from the surrounding soil mass. If possible, C&D wastes should be further screened to maximise recycling potential into resource material streams such as concrete, bricks and pavers. C&D waste piles are to be inspected by the PCM to ensure C&D waste piles are devoid of ACM, which may necessitate management actions in Section 10.4.1.

C&D wastes, either as a total mass or segregated resource streams shall be disposed off-site to an appropriate hard waste and/or recycling facility.

### 10.4.3 Residual Infrastructure

Potential residual infrastructure includes remnants of former building foundations, pavements and footings. Environmental management actions will be required if evidence of actual infrastructure is uncovered during the excavation process. These will include:

- Identification of an intact hardstand (concrete, brick or asphalt) floor at depth or wall structures (including brick walls); and
- Identification of any additional utility alignments inclusive of residual fuel infrastructure (i.e., product pipelines).

In either case, areas indicating the presence of residual underground infrastructure will require to be isolated until further assessment can be conducted under the guidance of an Environmental Consultant who will assist in determining the purpose of the structure, potential contamination issues including any detrimental in-fill which may have been utilised to install the structure.

The Environmental Consultant may request the PCM to proceed with the demolition and removal of the structure under environmental supervision should environmental risk associated with the structure be deemed low or insignificant (where residual or evidence of chemical storage has not been identified). Otherwise, the Environmental Consultant will request to conduct request soil testing with approval from the Principal.

Following consultation, potential assessment and removal, materials generated from infrastructure removal should be practically segregated for off-site disposal and recycling. In most cases, such wastes may be classified as C&D wastes. C&D waste piles are to be inspected by the PCM to ensure C&D waste piles are devoid of ACMs which may necessitate management actions in Section 10.4.1.

## 10.5 Aesthetic Considerations

Additional aesthetic conditions which may indicate the presence of contamination include:

- Stained and or discoloured fill or natural soils; and
- Volatile, metallic, or other noxious odours.

Discovery of these items would require consultation with the Environmental Consultant prior to proceeding as this may indicate yet to be characterised chemical impacts on-site.

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## 10.6 Geotechnical Considerations

Where prescribed, further soil assessments which may be undertaken to establish the on-site reuse suitability of soils only relate to its chemical properties. Noting that most soils with deleterious conditions are likely to be temporarily stockpiled, it is worth considering undertaking a supporting geotechnical appraisal whilst environmental results are pending.

The geotechnical suitability of site soils will be under the discretion of a suitably qualified geotechnical consultant to be assigned by the Principal.

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# 11.0 REFERENCES


**Agon (2022)** Preliminary Site Investigation, Buckingham Arms Hotel, 1-9 Walkerville Terrace, Gilberton. Ref: JC1083_PSI.01, dated 22 June 2022; and

**Agon (2023)** Due Diligence Environmental Assessment, Buckingham Arms, 1-9 Walkerville Terrace, Gilberton, South Australia. Ref: JC1225_DDEA.02, dated 7 November 2023

**AS (2436- 1981)** Guide to Noise Control on Construction, Maintenance and Demolition Sites;

**ASRIS (2023)** Atlas of Australian Soil Resource Information System (2023), ASRIS, located at http://www.asris.csiro.au/mapping/viewer.htm

**DEW (2023)** Department for Environment and Water, Water Connect, located at: http://www.waterconnect.sa.gov.au.

**DPTI (2023)** Department of Planning Transport and Infrastructure (2020), South Australian Integrated Land Information System (SAILIS), located at: http://www.sailis.sa.gov.au

**NEPC (2013)** National Environmental Protection Council (1999) National Environment Protection (Assessment of Site Contamination) Measure (NEPM) 1999, Amended 2013.

**NEPM (2003)** Ambient Air Quality

**NEPM (2009)** Diesel Vehicle Emissions

**OSHA (2020)** Air Contaminants;

**SA EPA (1999)** Stormwater Pollution Prevention Code of practice for the building and construction industry;

**SA EPA (2010)** Guideline for stockpile management: waste and waste derived products for recycling and reuse

**SA EPA (2013)** Standard for the production and use of Waste Derived Fill, Oct 2013

**SA EPA (2014)** Information Sheet, Construction Noise Updated EPA 425/17 February 2017

**SA EPA (2015)** Environment Protection (Water Quality) Policy

**SA EPA (2021a)** Environmental management of Dewatering During Construction Activities, Publication EPA 1093 (Updated June 2021)

**SA EPA (2021b)** CEMP Industry Guideline, Publication EPA 1095 (Updated October 2021

**SAPPA (2010)** SA Property & Planning Atlas (2010), located at: https://maps.sa.gov.au/SAPPA/

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# 12.0 LIMITATIONS OF THIS REPORT

All and any Services proposed by Agon to the Client were subject to the Terms and Conditions listed in Agon's **QFB-008 Consultancy Agreement** (accessible at https://agonenviro.com.au/documents/). Unless otherwise expressly agreed to in writing and signed by Agon, Agon does not agree to any alternative terms or variation of these terms if subsequently proposed by the Client. The Services were carried out in accordance with the current and relevant industry standards of testing, interpretation and analysis. The Services were carried out in accordance with Commonwealth, State, Territory or Government legislation, regulations and/or guidelines. The Client was deemed to have accepted these Terms when the Client signed the Proposal (where indicated) or when the Company commenced the Services at the request (written or otherwise) of the Client.

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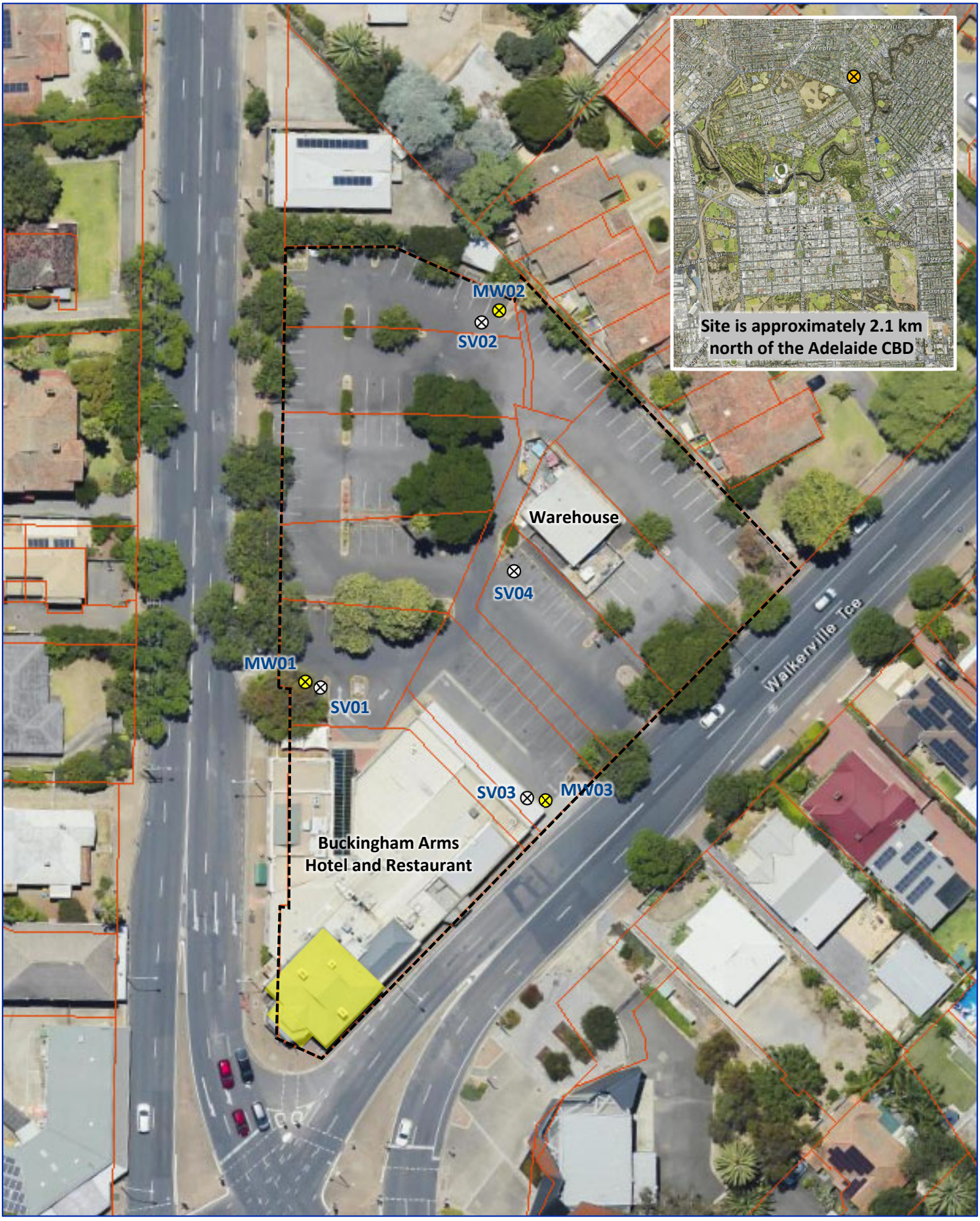
# APPENDIX A: FIGURES




agon ENVIRONMENTAL

**Client:** Citify Group Pty Ltd
**Site:** 1-9 Walkerville Terrace, Gilberton

**REF#:** JC1225 **Drafted:** CE
**Revision:** B **Dated:** 25/10/2023

**Legend**

- Approximate Site Boundary
- Approximate site location (see inset)
- Approximate Monitoring Well Location
- Approximate Soil Vapour Well Location
- Approximate Extent if Heritage listed portion

**Figure A1:**
Site Locality and Site Features Plan

N

0 25 m

*Approximate Scale (Inset)*