

BLIGH TANNER

# Redlands Coast Sport and Recreation Precinct Construction Environmental Management Plan

Redlands City Council

Date: 21 September 2022

| | | | |
|---|---|---|---|
| **DOCUMENT** | Redlands Coast Sport and Recreation Precinct<br>Construction Environmental Management Plan | | |
| **JOB NUMBER** | 2021.0554 | | |
| **PROJECT ENGINEER** | A Hoban | | |
| **CLIENT** | Redlands City Council | | |
| **CLIENT CONTACT** | V. Steljic | | |
| **VERSION** | **AUTHOR** | **REVIEW** | **DATE** |
| P01 | LP | A Hoban | 21/09/2022 |
| | | | |
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**Preliminary CEMP Note:**
This Construction Environmental Management Plan has been prepared prior to the formal engagement of a contractor. An updated CEMP must be prepared by the contractor that provides specific details relevant to the contractor's proposed construction methodology and safe work method statements.
The Contractors CEMP must meet or exceed the environmental standards outlined in this report.

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# 1. PROJECT DETAILS

This Construction Environmental Management Plan (CEMP) applies for the works to be completed by the Principal Contactor and their associated contractors related to the construction of the Redlands Coast Sport and Recreation Precinct (The Precinct) on behalf of Redlands City Council (RCC).

An overview of the project details are provided below.

**Table 1 Project Details**

| | | | |
|---|---|---|---|
| **Project Name** | Redlands Coast Sport and Recreation Precinct construction | | |
| **Project Location** | The site is on Lot 420 S312160 located at 277-293 Heinemann Road, Mount Cotton. | | |
| **Scope of Works** | The Precinct is comprised of several high-quality recreation opportunities. The works will be broken down into Stage 1 and Stage 2. Stage 1 will be broken down further into Stage 1A and Stage 1B.<br>This document has been created for the project as a whole and is therefore relevant and must be complied to for each stage of development.<br>All works are to be completed in accordance with the project scope of works, as provided as an Appendix<br>Development of the Sports and Recreation Precinct will include the following tasks:<br>+ Stage 1A<br>– Vegetation clearing and site establishment<br>– Enabling infrastructure (including northern roundabout access from Heinemann Road, water/sewer/stormwater and interim sewer pump out)<br>– Internal roads and play precinct carpark<br>– Play precinct and play pavilion<br>– Pump track, learn to ride facilities<br>– Maintenance access track and low-impact bush trails<br>– Central waterway corridor works<br>– Bulk earthworks for play precinct<br>+ Stage 1B<br>– Cycling precinct (incl. BMX, criterium tracks, parking and clubhouse)<br>+ Stage 2<br>– Heinemann Road upgrades and trunk sewer works<br>– New southern roundabout access and internal road connection<br>– NRL and touch football precincts (incl. final landscaping/sports fields, clubhouses and carparking and lighting/electrical)<br>– Recycled water trunk main (subject to on-going planning and design) | | |
| **Contract Work Hours** | TBA | **Duration** | TBA |

The CEMP has been developed to provide environmental management practices and procedures for the principal contractor to complete the site works as documented in the project design drawings.

This CEMP contains various environmental management practices and actions related to works at the site related to:

+ Erosion and sediment control;
+ Water quality;
+ Cultural Heritage;
+ Noise and vibration;
+ Air quality;
+ Contaminated sites;
+ Fauna;
+ Vegetation;
+ Weed and pest management;
+ Waste management;
+ Chemicals and fuel management; and
+ Bushfire.

However, the content of this CEMP does not override or negate any local, state or federal legislative requirements at the site, and any works at the site must comply with the relevant legislative requirements which apply to those site works.

The Precinct is set to be a significant community development, providing need amenities that have been identified by Council. The Precinct will provide a home for the Redlands Touch Association and the Redlands Rugby League Club with individual clubhouses for each club. The space will provide 3 rugby field and 13 touch football fields with the ability to increase to 5 and 19 fields for either sport when required. The northwest corner of the site will contain a cycle precinct including a criterium track and state level BMX track. There will also be a play precinct and pavilion that will contain a water play, pump track and rest area that provide recreation facilities for a wide range of community member.




**Figure 1 Redlands Coast Sport and Recreation Precinct location**

# 2. PROJECT CONTACT DETAILS

The following contact details shall be completed prior to commencement of works

**Table 2 Project Contractor Details**

| | | | |
|---|---|---|---|
| **Contractor: _____** | | | |
| Principal Contractor | | Phone | |
| Project Manager; Environmental Officer/Representative | | Phone<br><br>Email | |
| Site Supervisor | | Phone | |
| **Redlands City Council** | | | |
| Project Communications | | Phone | |
| Environmental/cultural heritage | | Phone | |
| Contaminated land | | Phone | |
| Erosion & Sediment Control | | Phone | |
| Fauna | | Phone | |

# 3. ENVIROMENTAL POLICY

The Principal Contractors Policy Environmental Policy shall be provided prior to commencement of works

# 4. ROLES AND RESPONSIBILITIES

This section defines the roles, requirements, responsibilities and general environmental management of the project. The parties responsible for the environmental management of the site are defined below.

Unless otherwise stipulated throughout this document, the principal contractor's project manager (unless otherwise advised by the contractor) is responsible for the overall implementation of the environmental measures outlined in this document and its appendices.

**Table 3 Project Roles and Responsibilities**

| Role | Nominated Person | Responsibilities |
|---|---|---|
| **Redlands City Council** | | |
| Environmental Officer | | CEMP approval |
| Project Officer | | Project management (RCC) |
| **Principal Contractor** | | |
| Company Director | | Principal Contractor<br>HSE<br>Incident investigation |
| Project Manager; Environmental Officer/Representative | | Project management<br>Stakeholder communications<br>CEMP reporting<br>Fauna liaison and incident reporting<br>Environmental and cultural heritage liaison and incident reporting |
| Site Supervisor | | On-site supervisor<br>Monitoring implementation of CEMP requirements in the field |

# 5. PROJECT PERMITS AND APPROVALS

The project permits and approval requirements are provided below.

**Table 4 Project Permits and Approvals**

| Permit/Authority | Y/N | Administering Authority | Reference Number | Commencement/ Expiry Date |
|---|---|---|---|---|
| **RCC Supplied/Obtained Permits & Approvals** | | | | |
| Development Approval | Y | RCC/ SARA | TBA | TBA |
| Heritage Exemption Certificate | Y | DES | TBA | TBA |
| EPBC Referral | Y | Aust. Govt | TBA | TBA |
| Protected Plants/Vegetation Clearance Permit | Y | DES; NRME | TBA | TBA |
| NALL Notification Approval | Y | **RCC** | TBA | TBA |
| NALL Permit | Y | **RCC** | TBA | TBA |
| Notes | | | | |
| NALL Notification Approval | Any approved NALL Notification requirements will be determined during the site flora and fauna survey, and incorporated into this CEMP. | | | |
| NALL Permit | Required for removal of vegetation on private property which is protected under *Natural Assets Local Law 2003* | | | |
| **Permits & Approvals required by the Contractor** | | | | |
| Networks Access Permit | N | Redlands Water | - | - |
| Temporary/Partial Lane/Road Closure Permit | N | **RCC** | - | - |
| Parks Vehicle Access Permit | Y | **RCC** | TBA | TBA |
| Biosecurity Instrument Permit | TBA | **RCC** | TBA | TBA |
| Dial Before You Dig permit | Y | Dial Before You Dig | TBA | TBA |
| Soil disposal permit | TBA | **RCC** | TBA | TBA |
| Fauna Habitat Assessment Report | Y | **RCC** | TBA | TBA |
| Pre & post clearance fauna spotter catcher report. | Y | **RCC** | TBA | TBA |
| Notes | | | | |
| Networks Access Permit | Required when working on, over, under or within 2 m of Redland Water assets. This includes vehicle and machinery movement where the asset is not situated in road. | | | |
| Temporary/Partial Lane/Road Closure Permit | Required when temporary, partial lane or road closures are necessary to complete the works (included deliveries). Will also need a traffic management plan. | | | |
| Parks Vehicle Access Permit | Required for access into Council managed parks, where works are taking place, or the park area is being used for site facilities, material storage/laydown or parking. | | | |
| Biosecurity Instrument Permit | Required to move soil and/or other fire ant carriers out of a Biosecurity Fire Ant Zone | | | |

| Permit/Authority | Y/N | Administering Authority | Reference Number | Commencement/ Expiry Date |
|---|---|---|---|---|
| Soil disposal permit | No soil removal from site has been proposed, however if necessary, a soil disposal permit will be required. | | | |

Copies of all approvals submitted and obtained by the principal contractor for The Precinct shall be maintained at the project site office, and made available to Council upon request.

The principal contractor shall comply with the relevant conditions of approvals obtained, and will also ensure any sub-contractors engaged for works also comply with approval requirements.

In the event that any additional approvals become necessary (e.g. for additional vegetative works if required), these approvals will be obtained by the principal contractor as required, and maintained within the on-site project office.

At practical completion of the project, the principal contractor will provide documentation of the successful surrender of approvals held by Council and the principal contractor that relate to the project, if required.

# 6. KEY STAKEHOLDERS AND NOTIFICATION AND INCIDENT REPORTING REQUIREMENTS

A list of the key stakeholders and notification requirements is provided below. Any changes in key stakeholders will be noted and upgraded in the CEMP. All external stakeholder communication will be undertaken by RCC City Projects Office, with any on-site principal contractor interactions with stakeholders directed to RCC.

Community notification of works on the Track will be organised and undertaken by RCC.

**Table 5 Key Stakeholders and Notification Requirements**

| Issue | Organisation | Contact | Phone |
|---|---|---|---|
| **Prior to works commencing** | | | |
| Liaise with City Projects Office Project Communications team to determine appropriate community engagement requirements/strategy.<br>Notification must be undertaken with the local community at least two (2) weeks prior to the commencement of works and should include:<br>Project description, duration and aims<br>Actions intended to protect environmental values<br>Details of working times and contact details for making a complaint. | To be completed to superintendents satisfaction prior to works | | |
| Notify/engage Local Councillor | | | |
| | | | |
| Environmental incidents, complaints and discovery of cultural heritage | | | |
| | | | |
| Suspected excavation of contaminated land soils | | | |
| Erosion and sediment control | | | |
| Impacts to Redland Water asset network (including sewer releases and water main leaks) | | | |
| Indigenous cultural heritage | | | |
| | | | |
| | | | |
| European Cultural Heritage | | | |
| Discovery of significant fauna | | | |

| | | | |
|---|---|---|---|
| Discovery of injured fauna | | | |
| | | | |
| | | | |
| Impacts to protected vegetation (not previously identified in the arboricultural impact assessment prepared by Holistic Tree Management) | | | |
| Discovery of Fire Ants | | | |
| General Waste Disposal | | | |
| Interference with NALL Protected Vegetation not previously identified | | | |
| Project fauna/flora consultant | | | |
| Environmental/Engineering, Erosion and Sediment Control Consultant | | | |

# 7. LEGISLATION, STANDARDS AND GUIDELINES

A list of the relevant legislation, standards and guidelines as they apply to the Redlands Coast Sports and Recreation Precinct is provided in Table 6.

**Table 6 Project Applicable Legislation, Standards and Guidelines**

| Commonwealth Legislation | | Queensland Legislation | | | | Council Law, Policies and Procedures | |
|---|---|---|---|---|---|---|---|
| *Native Title Act 1993* | ✓ | *Aboriginal Cultural Heritage Act 2003* | ✓ | | | Redlands City Plan 2018 v6 | ✓ |
| *Environment Protection and Biodiversity Conservation Act 1999* | ✓ | *Biosecurity Act 2014* | ✓ | *Biosecurity Regulation 2016* | ✓ | | ✓ |
| | | *Environmental Protection Act 1994* | ✓ | *Environmental Protection Regulation 2019* | ✓ | | ✓ |
| | | | | *Environmental Protection (Air) Policy 2008* | ✓ | | ✓ |
| | | | | *Environmental Protection (Water) Policy 2009* | ✓ | | ✓ |
| **Standards & Guidelines** | | | | *Environmental Protection (Noise) Policy 2008* | ✓ | | ✓ |
| AS4970: Protection of trees on development sites | ✓ | *Fisheries Act 1994* | ✓ | *Fisheries Regulation 2008* | | | ✓ |
| AS1940: The storage and handling of flammable and combustible liquids | ✓ | *Nature Conservation Act 1992* | ✓ | *Nature Conservation (Wildlife Management) Regulation 2006* | ✓ | | ✓ |
| International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control | ✓ | *Vegetation Management Act 1999* | ✓ | *Nature Conservation (Koala) Conservation Plan 2017* | ✓ | | ✓ |
| Aboriginal Cultural Heritage Act 2003 Duty of Care Guidelines | ✓ | | ✓ | | | | |
| Monitoring and Sampling Manual 2018 (DES) | ✓ | *Planning Act 2016* | ✓ | *Planning Regulation 2017* | ✓ | | |
| Australian and New Zealand guidelines for fresh and marine water quality (Council of Australia and New Zealand and the Australian and New Zealand Environment and Conservation Council (ANZECC)) | N/A | | N/A | | N/A | | |
| Queensland Water Quality Guidelines 2009 | ✓ | *Water Act 2000* | ✓ | | | | |
| | | *Land Act 1994* | ✓ | | | | |
| | | *Environmental Offset Act 2014* | ✓ | | | | |

## 7.1 Responsibilities under the Environmental Protection Act 1994

All personnel involved in works related to this project (including but not limited to the principal contractor's personnel and contactors) must comply with the General Environmental Duty as detailed in Section 319 (1) of the *Environmental Protection Act 1994* ("The Act"):

> *General Environmental Duty: A person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to prevent or minimise the harm.*

In addition to this, all personnel must comply with the Duty to Report requirements within *The Act*: (Division 2 Section 320). In general, the requirement within *The Act* is that while carrying out an activity, if a person becomes aware that an event has happened that causes or threatens serious or material environmental harm because of the person's or someone else's act or omission in carrying out the activity, the person must, no later than 24 hours after becoming aware of the event and unless the person has a reasonable excuse, give the administering authority written notice of the event, its nature and the circumstances in which it happened.

For this project, the duty to report under *The Act* is deferred to RCC. However, to ensure that the duties under *The Act* are achieved, any reportable environmental incident must be reported to RCC so that Council has sufficient time to report and meet the 24 hour reporting requirement.

The mechanism for reporting environmental incidents is provided in **Section 15** of this report.

The responsibilities under *The Act* discussed above will also be incorporated into the site specific induction.

### 7.1.1 Incident reporting

The principal contractor will notify Council of any environmental incident verbally within 2 hours of and in writing within 24 hours throughout the period in which the CEMP applies.

# 8. PROJECT ENVIRONMENTAL ASPECTS AND RISK REGISTER

An environmental risk assessment was undertaken for The Precinct identified the key environmental aspects. The risk assessment matrix used in the risk assessment is provided below.

**Table 7 Project Risk Assessment Matrix**

| Likelihood | Consequences | | | | |
|---|---|---|---|---|---|
| | Insignificant | Minor | Moderate | Major | Catastrophic |
| Almost Certain | Low+ | Medium+ | High | Very High | Extreme |
| Likely | Low- | Medium- | Medium+ | High | Very High |
| Possible | Negligible | Low+ | Medium- | Medium+ | High |
| Unlikely | Negligible | Low- | Low+ | Medium- | Medium+ |
| Rare | Negligible | Negligible | Negligible | Low- | Low+ |

The risk scores listed for each environmental aspect is the inherent risk (i.e. prior to the implementation of mitigation measures). Mitigation measures and residual risks for each aspect are outlined in the aspect risk management plans in the following section. Risk likelihood and consequence definitions, which are provided below.

**Table 8 Risk Assessment Likelihood Descriptors**

| Likelihood Descriptor | Definition |
|---|---|
| Almost Certain | The event is expected to occur in most circumstances. (P= >0.75). |
| Likely | There is a strong likelihood the event will occur. There is a history of frequent occurrence within Council or comparable institutions in similar circumstances. (P= 0.75 to 0.25). |
| Possible | The event might occur. There is a history of occasional occurrence within Council or comparable institutions in similar circumstances. (P= 0.25 – 0.01). |
| Unlikely | Not expected, but there's a slight possibility it could occur. Very few occurrences within Council or comparable institutions in similar circumstances. (P= 0.01 – 0.001). |
| Rare | Highly unlikely, would only occur in exceptional circumstances. Almost no historic occurrence within Council or comparable institutions in similar circumstances. (P= <0.001). |

Table 9 Risk Assessment Consequence Descriptors

| Consequence Descriptor | Definition |
|---|---|
| Catastrophic | Environmental incident comprising of 'serious environmental harm' of an extensive area where the core environmental values or attributes of the city are threatened; Long term damage, requiring long term recovery (years). |
| Major | Environment incident comprising of serious environmental harm;<br>Environmental damage (major, short term or cumulative) will require outside assistance. |
| Moderate | Environment incident comprising of material environmental harm; damage is managed with site resources and procedures;<br>The event may result in action being taken by a regulator as a breach of standards, regulations or licence conditions;<br>Moderate impact but short recovery time. |
| Minor | Environmental incident comprising of 'environmental nuisance' caused by off-site release or harmful on-site release with minor short term and negligible cumulative environmental impacts<br>Impacts contained without assistance (minor clean-up required);<br>Notification to regulator of possible breach. |
| Insignificant | No impact on the environment. |

Table 10 Environmental Aspects Register

| Environmental Aspect | Likelihood | Consequence | Unmitigated Risk Score |
|---|---|---|---|
| Water quality | Likely | Moderate | Medium+ |
| Erosion and sedimentation | Likely | Moderate | Medium+ |
| Cultural heritage | Unlikely | Moderate | Low+ |
| Noise and vibration | Possible | Minor | Low+ |
| Air quality | Unlikely | Minor | Low- |
| Acid sulphate soils | Rare | Moderate | Negligible |
| Contaminated sites | Rare | Major | Low- |
| Fauna | Likely | Major | High- (note 1) |
| Vegetation | Likely | Major | High (note 2) |
| Pest management | Possible | Minor | Low+ |
| Waste management | Possible | Minor | Low+ |
| Chemicals and fuel management | Possible | Moderate | Medium - |
| Bushfire | Possible | Major | Medium+ |

Note 1: All works shall be in accordance with the most current version of the project Wildlife Habitat Management Plan, Species Management Plans and all applicable conditions of approval related to Council, Queensland Government and Australian Government approvals. All works to be supervised by a fauna spotter.

Note 2: All works to be in accordance with the most current version of the project Vegetation Management Plan and Rehabilitation Management Plan and all applicable conditions of approval related to Council, Queensland Government and Australian Government approvals.

# 9. ENVIRONMENTAL RISK MANAGEMENT PLANS

A copy of the latest version of this CEMP will be maintained within the project site office throughout the duration of the project. Relevant requirements under the CEMP will be communicated to personnel undertaking those works prior to works commencing (including but not limited to the principal contractor's personnel and contractors). Equipment and infrastructure to implement the requirements of this CEMP will be provided by the principal contractor to staff as required, with the principal contractor also responsible for any contractors complying with the CEMP requirements.

Specific tasks to be undertaken as part of The Precinct to which the environmental aspects of this CEMP apply include:

- Tree protection works and vegetation clearing;
- Bulk earthworks
- Construction of civic infrastructure

## 9.1 Erosion and Sedimentation

Erosion and sediment control (ESC) management measures will be a key aspect of environmental management for The Precinct. Large amounts of cut and fill are required to meet the design levels. Bulk earthworks will be conducted in Stage 1 of the project and won't be finished until Stage 2 of works. Therefore, erosion and sediment controls are essential to minimise the impacts of surface run off on unfinished surfaces and to minimise the amount of sediment deposition into the ephemeral waterways.

As demonstrated in Figure 2, the site has a gradual fall to the north west corner of the site.




Figure 2 Site contour map

The erosion and sediment control plan for the project is provided in **Appendix**Error! Reference source not found. of this document.

Table 11 Erosion and Sedimentation

| Aspect | Action | |
|---|---|---|
| **Background** | All soils are erodible and have a significant potential for environmental harm if they are not managed. There is a risk of mobilising sediment into the waterway should suitable erosion and sediment controls not be installed onsite during construction.<br>The proposed works will be undertaken within proximity to as well as within Council and State Government mapped waterways and waterway corridors. If adequate drainage and erosion and sediment control devices are not installed and maintained during the project, there is a risk for the discharge of pollutants from site.<br>An Erosion Hazard Assessment of the proposed works identified the project as having a medium risk erosion hazard due to the proximity of the project works to watercourses, the steepness of the land, and the disturbance of soil for track construction activities. For this reason, an ESCP must be prepared by an RPEQ/CPESC for the project.<br>The ESCP will be contained within **Appendix** of this CEMP. | |
| **Applicability to Project** | + Erosion and sediment control measures will ensure water quality is not adversely impacted by site works. | |
| **Objective** | + To outline the control measures and management practices that must be employed during the project to minimise the potential for erosion and sediment release during construction works. | |
| **Actions** | **Requirements** | **Timing** |
| | + Implement the ESCP shown in **Appendix** that has been prepared in accordance with the International Erosion Control Associations' (IECA) Best Practice Erosion and Sediment Control Manual 2008 and Redlands City Plan 2018 v6<br>+ Establish and stabilise temporary erosion and sediment controls and material stockpiles as early as possible.<br>+ Plan construction works to provide for the progressive and timely stabilisation and rehabilitation of disturbed areas. | Prior to commencement of construction |

| | | |
|---|---|---|
| | + Maintain all erosion and sediment controls in effective working order as required during the construction process to ensure dirty water is directed into sediment controls at all times.<br>+ The ESCP will be progressively updated throughout the life of the construction works to take into account the changing risks, scope changes and site conditions. The ESCP shall be reviewed regularly during construction to ensure that it remains relevant and effective.<br>+ Where the scope/methodology of the works change, the ESCP and Program will be revised in consultation with the CPESC or RPEQ and amended accordingly.<br>+ Any reviews to the ESCP will be provided to Council's Representative within three (3) business days.<br>+ Vehicle entry and exits will be via designated areas only.<br>+ Identify all designated 'no go zones' on the plans.<br>+ Construction activities, particularly soil disturbance works, will cease during wet weather periods.<br>+ Scour control will be installed during any high pressure cleaning that may be required.<br>+ Road base on site will be stored in a designated storage location will sediment fencing on down slope areas.<br>+ Sediment fencing will be installed and maintained between areas of works and watercourses where access allows.<br>+ Coir logs will be maintained on slopes below bare soil areas or active work areas.<br>+ If high pressure cleaning operations are required, coir logs will be deployed down slope of cleaning operations, and cleaning will be restricted to ensure that runoff is minimised to an extent that no overland flow occurs, with all water applied infiltrating into soil.<br>+ Any sediment that collects in collection bunds will be manually removed by shovel and disposed of as waste. | During Construction |
| | + Ensure all temporary erosion and sediment controls are removed and relevant notifications undertaken at the completion of works or when sufficient ground cover for stabilisation is achieved. | Site decommissioning |
| **Performance Indicators** | + No evidence of erosion on site or sediment/sediment laden runoff entering the downslope watercourses.<br>+ No uncontrolled release into any adjacent watercourses.<br>+ No complaints received regarding erosion and sediment control.<br>+ No non-conformances raised at site audits regarding erosion and sediment control.<br>+ Successful rehabilitation treatments of construction areas for long term stability and protection against erosion.<br>+ Personnel responsible for the selection, design, review and monitoring of temporary and permanent erosion and sediment control measures will be adequately trained so that best practice erosion sediment control measures are adopted during construction. | |
| **Monitoring** | + Comply with the monitoring requirements detailed in this CEMP.<br>+ Daily visual inspections of works site and all erosion and sediment control devices.<br>+ Inspect all erosion and sediment control devices, and the receiving environment (watercourses) following significant rainfall events (>15 mm in 24 hours).<br>+ Inspection of all stockpiles and exposed areas following rainfall events.<br>+ Monitoring of water quality in accordance with the water monitoring plan described in Section 12. | |

| | |
|---|---|
| **Reporting** | + All monitoring undertaken will be recorded on the water quality monitoring form and any non-conformances are to be recorded on the principal contractor incident notification form, with RCC notified in accordance with the principal contractor Hazard Report Form (Appendix A6).<br>+ All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure (Section 13).<br>+ Any complaints received are to be recorded on the site project office complaints register and reported to Council's representative. |
| **Corrective Actions** | + Seek advice on corrective measures from a suitably qualified person.<br>+ Repair/maintain existing drainage, erosion and sediment control devices.<br>+ Clean up or rehabilitate any impacts/exposed areas.<br>+ Install additional erosion and sediment control devices where issues have been identified.<br>+ Consider the deployment of alternative erosion and sediment control devices where issues have been identified with the existing devices.<br>+ Undertake street sweeping and other dust suppression measures where required.<br>+ Ensure all personnel involved in the deployment and maintenance of erosion and sediment control measures are appropriately trained in their use and deployment.<br>+ Communicate changes with all relevant staff. |
| **Responsibilities** | + Management and maintenance of erosion and sediment control devices is the responsibility of the Site Supervisor.<br>+ All staff and sub-contractors are responsible for reporting environmental incidents and complaints to their supervisor including the nature and circumstances in which the incident happened (including an immediate verbal/email notification and completion of relevant incident notification forms). |

## 9.2 Water Quality

There are ephemeral waterways through the site, with one classified as green and another as amber for the purposes of waterway barrier works (Figure 3). The associated culvert crossings are designed with culverts that are compliant with the relevant acceptable outcomes of the waterway barrier works code.

Refer project Stormwater Management Plan for details of the stormwater quality management (post construction phase) for the project.

A detailed erosion and sediment control plan will need to be prepared by the contractor prior to commencement of works that aligns with its preferred staging plans. There is ample opportunity within the disturbed areas of the site for the construction of sediment basins.

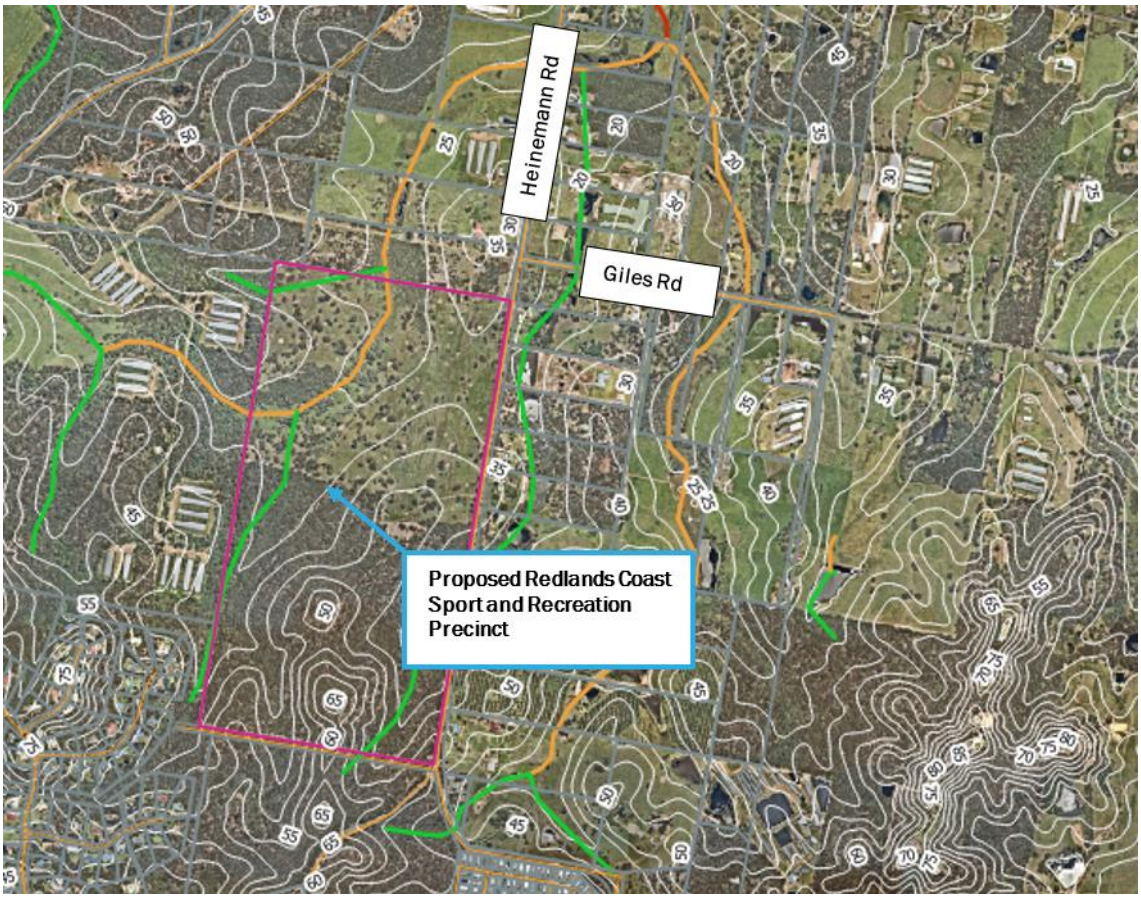



Figure 3: Extract from Queensland Waterways for Waterway Barrier Works spatial layer showing 'amber' and 'green' waterways through the site (Source: Queensland Spatial Catalogue, 2021; Aerial Image: Nearmap, 2021)




Figure 4 Waterway corridor overlay (Red e map)

Site design and construction methods shall be designed to ensure that the impacts of site works on watercourses are negligible, with a specific focus on erosion and sediment control management and the retention and protection of watercourse riparian vegetation during site works.

Management actions and control measures identified for the project have been selected to take into consideration the likely rainfall patterns for the site.

Based on the main project watercourse contaminant hazards and the environmental values of the watercourses, the following water quality objectives have been developed:

Table 12 Construction Phase Water Quality Objectives

| Parameter | Units | |
|---|---|---|
| Dissolved oxygen | mg/L or % sat | <10% increase from upstream to downstream. |
| pH | pH units | No more than 1 pH unit change from upstream to downstream. |
| Total Suspended Solids | mg/L | No more than 10% increase from upstream to downstream. |
| Turbidity | NTU | No more than 10% increase from upstream to downstream. |
| Electrical Conductivity | µS/cm | No more than 20% increase from upstream to downstream. |
| Hydrocarbons | Visual inspection | No visible trace. |
| Waste | Visual inspection | No waste or project produced material present in watercourse. |

Table 13 Water Quality

| Aspect | Action | |
|---|---|---|
| **Background** | Water pollution (surface water and groundwater) can result from the spillage of oils, fuels, paints and lubricants into the ground, or sediment into watercourses. These substances can represent toxicants to aquatic fauna/flora.<br>Activities that cause water pollution will be contravening the EP Act (*EP Act 1994* section 440ZD), *Environmental Protection (Water) Policy 2009* and risk being given a rehabilitation or restoration notice under the *Environmental Protection Act 1994*.<br>Offences under these provisions will require restoration, clean up and possible fines, increasing project costs.<br>The proposed works will be undertaken within proximity to Council and State Government mapped waterways or waterway corridors. For this reason, water quality protection measures have been developed along with an ESCP to control and minimise water quality hazards for the project.<br>The ESCP is shown in **Appendix** Error! Reference source not found. of this CEMP.<br>In addition, the planning design and implementation of stormwater drainage and watercourse protection measures have been produced according to Queensland Urban Drainage Manual and the International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control (BPESC) documents. | |
| **Applicability to Project** | All elements of site work display a hazard to water quality. Although watercourse flows are largely rainfall dependent, hazards from project tasks have the potential to impact on site and downstream environmental objectives. | |
| **Objective** | To minimise impacts to water quality within the receiving watercourses as a result of the proposed works.<br>To comply with the prescribed water quality objectives for the project.<br>To not cause Environmental Harm or Environmental Nuisance to ephemeral waterways whether dry or flowing within the site or adjacent waterways into which the site discharges. | |
| **Actions** | **Requirements** | **Timing** |
| | Establish and stabilise temporary erosion and sediment control (ESC) measures.<br>Ensure concrete waste and chemical products, including petroleum and oil-based products, are fully contained on the site and do not enter the watercourses. | Prior to commencement of construction |
| | Establish and stabilise temporary ESC measures.<br>Ensure concrete waste and chemical products, including petroleum and oil-based products, are fully contained on the site and do not enter the watercourses.<br>Bunds are established during any high risk activities to capture any contaminants prior to them entering the watercourses.<br>Weather forecasts will be incorporated into the scheduling of higher potential water quality risk activities such as pressure cleaning and watercourse crossing works.<br>Equipment cleaning will be performed in areas at least 40 m from watercourses.<br>Waste products will be disposed of to on-site bins on a daily basis.<br>In the event that forecast rain is approaching, the site will be secured prior to the rainfall event, with equipment, waste and chemicals appropriately stored or disposed of.<br>Water used for on-site operations will be sourced from tap water, and maintained and transported in a clean tank to site operations areas.<br>Temporary spoil and material stockpiling will be undertaken within large storage bags.<br>Sewage pipeline locations will be identified, with exposed pipelines buried with fill material to provide greater protection. Any sewage manholes identified will not have any fill material placed on it, and access to the manholes will be maintained.<br>Pre- and post-works visual inspections shall be carried out for any works in areas that have identified sewage infrastructure, to ensure the integrity of the infrastructure is not compromised. | During Construction |
| **Water quality objectives** | No exceedances of the water quality objectives as noted below. Discharges of water from the site shall not be in contravention of the *Environmental Protection Act 1994* and the *Environmental Protection (Water) Policy 2009*.<br>No degradation of the water quality within the receiving watercourses can be attributed to construction activities.<br>No visible contaminants emanating from the construction site to the watercourses.<br>No complaints received regarding water quality.<br>No non-conformances raised during site audits regarding pollutants within or adjacent the site. | |

| | |
|---|---|
| **Performance Indicators** | Any water to be discharged from site will meet the objectives as specified below:<br>Turbidity – no visual evidence of sediment accumulating at point of discharge.<br>No visible waste or litter.<br>No visible trace of hydrocarbons, tannins or paint.<br>Water released from temporary holding areas must also be analysed for turbidity, pH, dissolved oxygen and electrical conductivity to ensure the water quality of the receiving environment is not impacted as a result of construction activities.<br>Water quality discharge criteria are outlined below:<br>Dissolved oxygen - >5 mg/L.<br>pH – 6.5 – 8.5 (general).<br>Total suspended solids - < 50 mg/L (no discharge to occur from site until a correlation of at least 5 samples between total suspended solids and turbidity has been submitted to Council for acceptance).<br>Hydrocarbons – no visible trace.<br>Waste – no waste or litter.<br>Where the project works are in close proximity or adjacent to a waterway, the following waterway investigation criteria shall apply:<br>Dissolved oxygen – no more than 10% change from upstream to downstream.<br>pH – no more than 1 pH unit change from upstream to downstream.<br>Suspended solids/turbidity – no more than 10% increase from upstream to downstream.<br>Electrical conductivity – no more than 20% change from upstream to downstream. |
| **Monitoring** | Water quality monitoring within the locations shown within this Plan will be undertaken where specified in the applicable section above. The minimum requirements to be included in the monitoring plan and program are provided below:<br>Event – within 24 hours of a rainfall event exceeding 15mm in a 24 hour period and following any off-site discharges into the adjacent watercourses.<br>Water quality monitoring methodology is to comply with Department of Environment and Science (DES – previously known as DEHP) Monitoring and Sampling Manual 2009. Samples are to be collected on the same day of the discharge/rainfall event or within one hour of being onsite if the rain event occurs on the weekend or public holiday.<br>All field water quality testing shall be undertaken using fully calibrated equipment and all laboratory analysis are to be undertaken at a National Association of Testing Authorities (NATA) accredited laboratory. Samples are to be submitted appropriately (i.e. under chain of custody, documentation, within holding times and appropriate preservation).<br>Water quality monitoring shall also be undertaken when directed by the Principal or Principal's representative or regulatory authorities to investigate a water quality-related incident or complaint.<br>A visual inspection of water quality and evidence of sediment plumes within the downslope watercourses will be undertaken on a daily basis.<br>BOM rainfall will be monitored during rainfall to provide an indication of management actions that will be required following rainfall events, including water quality event sampling. |
| **Reporting** | All monitoring undertaken will be recorded on the water quality monitoring form and any non-conformances are to be recorded (refer Section 15)<br>All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident Reporting and Investigation procedure.<br>Any complaints received are to be recorded in the project site office complaints register, and reported to RCC in accordance with the incident reporting procedure provided in Section 13 and recorded in the project site office complaints register.<br>Monitoring results shall be recorded on a monitoring spreadsheet and evaluated by the Contractor against the water quality discharge criteria to verify compliance. For each monitoring result that does not conform with the water quality discharge criteria (discharge or waterway) the Contractor shall:<br>Report the non-conformance to Council and the Administering Authority in accordance with Section 14 of this report, including the size of the rainfall event ARI, duration of the rainfall event (where applicable), the water quality parameter that exceeded the criteria and level that was recorded from within the Site and downstream of the Site.<br>Undertake an investigation to determine the cause of the nonconformance.<br>Develop and implement corrective actions such as improved work procedures or Management Measures to improve water quality and prevent re-occurrence of Monitoring nonconformances. |
| **Corrective Actions** | The cause of the impact to water quality will be investigated and corrective action agreed between the contractor and Council.<br>In the event of a non-conformance with the specified water quality performance criteria, the source of pollution will be identified and controlled/isolated, rectification procedures will be initiated and additional controls implemented to prevent recurrence. Corrective actions may include but not be limited to additional sediment erosion controls measures such as additional upstream controls.<br>Any damage to sewage infrastructure will be reported to REDLAND WATER immediately, and direction sought from REDLAND WATER to control and rectify the situation. |
| **Responsibilities** | Management of water quality is the responsibility of the Site Supervisor |

## 9.3 Cultural Heritage

All works to comply with Council's policies and procedures with regard to Cultural Heritage and in accordance with the Aboriginal and Torres Strait Island Cultural Heritage Database and Register.

Construction works in areas of currently undisturbed bushland will be subject to a cultural heritage assessment to determine the appropriate category and relevant protection measures (if required). Should works uncover cultural heritage aspects, management and notification processes are to be adopted as detailed in Table 14.

Table 14 Cultural Heritage

| Aspect | Action | |
|---|---|---|
| **Background** | **Aboriginal cultural heritage**<br>All significant Aboriginal cultural heritage in Queensland is protected under the Aboriginal Cultural Heritage Act 2003, and penalty provisions apply for any unauthorised harm. Under the legislation a person carrying out an activity must take all reasonable and practical measures to ensure the activity does not harm Aboriginal cultural heritage.<br>RCC will conduct a search of the DATSIP Cultural Heritage register for the project area. The search results will be used to identify if any items or locations of Aboriginal cultural heritage are present within the proposed area of works.<br>The proposed works are considered unlikely to encounter any item/artefact of indigenous cultural heritage significance.<br>**European heritage**<br>The project area is listed on state heritage registers (details provided above). | |
| **Applicability to Project** | The long-term usage of the site results in the possibility that cultural heritage aspects may be encountered during site works. However, the scope of works means that the probability is low. | |
| **Objective** | To prevent harm to items of Aboriginal and European cultural heritage value. | |
| **Actions** | **Requirements** | **Timing** |
| | + All staff will be informed of the significance of cultural heritage during their induction and receive training regarding their cultural heritage responsibility and any requirements for known heritage items/locations/structures, no-go zones etc. | Prior to commencement of construction |
| | + Exclusion fencing will be installed where required to minimise works impacting on cultural heritage items.<br>+ Works will comply with the 'Aboriginal Cultural Heritage Act 2003 - Duty of Care Guidelines' under the *Aboriginal Cultural Heritage Act 2003* during works.<br>+ If items of European cultural heritage or archaeological significance are uncovered during the construction works, works must cease immediately, and Council notified immediately. Where any items require notification to Department of Environment and Science (DES), this will be managed by the Administrator.<br>+ If items/artefacts/places of indigenous cultural heritage significance are encountered, works must cease immediately and the (State Government) Indigenous Cultural Heritage Unit must be contacted on 1300 378 401. Council must be notified of all finds immediately.<br>+ Where agreement cannot be reached with the Aboriginal Party for the area, the contractor continues to have a duty of care obligation under section 23 of the *Act* and will take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage including, where necessary, through the development of a Cultural Heritage Management Plan under part 7 of the Act.<br>+ In the unlikely event that suspected archaeological artefacts are uncovered during the works, provisions outlined in the *Queensland Heritage Act 1992* will be followed and the discovery will require notification to DES under section 89 of the *Act*. Works will cease immediately and the discovery will be reported to the nominated Council officer for European cultural heritage as per Section 6 above.<br>+ Rock and other material used on site will be sourced to match and blend with existing material and cultural heritage values of site. | During Construction |
| **Performance Indicators** | + No visual evidence of damage to cultural heritage items. | |
| **Monitoring** | + Excavation areas will be inspected for potential archaeological artefacts | |

| | |
|---|---|
| **Reporting** | + All monitoring undertaken will be recorded and provided to RCC, and any non-conformances are to be recorded on the principal contractor Hazard Report Form (Appendix A6).<br>+ Any items of cultural heritage encountered during the works must be reported to the Aboriginal Party and/or appropriate State government agencies (refer to contact details in Section 6. Also, the discovery of cultural heritage artefacts or archaeological artefacts must be reported/notified to Council through a formalised reporting process. |
| **Corrective Actions** | + When an unanticipated discovery is made, personnel will immediately stop work in the vicinity of the discovery.<br>+ Notify the Council's Superintendent/ environmental representative.<br>+ For Aboriginal heritage items, the RCC Superintendent/Environmental representative will notify the Aboriginal Parties.<br>+ For European cultural heritage or archaeological artefacts, RCC's Superintendent/Environmental representative will notify DES's Heritage Unit.<br>+ The significance of Aboriginal and European cultural heritage will be emphasised to staff during toolbox meetings or daily prestart meetings. |
| **Responsibilities** | + All staff have a duty of care to protect Aboriginal and European heritage. |

## 9.4 Noise and Vibration

Noise sensitive receptors that may be impacted by site works at the precinct include:

- Residents in close proximity to site works (closest residential properties >500 m from nearest site works);
- Wildlife inhabiting the park.

Site works that may contribute noise that impacts on these receptors includes:

- The use of mechanical and pneumatic equipment;
- General site construction noise (hammering, drilling, shovelling, etc.);
- The use of excavation and drilling equipment;
- Vehicular use (including bobcat, 2T tipper, 4WD; ATV);
- Compressors;
- Other activities typical of construction of this nature.

Vehicle use will involve the carting of construction materials and equipment to and from the work sites, as well as the general mobilisation of site operational staff throughout the construction envelope.

The main noise sensitive receptors that will likely be impacted by site works are neighbours and wildlife. As such, management actions have been designed to reduce the impact of noise on these receptors.

Hazards related to vibration works will be associated with path compaction works. However, the risk from vibration work should be localised.

Table 15 Noise and Vibration

<table>
<tr><th>Aspect</th><th>Action</th></tr>
<tr><td>Background</td><td>The principal consultant nominated work hours for the Precinct will be 6:00am to 5:00pm Monday to Saturday unless otherwise agreed in writing, with no works occurring on Sundays or public holidays.<br>Noise and vibration sensitive receptors in the vicinity of the project area, as well as construction activities and equipment with the potential to generate noise and vibration and impact on the sensitive receptors, are outlined above.<br>Default noise standards for regulated devices as detailed in S440 of the Environmental Protection Act (1994) are as follows:
<table>
<tr><th>Activity/Device</th><th>Noise Standard / Hours of Operation</th></tr>
<tr><td>Regulated devices, including:<br>(a) A compressor;<br>(b) A ducted vacuuming system;<br>(c) A generator;<br>(d) A grass-cutter;<br>(e) An impacting tool;<br>(f) A leaf-blower;<br>(g) A mulcher;<br>(h) An oxyacetylene burner;<br>(i) An electrical, mechanical or pneumatic power tool (e.g. chainsaw, drill, electric grinder or sander, electric welder, nail gun).</td><td>Mon-Sat 6:00am to 7:00pm<br>Sun & Public Hol: Nil</td></tr>
<tr><td>Pumps (including electrical, mechanical or pneumatic pump).</td><td>(a) From 7a.m. to 7p.m, if it makes a noise of more than 5dB(A) above the background level; or<br>(b) From 7p.m. to 10p.m, if it makes a noise of more than 3dB(A) above the background level; or</td></tr>
</table></td></tr>
<tr><td>Applicability to Project</td><td>The use of mechanical equipment will be the main noise contributor during site works. Vibration hazards should be relatively minimal.</td></tr>
<tr><td>Objective</td><td>To minimise any disturbance to surrounding land users resulting from noise or vibration associated with the works.</td></tr>
<tr><td>Actions</td><td>Requirements</td><td>Timing</td></tr>
<tr><td></td><td>+ Ensure notification to nearby residents has been undertaken at least two (2) weeks prior to the commencement of works. The property owners will be notified of the works including the scale, extent and duration of the works.</td><td>Prior to commencement of construction</td></tr>
</table>

| | | |
|---|---|---|
| | + Plant and equipment used on site will be used only during appropriate operating hours.<br>+ Plant and equipment used on site will be properly maintained and inspected for defects on a daily basis.<br>+ An assessment of likely haulage routes will be undertaken and haulage routes will be selected which minimise noise impacts on residents.<br>+ No works will occur on Sundays or public holidays.<br>+ Regulated devices will only be used between 7am and 7pm Monday to Saturday (Section 440S of the *EP Act*) unless the noise is not audible by a sensitive receptor.<br>+ Signage and notification will be installed so that park patrons are aware of the site activities.<br>+ No pumping is required as part of the project.<br>+ Exposed sewage reticulation pipelines will be stabilised with fill material ramps across them prior to site works and vehicular traffic being carried out on the track to reduce the hazard of pipeline breakage occurring.<br>+ Site works adjacent to the Mount Coot-tha Lookout and Restaurant will not be carried out during weekends or school holidays.<br>+ Where works outside the World Trail nominated hours and/or those specified in the *EP Act* are required, permission will be sought from Council to undertake these works. The following information will be provided to Council to allow a risk assessment in accordance with Council's EP029 – Out of hours Works Procedure to be undertaken:<br>o Proposed activities and equipment;<br>o Reasoning for out of hours works;<br>o Proposed mitigation measures.<br>+ Mitigation measures which will be implemented as a minimum include:<br>o Check to ensure machinery is working properly and noise mitigation devices are fitted and installed correctly;<br>o Fit construction equipment with mufflers/silencing equipment where possible;<br>o Ensure equipment is well maintained and is in correct working order;<br>o Where possible use smaller equipment that may create less noise;<br>o Switch off any equipment during construction work when not in use for extended periods of time;<br>o Provide acoustic screening/enclosures for plant and equipment;<br>o Establish temporary noise barriers between construction worksites and sensitive activities where applicable;<br>o Minimise the use of horn signals and maintaining the horn at a low volume. | During Construction |
| **Performance Indicators** | + No validated complaints received regarding noise and vibration.<br>+ Works are not being undertaken outside the above listed timeframes.<br>+ Plant is operating correctly and not generating a level of noise greater than that specified by the manufacturer.<br>+ No damage to the sewage reticulation network occurs. | |
| **Monitoring** | + Works are being conducted within specified timeframes.<br>+ Monitoring of plant to ensure it is well maintained and in correct working order.<br>+ Record all site inspections in a Site Inspection Checklist.<br>+ Noise monitoring will only be undertaken in the event of a request from the regulatory agency (Council's Compliance and Regulatory Services).<br>+ Visual inspection of exposed sewage reticulation infrastructure to ensure no damage or leakage is detected. | |
| **Reporting** | + All monitoring undertaken will be recorded and provided to RCC, and any non-conformances are to be recorded on the principal consultant Hazard Report Form (Appendix A6).<br>+ All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure.<br>+ Any complaints received are to be recorded on the site project office complaints register, and reported to Council's representative. | |

| | |
|---|---|
| **Corrective Actions** | + Ensure the above actions are being implemented.<br>+ Use at-source shielding where possible.<br>+ Repair or replace defective plant.<br>+ Undertake a noise risk assessment, if required.<br>+ Undertake noise monitoring and implement control measures where noise levels exceed the relevant criteria.<br>+ Commission Council plumber to undertake repairs to sewage reticulation network, if damage is observed. |
| **Responsibilities** | + Management of noise and vibration resulting from the works is the responsibility of the site supervisor. |

## 9.5 Air Quality

The nature of works means that the main hazard to air quality is likely to be:

- Dust emissions during excavation works;
- Odour issues related to chemical use;
- Exhaust emissions from project plant.

Sensitive receptors related to air quality are likely to include:

- Residents in close proximity to site works;
- Wildlife inhabiting the land.

Site works that may contribute pollutants that impacts on these receptors includes:

- The use of chainsaws;
- The use of excavation equipment;
- Vehicular use;
- Compressors;
- Material batching areas;
- Construction activities (including bridge construction, rock wall construction, compaction activities).

Air quality issues should be relatively minimal, and localised to the area of works.

**Table 16 Air Quality**

| Aspect | Action | |
|---|---|---|
| **Background** | The proposed works have the potential to impact on sensitive receptors as a result of dust generation during disturbance of soils and the movement of machinery. There is also the potential for particulates to become a nuisance to sensitive receptors from exhaust fumes as a result of construction machinery operating on site.<br>Air quality sensitive receptors in the vicinity of the project area include:<br>+ Residents in close proximity to site works;<br>+ Wildlife inhabiting the park.<br>Construction activities and equipment with the potential to generate dust or diminish air quality and impact on sensitive receptors include:<br>+ The use of chainsaws;<br>+ The use of excavation equipment;<br>+ Vehicular use;<br>+ Compressors;<br>+ Material batching areas;<br>+ Construction activities. | |
| **Applicability to Project** | Air quality issues related to dust and exhaust emissions are the main air quality issues likely to be encountered during the project. | |
| **Objective** | To minimise the impacts on ambient air quality and avoid or mitigate and manage the potential adverse environmental impacts due to construction activities. | |
| **Actions** | **Requirements** | **Timing** |

| | | |
|---|---|---|
| | + Pre-emptive measures to limit dust generation on site will be implemented. Information pertaining to inspections, monitoring and pre-emptive measures will be recorded within daily inspection reports and checklists.<br>+ Mitigation measures that will be implemented as a minimum include:<br>o Ensure machinery is appropriately maintained and in good working order.<br>o Cover bins containing material from the works when not in use.<br>o Orient stockpiles in a direction that reduces exposed surfaces from prevailing winds.<br>o In the event stockpiles are dusty, water stockpiles on a regular basis to maintain moisture content.<br>o Promptly remove and dispose of materials, mud or the like spilled onto the road which may cause a dust nuisance.<br>o Manage odorous excavated soil stockpiles through selective placement or covering to reduce potential odour impacts where required.<br>o Restrict vehicle movements to within designated access paths<br>o Limit works on windy days.<br>o Ensure trucks transporting fine materials are covered and fitted with tight tailgates.<br>o Manage vehicle diesel emissions by avoiding or minimising queuing in streets approaching the worksites or adjacent to other sensitive activities.<br>o Minimise queuing of construction vehicles and idling for excessive periods (e.g. more than five (5) minutes).<br>o Emissions from stationary plant, construction vehicles and equipment powered by diesel motors to be minimised through fitting emission control devices and regular maintenance to manufacturers' specifications.<br>o Shut down construction plant and equipment idling for excessive periods (i.e. longer than five (5) minutes) where possible.<br>o No burning of material is to be undertaken at any time.<br>o Dust suppression will be achieved by watering down bare soil areas, as required during site works. | During Construction |
| **Performance Indicators** | + No visible dust emissions during works.<br>+ No complaints received by members of the public.<br>+ No show cause notices, infringement notices or stop work orders. | |
| **Monitoring** | + Visual observations and monitoring on a daily basis of:<br>o Dust and emission plumes on-site associated with the construction works and vehicles transporting materials and associated visibility observations.<br>o Water sprayed on site for the purpose of dust mitigation purposes.<br>o Stockpile locations, access to site and any other potential dust generating activities.<br>o Monitoring of meteorological observations.<br>+ A complaints register will be maintained for the duration of the works<br>+ Formal air quality monitoring is to be undertaken upon request by the Council or Council's Compliance and Regulatory Services (regulator). | |
| **Reporting** | + All monitoring undertaken will be recorded and provided to RCC, and any non-conformances are to be recorded on the principal consultant Hazard Report Form (Appendix A6).<br>+ All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure.<br>+ Any complaints received are to be recorded on the site project office complaints register, and reported to Council's representative. | |
| **Corrective Actions** | + In the event offensive odours are generated, a gas suppressant or deodoriser is to be used.<br>+ If complaints about dust or air quality are received, the offending construction activity should immediately cease until the issue is resolved satisfactorily.<br>+ Corrective actions may include ceasing works temporarily during high wind conditions, watering, mechanical sweeping, establishing additional temporary ground covers or other ESC measures. | |
| **Responsibilities** | + Air quality management is the responsibility of the site supervisor. | |

## 9.6 Contaminated Sites

A search of the Environment Management Register (EMR) and Contaminated Land Register (CLR) was undertaken for Lot 420 S312160 by RCC.

An existing shed structure remains on site and is to be demolished during construction. It is unclear if there are any contaminants in the structure.

The site is a combination of remnant vegetation to the south of the site and grazed farmland to the north. It is unlikely that any contaminated sites will be encountered during construction works.

The proposed works will occur on land between 23 and 69 m AHD, and are in an area that is not mapped as having known Acid Sulphate Soils. It is considered unlikely that the works will encounter Acid Sulphate Soils.

Environmental management actions have been developed based on the slim possibility that some form of contamination is encountered during works at the site.

**Table 17 Contaminated sites**

| Aspect | Action | |
|---|---|---|
| **Background** | Where earthworks are required there is a potential to expose unexpected forms of contamination within the surface and subsurface. In such instances, action is required to mitigate potential contaminated soil/material encountered during excavation or construction activities.<br>If potentially contaminated material is encountered this procedure is to be followed. Works in the vicinity will be stopped and/or modified and will not recommence until the material has been analysed and management measures developed. | |
| **Applicability to Project** | There are no known sources of contamination at the site. | |
| **Objective** | + Minimise any impacts on the environment caused by contaminated land.<br>+ Minimise environmental harm caused by construction activities. | |
| **Actions** | **Requirements** | **Timing** |
| | + Personnel involved in the construction works to be inducted on the identification of potential unexpected finds and asbestos awareness.<br>+ The induction will be undertaken at the time of general site induction and be refreshed at toolbox meetings periodically. | Prior to commencement of construction |

+ Should unexpected actual or suspected contamination be encountered during the construction works, the following procedure applies:
    - Stop work in the potentially hazardous area as soon as it is safe to do so and move away from the area, or to the upwind side of the area.
    - Assess the potential immediate risk to human health posed by the unexpected find and assess if evacuation or emergency services need to be contacted.
    - Delineate an exclusion zone around the affected area using appropriate barriers and/or fencing and signage. Additional control measures may be required for odours and/or volatile compounds: odour suppression and no smoking signage.
    - Notify Council (either the project manager, relevant contact per details in section 6) and request a site visit to undertake an assessment of the unexpected find. Council will notify Contaminated Land Services.
    - Contaminated Land Services will assess the unexpected find and provide advice regarding:
        - Preliminary assessment of the contamination and the need for immediate management controls.
        - What further assessment and/or remediation works are required and how such works are to be undertaken in accordance with contaminated site regulations and guidelines.
        - Preparation of clean up advice or remediation plan (if necessary).
        - Notification to DES (as required).
    - Works are not to recommence in the affected area until appropriate advice has been obtained from Contaminated Land Services and the Contaminated Land Services has provided relevant information to the principal contractor, particularly for considering changes to the Site Safety Plan.
    - If it is deemed safe to do so by Council, works may resume in the affected area.
+ Based on previous projects and site history, potentially unexpected finds which could occur are summarised below.

| Potential Unexpected Find | Observed Characteristic | Key Contaminant of Concern |
|---|---|---|
| Buried dry waste materials | May include a variety of waste materials including wood, plastic, metal, fragments, building rubble (e.g. concrete, brick, asphalt, forms of asbestos, etc). | Forms of asbestos, heavy metals, petroleum hydrocarbons, polycyclic aromatic hydrocarbons. |
| Buried putrescible wastes | Putrescible waste materials typically comprise decomposed organic waste materials intermixed within the fill materials onsite, with an associated odour. Such materials should not be confused with decomposed plant matter found within the natural alluvial soils. | Nutrients, gaseous emissions (methane, carbon dioxide, hydrogen sulphide) |
| Structures in conduits containing deleterious materials | Could be identified as follows:<br>- Buried pipes<br>- Presence of small concrete footings surrounded by odorous or visually impacted soils and/or groundwater<br>- Sand fill with visual/olfactory indications of contamination | Hydrocarbons, lead |
| Hydrocarbon compounds | May be identified by a hydrocarbon odour which may vary in strength from | Hydrocarbons, lead |

During Construction

| | | | |
|---|---|---|---|
| | weak (just detectable) to very strong (easily detectable at a distance from the source).<br>The odour may or may not be accompanied by specific areas of dark staining or larger discolouration of soil strata from a previously identified 'natural colour' e.g. staining of orange and brown clay to dark grey and green.<br>May also be visible as a distinct coloured sheen on water within an excavation. | |
| Other unusual odours | Any of the following odours: solvent, acetone, alcohol, sulphur, rotten egg, ammonia, caustic. | Various |

- Where soil disposal is required off-site, a disposal permit shall be obtained by the principal contractor.
- The principal contractor must ensure best practice methodology is adopted during construction and minimise environmental harm.
- Adapt the construction methodology to manage environmental risks including but not limited to the following:
  - For any works undertaken within a 'active' stormwater drain, divert existing surface water flow away from the area i.e. blocking the drain up and down gradient of the disturbance area and bypass water around the works area.
  - Control or reduce water flows upgradient of the works to reduce water ingress into excavations.
  - Reinstatement methods to be implemented i.e. reduce surface exposures and minimise flows into pits, drains, and excavations following construction.
  - Control and documentation (e.g. volume, waste tracking, disposal location, etc) of excavation, supervision and disposal of contaminated waste and soil.
- The contaminated material must be transported by a licensed transporter to a licensed facility for correct disposal.
- Ensure appropriate erosion and sediment control measures are installed in accordance with the ESC plan.

| | |
|---|---|
| **Performance Indicators** | No impacts on the environment caused by inappropriate management of contaminated material. |
| **Monitoring** | Ongoing visual monitoring during excavation works.<br>All excess spoil to be taken offsite by a licensed waste transporter, received by a licensed facility, stockpiled and tested prior to disposal. |
| **Reporting** | Any suspected contamination of land must be reported immediately to Council's Representative.<br>Soil tracking records for the transport and disposal of contaminated soil will be entered into a soil tracking register.<br>All monitoring undertaken will be recorded and provided to RCC, and any non-conformances are to be recorded on the principal contractor Hazard Report Form.<br>All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure.<br>Any complaints received are to be recorded on the site project office complaints register, and reported to Council's representative. |
| **Corrective Actions** | If contaminated land is suspected to have been exposed, and released into the waterways or other stormwater drainage lines works are to cease immediately and advice sought from Council's representative.<br>If water quality fails to meet the assessment criteria identified, discharge of water must discontinue and alternative options are to be considered.<br>Communicate any changes in methodology with all personnel. |
| **Responsibilities** | Management of contaminated land is the responsibility of the site supervisor. |

## 9.7 Fauna

There is a potential for fauna species to be impacted by works at the site, with over half the site being remnant vegetation. A Pre-Works Fauna Habitat Assessment will be conducted for the project prior to works commencing. **Table 18** outlines the specific actions to be adopted to ensure that any impacts to fauna and fauna habitat onsite is avoided. Any additional measures required as identified in the Fauna Habitat Assessment will be incorporated into this CEMP.

Queensland Government mapping of the Precinct site and surrounding environs indicates that the site is classified as:

+ Containing habitat for a range of threatened fauna species;
+ State significant essential habitat;
+ Core koala habitat area.

Refer to Figure 5,Figure 6 and Figure 7 for mapping.




**Figure 5 Matters of State Environmental Significance - Vegetation and Essential Habitat (Source: QLD Globe)**

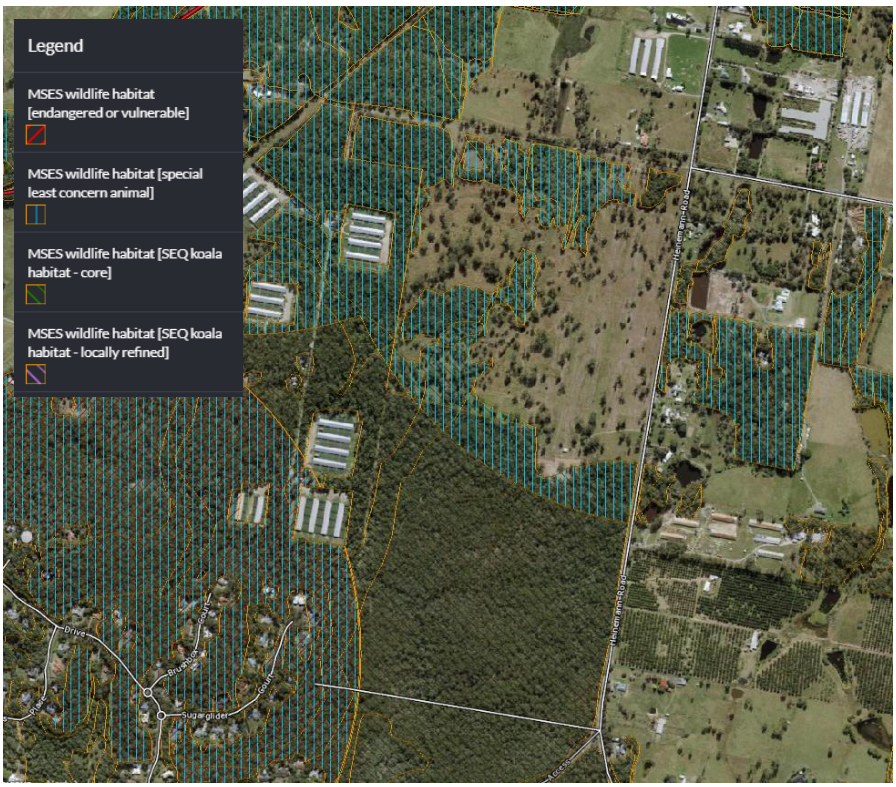



Figure 6 MSES wildlife habitat areas (Source: QLD Globe)




Figure 7 Koala habitat areas (Source: QLD Globe)

A range of fauna species were encountered on the Site. The Cardno Ecological Assessment Report (EAR) NE30016 (2021) prepared for the site provides further details in this regard. Koala presence on site was confirmed via camera trap footage. This species is of particular interest as the Koala is listed as vulnerable under the NC Act EPBC Act.

Because of the risk factors identified, the principal contractor shall engage suitably qualified and experienced persons (i.e. fauna spotter/catcher, koala spotter catcher) to assess key habitat areas and site and task specific measures to manage the fauna risks at the site.

All works shall comply with the most current version of the project Wildlife Habitat Management Plan and Species Management Plans.

Table 18 Fauna

| Aspect | Action | |
|---|---|---|
| **Background** | Disturbance or injury to fauna or fauna habitat during construction activities can adversely impact upon the viability and health of local populations.<br>Refer project Ecological Assessment Report<br>It is known that the existing bushland provides habitat for a range of native fauna as follows:<br>+ Hollows and trees<br>+ Vegetation providing habitat and cover for reptile, avian and mammal species.<br>+ The riparian crossing areas are providing habitat for amphibian species particularly during periods of elevated water flow and ponding. | |
| **Applicability to Project** | All works shall comply with the most current version of the project Wildlife Habitat Management Plan and Species Management Plans. | |
| **Objective** | To manage construction activities to ensure there are no negative impacts on fauna. | |
| **Actions** | **Requirements** | **Timing** |
| | + A wildlife spotter/catcher with a DES issued Rehabilitation Permit will be engaged to conduct pre-clearance inspections.<br>+ Staff will be informed of the fauna species that occur within and adjacent to the project area and the appropriate management strategies for their protection as a result of the tree removals. | Prior to commencement of construction |
| | + A Wildlife spotter/catcher with a DES issued Rehabilitation Permit will be engaged to conduct pre-clearance inspections.<br>+ A suitably qualified Wildlife spotter/catcher is to inspect the proposed area of works prior to any clearing being undertaken and provide fauna management during clearing.<br>+ Staff will be informed of the fauna species that occur within and adjacent to the project area and the appropriate management strategies for their protection as a result of any demolition or soil disturbance activities onsite.<br>+ A Wildlife spotter/catcher will be on site during all involving high risk activities or known animal habitat areas.<br>+ If during site works any fauna species are identified and require relocation, an accredited Wildlife spotter/catcher in possession of a DES issued Rehabilitation Permit will manage these fauna relocations.<br>+ If any fauna are injured, stop works will be issued immediately and the RSPCA or local veterinary clinic (refer to contact details in Section 6) contacted. The principal consultant will be responsible for all costs associated with the treatment and/or euthanasia of the animal.<br>+ Any fauna that is injured or killed during construction will be promptly reported to Council (as per Section 6) as an environmental incident.<br>+ Native fauna will not be fed by employees.<br>+ If any EVNT listed fauna species are found during construction, cease work and inform DES, Council and the site Wildlife Spotter Catcher.<br>+ Results of relocations will be recorded and reported to Council/DES using the Relocation Record Form.<br>+ Where pits or voids are created, water retention and/or subsequent breeding opportunities for Cane toads will be prevented. This will involve the covering of pits, regular monitoring and/or exclusion fencing.<br>+ Any works associated with the clearing of debris to improve drainage will be restricted to debris within the culvert. Debris located in drainage lines will be maintained where possible to provide habitat.<br>+ Should a fauna breeding place of a least concern or EVNT fauna species require removal, a low or high risk species management plan from DES will be required.<br>+ In the event that a koala is encountered within works areas, works will cease to allow the koala to move on of its own accord. | During Construction |

| | |
|---|---|
| **Performance Indicators** | + No reports of injury or death to any fauna.<br>+ Area of disturbance of vegetation minimised and existing ecosystems adjacent to works protected.<br>+ Disturbed areas stabilised or revegetated. |
| **Monitoring** | + Visual inspections to be carried out prior to works commencing for the day to ensure fauna are not present within the work area.<br>+ Visual monitoring of injured or dead fauna within the project area. |
| **Reporting** | + The Wildlife spotter/catcher will provide a pre and post clearance report, outlining habitat found and all interactions with fauna during work operations.<br>+ All monitoring undertaken will be recorded and provided to Council, and any non-conformances are to be recorded on the principal consultants Hazard Report Form.<br>+ All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure.<br>+ Any complaints received are to be recorded on the site project office complaints register, and reported to Council's representative. |
| **Corrective Actions** | + Communicate fauna protocols to all staff.<br>+ If an incident occurs or a complaint is registered, the following procedure should be followed:<br>o Cease works and report any breaches of the CEMP or other environmental issues to Project Manager/Environmental Manager.<br>o Undertake an investigation to any non-compliance and determine appropriate course of action to remedy impacts.<br>o Transport injured fauna to an appropriate veterinarian or carer as soon as possible. |
| **Responsibilities** | + Management of fauna is the responsibility of the principal consultant site supervisor. |

## 9.8 Vegetation

The Precinct is to be developed in an area that is a combination of grazing land and remnant vegetation. Figure 8 shows the locations of regional ecosystems on the site. Endangered, of concern and not of concern ecosystems are located within the boundary of works. There are also a number of significant trees that will be retained during works.

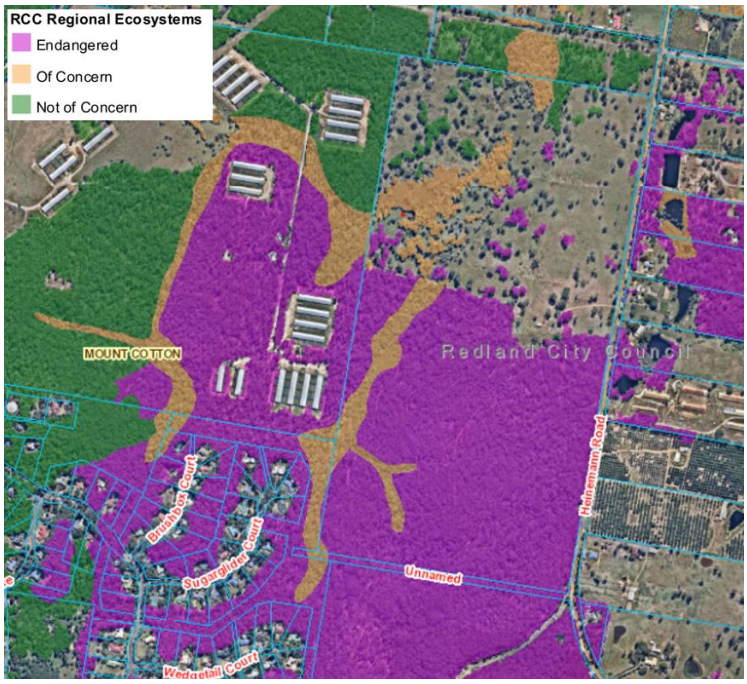



Figure 8 RCC regional ecosystem mapping (Red-e-map)

The site consists of areas that are Matters of State Environmental Significance (MSES). Refer to figures in Section 9.7 for state mapping.

A number of fauna species were identified on site within a number of habitat locations and management of these factors must therefore be incorporated. Vegetation protection and management measures will be identified in the Vegetation Management Plan that will be produced prior to project commencement to ensure that protection measures for notable vegetation are installed prior to project works and that vegetation clearing is conducted to best practice standards. Any works that may impact on protected trees will also require specific management and protection measures implemented in design and construction planning prior to works commencing.

The cycle precinct was designed to preserve as many trees as possible by designing around existing trees, where possible, and using design principles that will cause least possible impacts onto tree protection zones.



Figure 9 Typical vegetation in site of works

All works during the project will be designed with management practices identified to minimise the impact of the works on native vegetation and habitat, including a pre-construction project flora assessment, the

engagement of a fauna spotter/catcher for works involving vegetation clearing, and where possible the retention of removed native shrubs and grass species for subsequent rehabilitation and revegetation works.

Rehabilitation works are included as part of the project scope, particularly within the water corridor.

All works to be in accordance with the most current version of the project Vegetation Management Plan and Rehabilitation Management Plan and all applicable conditions of approval related to Council, Queensland Government and Australian Government approvals.

Table 19 outlines how vegetation will be managed during the conduct of the project.

**Table 19 Vegetation**

| Aspect | Action | |
|---|---|---|
| **Background** | There is a significant amount of vegetation clearing, works must therefore comply with the contents of the Vegetation Management Plan developed for the project. There are also trees in close proximity to the edge of works which will require protection to reduce impacts. | |
| **Applicability to Project** | Site works will involve the clearing of vegetation including some areas of MSES, MLES and MNES. Where trees are to remain works may cause impacts to remaining trees. | |
| **Objective** | To manage construction activities to ensure there are no negative impacts on vegetation. | |
| **Actions** | **Requirements** | **Timing** |
| | + A pre-construction project flora assessment will be carried out prior to the commencement of any project works.<br>+ The conditions of the project Vegetation Management Plan will be complied with throughout the project duration.<br>+ The contractor will supply the standard work method statements to Council prior to construction for review by Council and the project arborist.<br>+ Staff will be informed of the vegetation species that occur within and adjacent to the project area and the appropriate management strategies for their protection as a result of the tree removals. Native grass species present at the site will also be communicated to site personnel so that impact to these can be minimised.<br>+ Trees located within proximity of the works that are to be retained must be protected using vegetation protection measures (i.e. barrier fencing, tree mesh wraps and other measures as required). Vegetation protection barriers and other measures must be installed in accordance with AS 4970 - Protection of trees on development sites.<br>+ The project arborist will have a minimum qualification equivalent to Australian Qualifications Framework (AQF) Level 5 Diploma in Arboriculture with a minimum of 5 years of experience and be acceptable to Council's Representative.<br>+ A Wildlife spotter/catcher with wild life rehabilitation permits will be engaged to conduct pre-clearance inspections and provide a Fauna Habitat Assessment. | Prior to commencement of construction |

| | | |
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| | + Vegetation removal should be limited to that necessary to undertake the works.<br>+ Where possible, vegetation required to be removed for construction purposes will be retained and reused for site rehabilitation purposes.<br>+ No construction activities, including vegetation clearing or earthworks, will occur outside of the approved limits of disturbance.<br>+ Any pruning work must be carried out in accordance with Australian Standards 4373-2007 – Pruning of Amenity Trees.<br>+ Stockpiling of materials and parking of vehicles/machinery within the tree protection zones of trees (estimated by the outer extent of the dripline) is prohibited.<br>+ If it is deemed necessary to remove any additional vegetation not marked for removal, consultation must occur with Council's Environmental Representative before any clearing occurs.<br>+ If trees or other significant flora is damaged (including roots) that has not been approved for removal, Council is to be notified as soon as possible. A report prepared by a qualified arborist with a minimum of AQF Level 5 qualification must be obtained and provided to Council within 5 business days of the Contractor becoming aware of the damage (Refer to contact details in Section 6). The Contractor will be required to commence the required remediation as outlined in the report as soon as practicable unless otherwise agreed to with Council.<br>+ Tree protection measure shall be monitored weekly by the site supervisor.<br>+ Where required as part of conditions of approval, a project arborist will be employed to supervise all excavation methods occurring within the TPZ of trees<br>+ Damaged tree roots must be cut back by the Project Arborist or suitable qualified arborist (Australian Qualifications Frameworks – Level 5).<br>+ Where tree roots do require pruning then the cut end of that root should be treated with Steriprune solution to prevent fungal infection.<br>+ Soil erosion issues that may impact on vegetation will be mitigated by the design and installation of suitable mitigation measures.<br>+ Weeds will be managed in accordance with the Rehabilitation Management Plan<br>+ All mulch generated as a result of tree clearing remains Council's Asset. Once clearing has been completed, Council will be contacted to determine the best location for disposal of mulch.<br>+ Rehabilitation works will include the incorporation of design and management processes to ensure site hydrology, erosion protection, vegetation replanting and woody habitat and mulch retention practices are implemented in accordance with best practice rehabilitation standards. | During Construction |
| | + Remove all tree protection fencing at the completion of works. | Post construction |
| **Performance Indicators** | + Compliance with relevant planning and environmental approvals for any works.<br>+ Vegetation clearing is limited to the approved limits of disturbance.<br>+ No damage to surrounding vegetation without approval.<br>+ No unsupervised works within the Tree Protection Zone (TPZ) of any vegetation.<br>+ No damage to the roots, canopy, trunk or bark of trees to be retained.<br>+ No vehicles parked within the TPZ.<br>+ No stockpiling of material, trenching or parking within the tree protection zone of vegetation to be retained.<br>+ No discharge of construction-related stormwater runoff into areas of trees to be retained. | |
| **Monitoring** | + Daily visual inspections of trees being retained for damage, suitability of tree protection measures and the presence of plant and equipment being stored within the TPZ. | |

| | |
|---|---|
| **Reporting** | + All monitoring undertaken will be recorded and provided to Council, and any non-conformances are to be recorded on the principal consultant's Hazard Report Form.<br>+ All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure.<br>+ Any complaints received are to be recorded on the site project office complaints register, and reported to Council's representative. |
| **Corrective Actions** | + Install additional tree protection devices where required.<br>+ Repair damaged tree protection devices.<br>+ Remove vehicles/machinery from TPZ.<br>+ Communicate tree retention and protection protocols to all staff. |
| **Responsibilities** | + Management of vegetation is the responsibility of the Site Supervisor. |

## 9.9 Weed and pest management

The site is not currently subject to weed and pest management controls as the site is largely unused. However, the principal contractor recognises the requirement to comply with Council's weed and pest management policies.

The site is considered to be matters of both state and local significance, as marked on the overlay mapping. There is a number of weed species identified on site in manageable densities.

The main biosecurity hazard for the project relating to weed and pest management is the transport of weed and pest species to or from the site. To manage this risk, environment management practices have been developed for the management of inspection processes and material importing and stockpile controls.

Depot and materials storage points will also act as inspection stations for vehicles and machinery entering the site and will function as Biosecurity Management Zones. Appropriate environmental management actions will be implemented at the site to manage environmental hazards.

Rehabilitation works included within the project scope pose a hazard for weed establishment if not adequately managed. For this reason, adequate weed management practices must be implemented to reduce the likelihood of weed establishment. The Regeneration and Rehabilitation Management Plan had been prepared in conjunction to the report.

The restricted invasive plants identified on site are listed below:

+ Asparagus aethiopicus (Asparagus fern);
+ Cinnamomum camphora (Camphor laurel);
+ Eichhornia crassipes (Water hyacinth);
+ Lantana camara (Lantana);
+ Lantana montevidensis (Creeping lantana);
+ Senecio madagascariensis (Fireweed);
+ Anredera cordifolia (Madeira vine);
+ Bryophyllum delagoense (Mother-of-millions);
+ Sporobolus pyramidalis (Giant rat's tail grass);
+ Sphagneticola trilobata (Singapore daisy); and
+ Tecoma stans (Yellow bells).

As part of works, rehabilitation of the water corridor will be conducted in accordance with the project Rehabilitation Management Plan.

The site is located within a Fire and Biosecurity Zone 2. As such, the principal contractor will comply with RCC's policies related to fire ant management.




Figure 10 Fire Ant Biosecurity zone overlay (Qld Globe)

Table 11 Weed and Pest Management

| Aspect | Action | |
|---|---|---|
| **Background** | Weeds carried on vehicles, plant, machinery and construction equipment may be introduced and subsequently colonise disturbed ground leading to an increase risk of competition with regenerating native plants.<br>Any weed or pest species identified on site that are detailed within the Biosecurity Act 2014 and/or Council's Biosecurity Plan for the Brisbane Local Government Area (2018) will require removal as part of the principal contractor's general biosecurity obligation to take all reasonable and practical measures to prevent or minimise a biosecurity risk.<br>Pest species can adversely impact Queensland Primary Industries, natural ecosystems, human and native animal health.<br>Based on a review of the Fire Ant Biosecurity Zones map (dated 1 July 2016), the site is located within Fire ant Biosecurity Zone 2.<br>Works may involve activities identified as 'high risk' by Council's EP001 Fire Ant Management Procedure. As such, the proposed works must be undertaken in accordance with Council's EP001 Fire Ant Management Procedure and EP002 Site Inspection for Fire Ants Procedure (see Actions below) and the general biosecurity obligations outlined in the *Biosecurity Act 2014*.<br>Based on a review of the Pest Animal Risk Assessment – Yellow Crazy Ant document, issued by Biosecurity Queensland in February 2012, the area is not known to have yellow crazy ants (not recorded before March 2010). | |
| **Applicability to Project** | All persons have a general biosecurity obligation under the *Biosecurity Act 2014*; therefore, all sections below are applicable to this project. | |
| **Objective** | To manage high risk construction activities with the potential to disturb fire ants and other pests or to increase the spread of weeds. | |
| **Actions** | **Requirements** | **Timing** |

| | | |
|---|---|---|
| | Equipment, including tracks and buckets, should be inspected and cleaned prior to arrival on site to prevent introduction of undesirable weeds and pests.<br>Vehicles and machinery entering from areas contaminated with declared weeds must be washed down in accordance with Queensland Department of Agriculture, Fisheries and Forestry (DAFF) Queensland Checklist for Cleandown Procedures (Queensland Weed Seed Spread Project July 2000).<br>A valid pre-start fire ant inspection will be completed for the site prior to commencing work (including a 10m buffer zone).<br>A site inspection will be undertaken by a suitably qualified person to check for the presence of fire ants prior to commencement of high-risk activities (e.g. excavation).<br>All staff involved in high risk activities will be trained and/or briefed on fire ant procedures.<br>Vehicle washdowns will be performed off-site at appropriate wash-down facility.<br>Any weed or pest species encountered or identified will be managed in accordance with Council and Queensland Government requirements. | Prior to commencement of construction |
| | In order to prevent the introduction or spread of fire ants, as well as general weeds and pests onsite, World Trail will do the following:<br>Check for fire ants before moving soil; or<br>Remove and inspect the top 1 m of any stockpile immediately prior to movement or disturbing the soil through a mechanical process.<br>All incoming restricted items will be visually inspected prior to unloading or as soon after as practicable. All outgoing restricted items will also be visually inspected. Random inspections are to be undertaken by trained personnel until the completion of works.<br>Obtain biosecurity certificates certifying that all imported topsoils and mulches are free of prohibited or restricted biosecurity matters.<br>Plant (trucks, excavators, backhoes etc.) will not be accepted onto a work site unless free of all soil deposits and plant material.<br>If fire ants are suspected, fence off suspected fire ant areas and cease all potentially disturbing works immediately and report to RCC (see Section 6 for contact details). Ensure the remainder of the site is inspected as soon as practical.<br>If fire ant carriers remain within the project site for more than 24 hours, then World Trail will ensure the carrier is:<br>Covered in a way that prevents fire ants from infesting the carrier, and<br>Kept above ground level or at ground level on a fire ant resistant surface, and<br>If kept at ground, an appropriate barrier chemical to create a 30 cm wide chemical perimeter is required around the area.<br>All staff are to comply with all directions issued by the authorised Biosecurity Queensland Inspector.<br>All machinery entering or leaving site will be inspected to ensure it is free from weeds and pests.<br>Road base will be imported to site from a reputable fire-ant free source, with material inspected prior to placement on-site to ensure no biohazards are present within the material.<br>Rehabilitation works will be designed and managed to reduce the potential for weed establishment, and to encourage the establishment and growth of native trees, shrubs and grasses. Rehabilitation work practices will include:<br>The placement of jute matting and mulch;<br>The physical removal of known weed species;<br>The retention and reuse of top-soil material, mulch and native shrubs and grasses wherever possible;<br>The placement of woody habitat within the rehabilitation area, where possible;<br>Ongoing inspection and maintenance of rehabilitation work areas for the duration of the project. | During Construction |
| | Ensure the work site is free from weeds. | Site decommissioning |
| **Performance Indicators** | Fire ants are not introduced to the site during the works.<br>Records of restricted items kept on site.<br>New weeds are not introduced to site, existing weeds do not spread to other areas of site.<br>Rehabilitation works are effective in establishing stabilised, weed free areas, with native shrubs and grasses established and maintained during revegetation works. | |

| | |
|---|---|
| **Monitoring** | Random audits comprising visual inspections by site supervisor or other trained personnel will be undertaken for incoming restricted weeds and pests. The frequency and thoroughness of such inspections should be gauged on the basis of the type and quantity of restricted items being imported to the site.<br>All incoming restricted items will be visually inspected prior to unloading or as soon after as practicable. All outgoing restricted items must also be visually inspected.<br>Continuously monitor the site for fire ants and fire ant nests, including site inspections at least every 28 days.<br>Visual monitoring of introduction or spread of weeds.<br>The Contractor shall manage movement of Biosecurity Matter carriers across biosecurity management zone boundaries. |
| **Reporting** | Any suspected fire ant sightings must be reported immediately (within 24 hours) to Biosecurity Queensland (13 25 23).<br>The Contractor shall maintain records of weed management (including application of herbicide) activities.<br>All incoming restricted items found to contain fire ants will be reported immediately to Council's Special Project Officer – Fire Ants and the DAF Call Centre (see Section 6 for contact details).<br>Records will be kept, for a period of 12 months, of all incoming restricted items, which detail the nature, quantity and source of materials imported to the site. All records must be made available to DAF on request.<br>All monitoring undertaken will be recorded and provided to Council, and any non-conformances are to be recorded on the principal contractor's Hazard Report Form.<br>All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure.<br>Any complaints received are to be recorded on the site project office complaints register, and reported to Council's representative.<br>A written record is to be kept of the steps taken to ensure that all landscaping materials are stored correctly. |
| **Corrective Actions** | If fire ants are suspected, cease works immediately, fence off the area and contact Biosecurity Queensland immediately for further advice. Ensure the remainder of the site is inspected as soon as practical.<br>Where weed spread or encroachment is identified, weeds will be managed in accordance with the requirements of the *Biosecurity Act 2014* and/or any relevant Council Biosecurity Plan. |
| **Responsibilities** | Weed and pest management are the responsibility of the Site Supervisor. |

## 9.10 Waste Management

The principal contractor is committed to undertaking the project sustainability, and to minimise waste production during the project. Where possible, material that can is excavated in the course of project works will be used as bedding material in-situ. Material not able to be used will be disposed of according to the waste and resource management hierarchy:

1. AVOID unnecessary resource consumption;
2. REDUCE waste generation and disposal;
3. RE-USE waste resources without further manufacturing;
4. RECYCLE waste resources to make the same or different products;
5. RECOVER waste resources, including the recovery of energy;
6. TREAT waste before disposal, including reducing the hazardous nature of waste;
7. DISPOSE of waste only if there is no viable alternative.

All waste will be stored in skip waste and recycling bins located in the site compound. There is no vegetation mulching or composting works required for this project.

Potential waste generated is difficult to estimate at this stage as it will be based on the contractor's work methods. Indicative waste types that may be generated include:

- Waste soil material
- Demolition materials (fencing, old shed etc)
- Construction and building materials, packaging, consumables and sundries.

Table 20 Waste Management

| Aspect | Action | |
|---|---|---|
| **Background** | The proposed works have the potential to generate waste during construction including excess spoil, fuels and concrete rubble. In addition, low volumes of general waste is likely to be generated by workers. | |
| **Applicability to Project** | All sections below are applicable to the project. | |
| **Objective** | To minimise use and to adequately store and dispose of all waste generated on site and maximise reuse and recycling of waste produced during construction, including recycling of all oil, grease, solvents or other such materials. | |
| **Actions** | **Requirements** | **Timing** |
| | + All opportunities to reduce resource consumption will be taken following the waste hierarchy of control: avoid, reduce, reuse, recycle, recover and dispose waste material.<br>+ An assessment of opportunities for reduction of waste at the source, reuse and recycling as well as recovery of materials or conversion of waste into useable material will be undertaken. | Prior to commencement of construction |

| | | |
|---|---|---|
| | + The correct quantities of material for the works will be procured to limit waste and excess materials.<br>+ All waste will be stored in a fenced off area, within the site compound.<br>+ Appropriate waste receptacles will be provided at the site compound, including recycling bin/s. All waste containers must be fitted with secure lids at all times to ensure native fauna and/or pest species are not attracted to the site. All waste containers will be labelled to assist with segregation efforts on site.<br>+ All containers used for waste collection will be in good condition with no severe rusting, major dents, leaks and/or apparent structural defects.<br>+ The site will be kept in a clean and tidy state throughout the works and the site will be left in a clean and tidy condition.<br>+ Ensure all waste dockets are obtained from the licensed waste transfer facility.<br>+ Cigarette butts will be disposed of appropriately, to prevent pollution and the occurrence of fire.<br>+ Materials and products with recycled content will be proposed for the works wherever these are cost and performance competitive and they are environmentally preferable to the non-recycled alternative.<br>+ Waste oil will be sent to approved recyclers.<br>+ All trackable waste as defined under schedule 2E of the Environmental Protection Regulation 2008 will be disposed of in accordance with the provisions of part 9 of the Regulation.<br>+ Waste and containers not able to be recycled will be disposed of at a licensed landfill site.<br>+ Materials and products with recycled content will be proposed for the works wherever these are cost and performance competitive.<br>+ There will be no removal of soil as part of this project.<br>+ All mulch generated as a part of the tree removal is Council's asset.<br>+ As such, mulch that is not used on site for landscape or ESC purposes is to be disposed of in consultation with Asset Services (through Council) to a nominated site (within 15 km of the site). | During Construction |
| | + The works site will be left in a clean and tidy state following the completion of works.<br>+ All waste will be removed from site at the completion of works and disposed of appropriately. | Site decommissioning |
| **Performance Indicators** | + Waste is being separated and disposed of into the appropriate receptacle.<br>+ Waste dockets are available from licenced waste transfer facility.<br>+ No contamination of soil, water or air as a result of inappropriate waste management.<br>+ The site is maintained in a clean and tidy state throughout the project activities.<br>+ Continuous improvement of waste avoidance, reduction and recycling throughout the project.<br>+ No validated complaints in relation to waste management practices. | |
| **Monitoring** | + Daily visual inspection of waste collection areas and general site housekeeping.<br>+ Daily visual inspection to ensure that waste is being recycled and disposed of in a manner consistent with the actions above. | |
| **Reporting** | + All monitoring undertaken will be recorded and provided to RCC, and any non-conformances are to be recorded on the principal contractor's Hazard Report Form.<br>+ All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure.<br>+ Any complaints received are to be recorded on the site project office complaints register, and reported to Council's representative.<br>+ Waste generated and disposed of will be recorded in a waste register with the following information as a minimum:<br>o Date removed from site.<br>o Waste type.<br>o Quantity (litres, tonnes or $m^3$).<br>o Origin.<br>o Destination.<br>o Final fate (recycled, reuse, burial, etc.).<br>o Reference number of waste transport certificate if relevant.<br>o Name and details of waste transporter.<br>+ Waste tracking certificates will be held on site at all times for any trackable waste removed from site. | |

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| **Corrective Actions** | + Provide additional waste receptacles if required.<br>+ Provide additional staff training in separation of waste streams and the correct use of waste receptacles.<br>+ Investigate any incidents of inappropriate waste disposal and rectify as required. |
| **Responsibilities** | + Waste management on site is the responsibility of the Site Supervisor. |

## 9.11 Chemicals and Fuel Management

Chemicals and fuel used on-site for project works will largely be related to the equipment used to complete works and the chemicals used in the construction.

Equipment used for on-site works will include:

- Earthworks plant;
- Chainsaws;
- Compactors;
- Generators;
- General construction tools and equipment (drills, saws, sanders, etc.).

All chemicals will be stored in a designated bunded chemical storage compound located at the project site office. Chemicals will be stored according to the storage and handling requirements listed in the relevant safety data sheet and comply with AS 1940 and AS 3833, including minor storages in accordance with Section 2 of the Standards, with incompatible chemicals not stored together.

Spill kits and chemical containment measures will be maintained at the project site compound, as well as in the site vehicles when required.

Table 21 Chemicals and Fuel Management

| Aspect | Action | |
|---|---|---|
| **Background** | + The works are likely to require the storage/handling of some hazardous substances on site. There is the potential to release hazardous and regulated waste into the waterway/channel during the construction. | |
| **Applicability to Project** | + All sections below are applicable to the project. | |
| **Objective** | + To correctly store and manage all hazardous materials on site to minimise environmental harm in the event of a spill. | |
| **Actions** | **Requirements** | **Timing** |
| | + An assessment of all proposed hazardous substances to be used onsite will be undertaken and a plan for adequate storage areas in accordance with the *Australian Standard AS 1940- Storage and handling of flammable and combustible liquids* will be developed.<br>+ An on-site refuelling protocol to manage onsite vehicles and machinery during construction phase including any refuelling activities, will be prepared and kept on site at all times.<br>+ All storage and transport of chemicals will be undertaken in accordance with the relevant Australian standards.<br>+ Current safety data sheets (SDS) will be kept on site wherever hazardous materials are being stored.<br>+ A register of all chemicals and SDS for these chemicals will be held on site. | Prior to commencement of construction |

| | | |
|---|---|---|
| | + Spill kits will be present on site during these works.<br>+ All personnel will be trained in spill response procedures and in the use of spill kits.<br>+ If a spill occurs works will stop immediately and emergency procedures enacted (see section 13).<br>+ All regulated and hazardous waste will be stored in a bunded area as far as practical from the watercourses.<br>+ All mechanical plant and equipment containing potential contaminants will be stored in a bunded, impervious area.<br>+ Temporary fencing will be erected around the bunded area to prevent vehicles damaging the bund.<br>+ The quantity of materials being stored on site will be minimised.<br>+ Machinery will be used and serviced as per manufacturer's instructions.<br>+ Vehicles will not to be washed down on-site.<br>+ Plant shall not undergo maintenance or cleaning where contaminants could be released to any waters.<br>+ Machinery will be refuelled at locations where the risk of environmental harm in the event of a spill is minimised, as specified in the refuelling protocol. Refuelling of machinery shall conform with the following:<br>o Occur away from waterways unless for tracked machinery and contingency plan management measures are available in the immediate area;<br>o Fuelling activity to be supervised at all times; and<br>o Hoses to be fitted with a stop valve at the nozzle end.<br>+ Machinery shall be maintained to minimise the leakage of oil, fuel, hydraulic and other fluids. During the servicing of machinery, the Contractor shall use management measures to capture and contain oils, fuels, hydraulic and other fluids so as to minimise contamination of the servicing area.<br>+ Surface coating treatments will be undertaken in a manner that avoids or minimises release of chemical to the environment and contact with the public. Unless otherwise stated in the contract, no pre-coating of aggregates shall be conducted on Site.<br>+ Port-a-loo facilities will be maintained and used on-site, with the amenity maintained, transported and used on-site in accordance with manufacturers' and suppliers' specifications. | During Construction |
| | + All waste material will be removed from the site before removing any erosion and sediment control measures.<br>+ All hazardous materials will be removed from site and disposed of appropriately. | Site decommissioning |
| **Performance Indicators** | + No visual evidence of any contaminants entering the watercourses.<br>+ All spill related environmental incidents are closed out in a timely manner. | |
| **Monitoring** | + Daily visual inspection of plant and equipment storage areas to ensure the efficacy of the bunds.<br>+ Daily visual monitoring for leakage or exposure of hazardous materials. | |
| **Reporting** | + All monitoring undertaken will be recorded and provided to RCC, and any non-conformances are to be recorded on the principal contractor's Hazard Report Form.<br>+ All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure.<br>+ Any complaints received are to be recorded on the site project office complaints register, and reported to Council's representative. | |
| **Corrective Actions** | + Replacement of depleted spill kits.<br>+ Staff re-trained in the use of spill kits.<br>+ Staff re-trained in the correct handling of materials.<br>+ Staff re-trained to minimise exposure to hazardous materials. | |
| **Responsibilities** | + All staff who are required to use machinery and hazardous chemicals during their work. | |

## 9.12 Bushfire

RCC mapping for the site indicates that works carried out as part of this project will be in areas with a majority of medium potential bushfire intensity and small areas of high potential bushfire intensity. The south of the site, not subject to works has medium to high potential bushfire intensity.

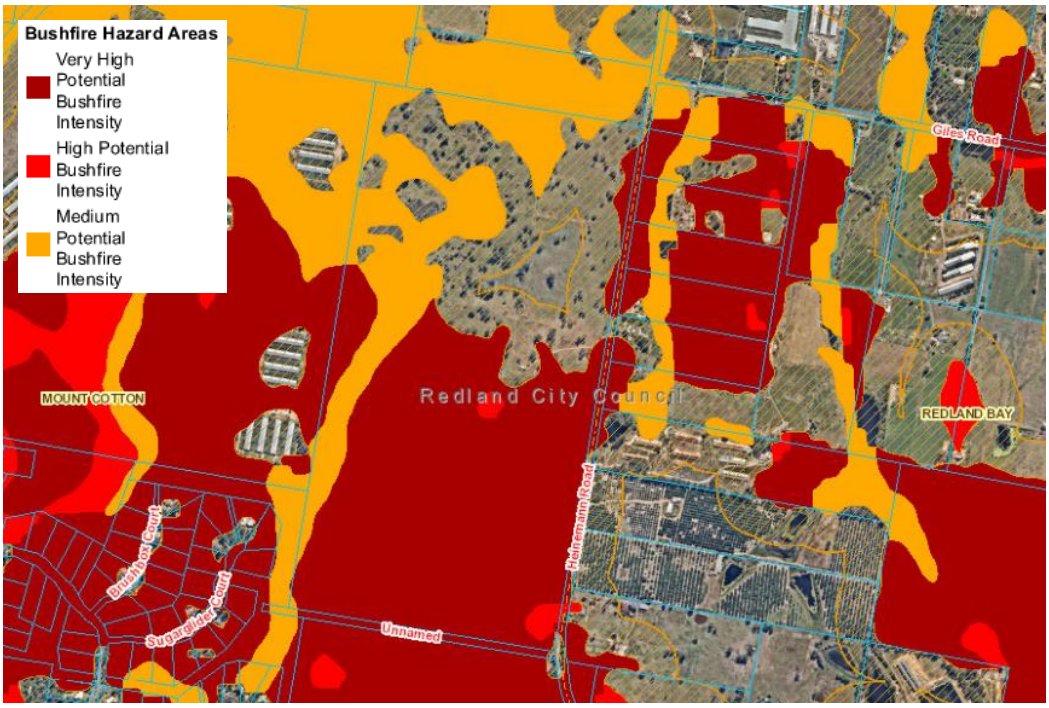



Figure 12 Site bushfire hazard areas

The main environmental hazards related to bushfire is the risk of works on-site being an ignition source for a bushfire, or from a bushfire in the region impacting on site works.

With this in mind, environmental practices have been identified to reduce the likelihood of site works contributing to a bushfire, as well as measures to control a fire should site works result in a fire being ignited.

Table 22 Bushfire

| Aspect | Action | |
|---|---|---|
| **Background** | + Parts of the site are located in bushland that is classified as having a medium to high bushfire risk. | |
| **Applicability to Project** | + Bushfire management actions apply to all aspects of project. | |
| **Objective** | + Site works shall be conducted so that bushfire risk is not increased, and that any bushfire that may occur does not impact on project works. | |
| **Actions** | **Requirements** | **Timing** |
| | + Fire extinguishers will be purchased for all vehicles, as well as for the project site office.<br>+ Contract to prepare site emergency management plan | Prior to commencement of construction |

| | | |
|---|---|---|
| | + Fuel shall be stored in appropriate storage containers.<br>+ All chemical storage and handling will be in accordance with material SDS, with appropriate firefighting equipment (e.g. specific fire extinguisher types) identified in the SDS to be maintained on-site.<br>+ Bushfire and fire danger status for the region will be checked and used to inform daily site activities.<br>+ Local fire bans will be checked to see if they are in place (phone 1800 020 440), with any project works that pose a high fire risk not performed during this time (e.g. on-site refuelling, etc.).<br>+ During high risk situations (e.g. hot and windy conditions with low humidity), tasks that have a high fire-danger risk shall not be carried out on site.<br>+ No burning of any substances, including wooden debris or products, will be undertaken as part of this project.<br>+ RCC planned burns in the area will be monitored by site management.<br>+ If any extreme fire danger occurs, an assessment will be undertaken to assess if fuel storage is removed from the site prior to any potential bushfire event occurring. | During Construction |
| **Performance Indicators** | + Bushfire risk is not increased due to project works.<br>+ Works at the site are not impacted by bushfire risk or fire management. | |
| **Monitoring** | + Monitoring of fire bans.<br>+ Monitoring of planned burns. | |
| **Reporting** | + All monitoring undertaken will be recorded and provided to RCC, and any non-conformances are to be recorded on the principal contractor's Hazard Report Form.<br>+ All incidents (including any exceedances/non-conformances) will be reported in accordance with Council's Incident reporting and Investigation procedure.<br>+ Any complaints received are to be recorded on the site project office complaints register, and reported to Council's representative. | |
| **Corrective Actions** | + Replacement of firefighting equipment.<br>+ Staff re-trained in the use of firefighting equipment.<br>+ Staff re-trained to minimise exposure to hazardous materials. | |
| **Responsibilities** | + Bushfire management at the site is the responsibility of the Site Supervisor.<br>+ All staff who are required to perform tasks that may impact or be impacted by bushfire during their work are responsible for implementing appropriate bushfire control measures. | |

# 10. COMMUNICATIONS AND COMPLAINT MANAGEMENT

Key stakeholder notification details are provided in **Section 6**. Distribution of information to local residents and signage notification will be prepared by Council. All notifications are to be undertaken in accordance with any approvals and **Section 6** of this CEMP.

All community complaints and enquiries will be managed through the Redlands City Council Call Centre or nominated project hotline (details to be provided by Council prior to commencement of works). Council may at its discretion issue cards at the site induction, and if any staff of principal contractor or its subcontractors are engaged by the public, they are to pass on the card and request they contact Council with the issue/enquiry where it will be addressed. Any interaction with the public by the principal contractor or its subcontractors will be recorded in an on-site complaints/comments register maintained at the project site office

CEMP communication will include:

+ Daily toolbox talks on-site for principal contractor employees and subcontractors.
+ Monthly communication with RCC to discuss content of project process report and achievement of project aims.
+ Complaints: to be recorded in complaints register held in project site office and communicated to RCC.
+ Incident reporting: in accordance with **Section 13** of this CEMP.

# 11. INDUCTION AND TRAINING

All employees, contractors and sub-contractors must undertake an environmental awareness induction prior to the commencement of works. The induction will address:

+ Aims and purpose of the works;
+ 'General Duty of Care' and 'Duty to Notify' obligations under the *Environmental Protection Act 1994*;
+ 'General Duty of Care' obligations under the *Aboriginal Cultural Heritage Act 2003*;
+ Red imported fire ant management requirements;
+ Conditions of environmental licences, permits and approvals, including Development Application Assessment Approval Conditions, Clearing Permits;
+ Potential environmental emergencies on site and the emergency response procedures;
+ Reporting and notification requirements for pollution, and other environmental incidents and for damage to environmental controls;
+ Key environmental aspects of the project including:
  - Noise, air and vibration impacts on sensitive receptors;
  - Erosion and sediment control measures;
  - Environmental approvals obtained for the works;
  - Minimising impacts on vegetation;
  - Working in close vicinity of utilities including electricity, sewer, water and stormwater infrastructure.
+ The location of the CEMP during the works
+ Contents of the CEMP, including:
  - Design drawings;
  - The principal contractor's Environmental Policy.

The principal contractor's induction is attached to this EMP.

Other training will be delivered to site personnel as required. This may include, but is not limited to, erosion and sediment control, use of spill kits, native vegetation identification and protection measures, and environmental monitoring procedures.

# 12. MONITORING, INSPECTIONS AND AUDITS

Monitoring will be undertaken in accordance with the requirements of the aspect risk management plans in section 9.

Visual inspections of the site will be undertaken on a daily basis by the site supervisor. In addition to this, weekly site inspections will be performed by an external party, with any adverse findings from this inspection provided in periodic and/or incident reports.

Water quality monitoring will be performed within 24 hours of rainfall events >15 mm occurring at the site (as recorded in the BOM Daily Rainfall website for the Mount Cotton West Station no. 40141). Water quality samples will be obtained and tested for:

- Dissolved oxygen;
- pH;
- Total suspended solids;
- Turbidity;
- Electrical conductivity.

Due to the ephemeral nature of the watercourses, it is unlikely that water quality samples will be able to be practically collected. In the event that water quality sampling does occur, sampling will be undertaken within the relevant watercourse/s that is currently being impacted by site works at the following monitoring locations if water levels and access permit:

- 25 m upstream of the extent of disturbance
- Within or adjacent to the area of disturbance
- 50 m downstream of the extent of disturbance.

All water quality sampling locations will include the GPS location of the sampling point in the water quality analysis report.

Water quality results will be compared to the water quality objectives listed in Table 12 of this report. All conforming and non-conforming water quality results will be provided to RCC. Reporting of non-conforming water quality results will be in accordance with the incident reporting process outlined in Section 13 of this report (all results provided in the principal contractor's monthly report, non-conforming results reported to RCC within 24 hours). All water quality sampling and testing will be performed in accordance with the *Queensland Monitoring and Sampling Manual* (DES 2018). Any laboratory analysis will be conducted by a NATA accredited laboratory and comply with good hygiene sampling requirements (COC, holding time, etc.).

The principal contractor's Environmental Officer shall undertake and document Weekly Site Inspections for the purpose of:

- Verifying management measures prescribed in the CEMP are present, functional and adequate;
- Observe the Site for actual or potential environmental harm or environmental nuisance;
- Identify maintenance requirements for implemented management measures;
- Verifying preparedness for adverse weather conditions where weather forecast.

The principal contractor shall ensure all corrective actions to rectify issues identified by the Weekly Site Inspections are completed and documented.

It is noted that Council may conduct audits at any time. Audits will determine compliance of activities against the requirements of the CEMP, environmental approvals and conditions, environmental legislation, and

contract requirements. All environmental audits will involve a written report provided to the principal contractor's construction manager within 48 hours of the audit. Principal contractor's construction manager is to keep any audit and nonconformance reports. It is the construction manager's responsibility to address any issues made in the report and instruct follow up actions regarding non-conformance incidents. The raising of, action and close-out of all non-conformances will be in accordance with the requirements in **Section 14**.

# 13. EMERGENCY AND INCIDENT PLANNING AND RESPONSE

Emergency and incident responses will vary depending on the nature of the incident.

Council's representative will be verbally notified of an incident within 2 hours of the responsible person becoming aware of the incident, and in writing within 24 hours. All notifications to authorities (e.g. DES) will be undertaken by Council.

When reporting environmental incidents to RCC, the following information is to be provided:

+ The name and contact details of the reporting person;
+ The date and time the environmental incident occurred;
+ The activity that was being undertaken when the incident occurred;
+ How the incident occurred;
+ Any containment measures put in place to reduce or contain environmental harm;
+ An assessment of the amount of environmental harm that occurred;
+ If any other stakeholders are aware of the incident.

Environmental incidents and emergencies have been identified within the individual environmental risk management plans above. However, pro-active environmental risk management measures should be undertaken wherever possible, if events such as extreme rainfall or flooding are forecast.

Some examples of environmental risk responses are provided below:

**Table 23 Example environmental incidents and mitigation and reporting requirements**

| Incident | Mitigation measure | Reporting |
|---|---|---|
| Failure of erosion and sediment control devices following rainfall event or flooding | Re-instatement of ESC devices | Report to RCC |
| Contamination of watercourse with suspended solids or chemicals | Deploy spill-kit/containment measures (e.g. silt boom, rock check dam, etc.) | Report to RCC |
| Non-compliance detected during monitoring program (e.g. water quality) | Cease operations and perform root-cause analysis | Report to RCC |
| Identification of cultural heritage aspects during excavation | Cease operations and follow cultural heritage reporting procedure | Report to RCC |
| Noise or air quality complaints | Record complaint in on-site complaints register and inform Council | Report to RCC |
| Injury to fauna during site works | Follow notification procedure in risk management plan | Report to RCC |
| Damage to vegetation | Cease operations in vicinity of impacted vegetation. Attempt to stabilise damage, engage project arborist | Report to RCC |
| Bushfire | Evacuate site, and if adequate time secure site (including removal of petrol products if possible) | Report to RCC |

The incident reporting process for all incidents is provided below.

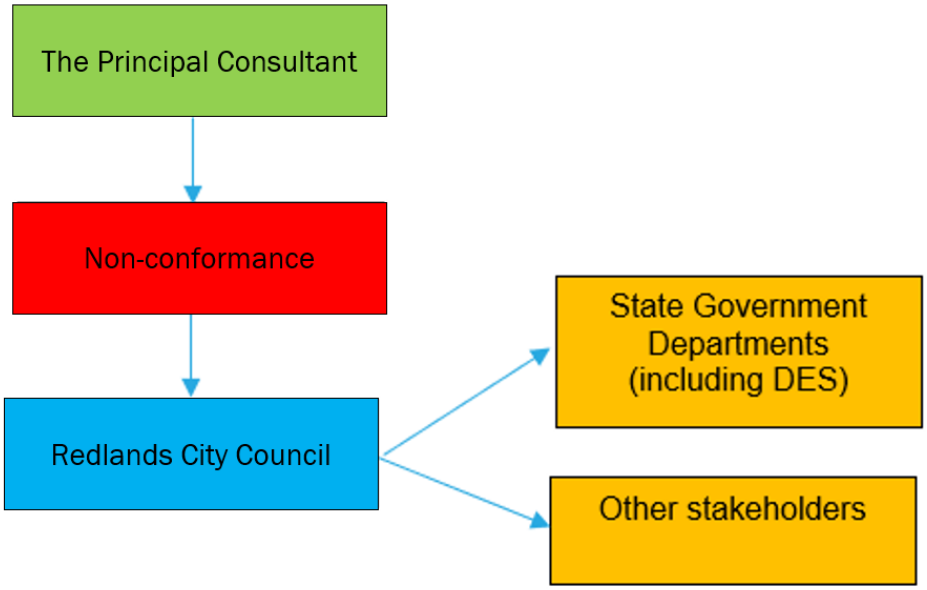



**Figure 13 The Precinct non-conformance reporting diagram**

# 14. NON-CONFORMANCES

Any non-conformance/s that may occur during the course of the project will be identified during the implementation of the CEMP monitoring actions, as well as during the auditing process of site operations.

All non-conformances will be closed out in a timely manner, with reports provided to Council within 2 business days of the close-out. All non-conformances identified in a Council audit will be raised in accordance with the principal contractor's procedures above.

Non-conformance responses will vary depending on the source of the non-conformance/s; however, rectification actions will generally include:

- An environmental impact assessment of the incident;
- Containment measures to reduce/minimise/control the impact of the non-conformance/s;
- Notification of the non-conformance/s;
- A root-cause analysis by the principal contractor to determine why the non-conformance/s occurred, and to capture lessons from the non-conformance/s.

The outcome of the root-cause analysis will include the identification of any improvement items that will reduce the occurrence of non-conformances, and thereby achieve continual improvement. If required, any improvement items identified for the CEMP will also instigate a revision of the CEMP with the improvement items incorporated.

# 15. RECORDS, REGISTERS AND REPORTING

The following environmental records will be kept throughout construction in accordance with the principal contractor's record management procedures and submitted to Council upon practical completion (and when requested):

- Environment and Cultural Heritage induction attendance registers;
- Environmental and Cultural Heritage incident reports, non- conformances and complaints register, including documented corrective actions taken;
- Weekly site inspection checklists and diary entries;
- Monitoring results;
- Compliance testing results;
- Contractor environment audit reports and subsequent corrective actions taken;
- Meeting minutes with Administrating Authorities and interested parties relating to the management measures;
- Formal letters from Administering Authorities;
- Biosecurity Matter certificates, Biosecurity Instrument Permits and Biosecurity management documentation;
- Records to demonstrate and document compliance with Environmental Approvals held by Council and Contractor;
- Quantities of water and quarry materials extracted from non-commercial sources under the Contract by source site;
- Waste tracking records;
- Cultural Heritage personnel daily timesheets;

A monthly report will be submitted to Council within five business days of the end of each month and will include, but is not limited to, the following:

- Updates to CEMP and Erosion and Sediment Control Plan (ESCP);
- Weekly Site Inspections – number of inspections completed, and summary of corrective actions undertaken;
- Monitoring Reporting – summary of monitoring and whether non-conforming results were obtained;
- Compliance testing reporting if applicable – summary of compliance testing and whether non-conforming results obtained;
- Register of current and completed non-conformance reports, environment-related complaints (where possible) and Environmental and Cultural Heritage Incidents and a record of the current status; and
- Positive environmental outcomes achieved and opportunities identified by the Contractor.

The principal contractor shall notify RCC of any correspondence, meetings with or visits from representatives of any Administering Authority verbally immediately after they become aware of the event. The principal contractor will follow the verbal notification with a written notification to RCC within 24 hours of becoming aware of the event. RCC may nominate a representative to attend the planned meeting or visit on the Site as an observer.

Additionally, the principal contractor will report to Council immediately upon becoming aware of any of the following:

- Actual or potential material or serious Environmental Harm as defined in the *Environmental Protection Act 1994*;
- Reportable breach of legislation;
- Breach of an Approval condition(s);
- Non-conformances from Water Quality Investigation Criteria recorded during monitoring;
- Injury or death of native fauna other than least concern species, potentially caused by the works;
- Tampering with a native animal breeding place(s) other than in accordance with an applicable Species Management Program;
- Ground disturbance or vegetation clearing beyond the Contractual Limits of Clearing or areas otherwise deemed suitable by Council;
- Damage to known or potential Cultural Heritage;
- Ground disturbance or vegetation clearing beyond the boundary of the Contract's Cultural Heritage Management Agreement or Plan otherwise deemed suitable by Council;
- Movement or relocation of Cultural Heritage without approval of the Indigenous Party(s);
- Clearing of a protected plant under State or Commonwealth legislation other than authorized under an approval or exemption;
- Identification of a new biosecurity prohibited matter or restricted matter on site or breach of a condition of a biosecurity zone; and
- Discovery of a contaminated site (including unexploded ordinance) or land contamination occurred on the site during works.

Unless justified otherwise and deemed suitable by Council, the above events shall be reported and managed by the principal contractor as Environmental Incidents and reported accordingly.

# 16. DOCUMENT MANAGEMENT

This CEMP (including the attachments) is a living document and once accepted as suitable to commence works under the Contract, it will be updated if the scope of works and/or site conditions change.

A review of this CEMP will be undertaken on a monthly basis, with any opportunities for improved plan performance incorporated into the document to enable continual improvement for environmental management outcomes. In particular, any incidents or non-conformances with this CEMP will result in a root cause analysis of the incident to be undertaken by the site Environmental Officer, with key learnings from these investigations incorporated as CEMP improvements.

The principal contractor's Environmental Officer will also ensure that any changes in legislative requirements that affect the implementation of this CEMP are communicated to relevant personnel, with these changes also reflected in the updates to the CEMP.

Any changes, amendments or alteration to this CEMP will be communicated to RCC, with an electronic copy of the latest version provided to RCC.

Any revisions to the document must be displayed in the covering page of the CEMP.

# 17. REFERENCES


Brisbane City Council (2014), *Erosion Hazard Assessment – June 2014*.

Brisbane City Council (2018), *Brisbane City Plan document – Schedule 6.16 Infrastructure Design Planning Scheme Policy, Chapter 7 – Stormwater Drainage*.

Brisbane City Council City Projects Office, Civic and Building (2018), *Environmental Management Plan (Construction) template*.

International Erosion Control Association Australasia (2008), *Best Practice Erosion and Sediment Control (BPESC) document*, website: https://www.austieca.com.au/publications/best-practice-erosion-and-sediment-control-bpesc-document.

*QLD Globe*

# A1. PROPOSED WORKS LOCATIONS, PROBABLE HAZARDS, AND SWMS DOCUMENTS

TO BE COMPLETED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORK

# A2. FAUNA HABITAT ASSESSMENT

Refer project Ecological Assessment Report

# A3. FAUNA RELOCATION PROCEDURE

| OBECTIVE OF RELOCATION PROCEDURE: | TO PREVENT INJURY OR DEATH TO NATIVE FAUNA FOUND WITHIN THE CLEARING/ CONSTRUCTION ZONE PRIOR TO OR DURING WORKS. |
|---|---|
| **Steps to follow in the event of relocation:** | |
| 1. | Work will cease in the immediate vicinity of the sighting until the animal has moved off or a suitably qualified Fauna Spotter-catcher has removed it. |
| 2. | All fauna species 'not of concern' will be managed by the Fauna Spotter-catcher and all personnel working on site in accordance the *Animal Care and Protection Act 2001, Nature Conservation Act 1992* and the *Code of Practice: Care of Sick, Injured or Orphaned Protected Animals in Queensland.* |
| 3. | If any EVNT listed fauna are found onsite during clearing or construction, work will immediately cease in the vicinity of the sighting, EHP will be notified and a Species Management Plan will be prepared. |
| 4. | If the animal appears to be healthy, a relocation zone within an adjacent area of suitable, undisturbed habitat will be determined by the Ecologist/Fauna Spotter-catcher. |
| 5. | Care will be taken to ensure that aquatic and amphibian specimens are kept moist and free of disease following the procedures contained in the *Interim hygiene protocol for handling amphibians* (EHP, 2013, **Appendix D**). Disposable gloves will be worn when handling frogs. To prevent cross-contamination, new gloves and a clean plastic bag will be used for each frog specimen. Unnecessary handling will be avoided and specimens released as soon as possible, to minimise stress incurred. |
| 6. | In the event a frog appears to be sick, or is dead, the procedures for handling sick or dead frogs outlined in the *Interim hygiene protocol for handling amphibians* will be followed (EHP, 2013, **Appendix D**). Frogs exhibiting one or more of the symptoms for sick frogs and considered unlikely to survive transportation will be euthanased. Typical clinical signs of frogs with Chytridiomycosis include lethargy, inappetence, skin discoloration, presence of excessive sloughed skin, and sitting unprotected during the day with hind legs held loosely to the body. Details of sick or dead listed frogs found on the project site will be recorded and reported to SCC/EHP using the Sick or Dead Frog Collection Form template (**Appendix F**). |
| 7. | Any animal requiring care or treatment will be immediately transported to a veterinarian or licensed wildlife carer. |
| 8. | Specimens will be relocated into appropriate habitat features to prevent predation from other fauna. |
| 9. | Fauna should be released at a time and place that will not endanger it (i.e. release should not increase the risk of stress or predation to the species). |
| 10. | Details of fauna relocations will be recorded using the Translocation Record Form template (**Appendix E**). |

# A4. FAUNA RELOCATION RECORD DOCUMENT

Department of Environment and Heritage Protection

# Wildlife data record

## Wildlife

*Nature Conservation Act 1992*

Nature Conservation (Administration) Regulation 2006

Nature Conservation (Wildlife Management) Regulation 2006

**Spotter catcher records: when dealing with an animal of a species whose habitat has been destroyed by natural disaster or is about to be destroyed by human activity**

| | |
|---|---|
| ***Permit holder's name:**** | |
| ***Permit number:**** | WI |
| ***Date permit issued:*** | |
| ***Expiry date of the permit:*** | |
| ***Name of person in charge*** *(if applicable):* | |

***Permit holder's address:***

***Permit holder's contact number/s:***

* Mandatory information fields

***For period:***

| *Collector's name/s* * | *Start date* * | *Capture location* * | *Capture location* *Latitude* * | *Longitude* * | *Count type** | *Status** | *Scientific name or common name* * | *Count** |
|---|---|---|---|---|---|---|---|---|
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**Note: To insert extra lines in Windows 7 select 'Home' tab then click the 'Cells' tab and select 'insert sheet rows' otherwise go to the ' Insert' menu and click 'Rows'.**

**Return in electronic format to:** The Wildlife Ranger in the regional office that issued your permit.

# A5. SITE SPECIFIC ENVIRONMENTAL HAZARD CHECKLIST

# Site Specific Environmental Hazard Assessment Checklist

Use this checklist to identify environmental hazards specific to the worksite. Once completed, the checklist will be provided to management for follow-up of any required actions.

| | |
|---|---|
| **Name of person completing checklist:** | **Date:** |
| **Management Sign off:** | **Date:** |

| # | Potential Hazard Area | Compliant | Non-compliant | N/A | Further action Y / N |
|---|---|---|---|---|---|
| 1 | Is there environmental management for this site? | | | | |
| 2 | Have all relevant persons been trained in the environmental management? | | | | |
| 3 | Have environmental hazards at this site been identified? | | | | |
| 4 | Have risk assessments been undertaken for this site? | | | | |
| 5 | Have suitable risk controls been put in place for this site? | | | | |
| 6 | Have Safety Data Sheets (SDS) been obtained for all chemicals onsite? | | | | |
| 7 | Are all chemicals stored as per instructions in SDS? | | | | |
| 8 | Have spill kits been provided for chemicals on site? | | | | |
| 9 | Have all relevant persons been trained in clean up of spills? | | | | |
| 10 | Are chemicals stored in original containers in bunded areas? | | | | |
| 11 | Is fire protection equipment available and accessible on site? | | | | |
| 12 | Have all relevant persons been trained in the use of fire protection equipment? | | | | |
| 13 | Have all<br><br>streams for this site been identified? | | | | |
| 14 | Are suitable receptacles in place for each waste stream? | | | | |
| 15 | Are waste receptacles located clear of sensitive areas such as rivers, waterways? | | | | |
| 16 | Have all plant been maintained as per manufacturer's instructions? | | | | |
| 17 | Are pollution control devices fitted to plant? | | | | |
| 18 | Are dust suppression systems employed / sufficient at this site? | | | | |
| 19 | Are all loads covered? | | | | |
| 20 | If noise exceeds exposure limit, have controls been put in place? | | | | |
| 21 | Have permits /approvals been obtained as required? | | | | |
| 22 | Are engineering controls in place to reduce noise as much as possible? | | | | |

| # | Potential Hazard Area | Compliant | Non-compliant | N/A | Further action Y / N |
|---|---|---|---|---|---|
| 23 | Is noisy work conducted at times specified by permit /approval and local requirements? | | | | |
| 24 | Has a contact person been nominated to deal with community complaints regarding noise? | | | | |
| 25 | If so, has this been communicated to affected communities? | | | | |
| 26 | Is a Hot Work Permit system in place for this site? | | | | |
| 27 | Are Contactors and Sub-contractors aware of the environmental management? | | | | |
| 28 | Have Contactors and Sub-contractors been trained in the environmental management? | | | | |
| 29 | Are systems in place to audit environmental management once work begins and during job? | | | | |
| 30 | Are emergency response plans in place for this site? | | | | |
| 31 | Have all relevant persons been trained in emergency response plan? | | | | |
| 32 | Have records been kept of all documents required under environmental legislation? | | | | |
| 33 | Other issues as required: | | | | |

## Waste Management

World Trail Pty Ltd is committed to successfully conserving natural resources and is aware of the importance of waste management and reducing waste to landfill.

### Waste Stream Management Register

| Waste Stream | Disposal Method |
|---|---|
| Construction Materials (Concrete) | Given the detailed designs that have been undertaken on the project to date, material orders can be made with precision. Any left over building materials will be removed from site by hand and disposed of in skip bins and taken to approved Council waste disposal locations. The existing concrete steps will be removed as per SWMS – Concrete Step Removal provided in this construction management plan. |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

## Project Specific Items

| # | Potential Hazard Area | Compliant | Non-Compliant | N/A | Further Action Y/N |
|---|---|---|---|---|---|
| 34 | Are ESC controls installed and maintained i.a.w. ESC requirements? | | | | |
| 35 | Is water quality being managed i.a.w. CEMP requirements? | | | | |
| 36 | Are cultural heritage aspects being managed i.a.w. CEMP requirements? | | | | |
| 37 | Are noise and vibration aspects being managed i.a.w. CEMP requirements? | | | | |

| # | Potential Hazard Area | Compliant | Non-Compliant | N/A | Further Action Y/N |
|---|---|---|---|---|---|
| 38 | Are air quality hazards being managed i.a.w. CEMP requirements? | | | | |
| 39 | Have any contaminated sites being encountered or managed i.a.w. CEMP requirements? | | | | |
| 40 | Are fauna management protocols being performed i.a.w. CEMP requirements? | | | | |
| 41 | Is vegetation protection and management actions being performed i.a.w. CEMP requirements? | | | | |
| 42 | Are weed and pest management actions being implemented i.a.w. CEMP requirements? | | | | |
| 43 | Is waste management being undertaken i.a.w. CEMP requirements? | | | | |
| 44 | Is chemical and fuel management, handling and storage i.a.w. CEMP requirements? | | | | |
| 45 | Are bushfire management actions being implemented i.a.w. CEMP requirements? | | | | |

# A6. HAZARD REPORT FORM

This form is to be completed where a hazard has been identified but no incident or injury has occurred. If incident or injury has occurred please complete the Confidential Incident/Injury Report Form.

| **Name** | **Date** | **Phone** |
|---|---|---|
| **Worker** | **Contractor** | |
| **Department** | **Company** | |
| Description of the hazard / safety issue: | | |
| Exact location of the hazard: | | |
| When was the hazard identified? | Date: | Time: |
| Recommended action to ensure safety: | | |
| Recommended action completed by: | | |
| Signature: | | Date: |
| Comments: | | |

# A7. HAZARDOUS CHEMICAL / DANGEROUS GOODS REGISTER

TO BE COMPLETED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORK

# A8. SITE INDUCTION

TO BE COMPLETED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORK

# A9. INCIDENT / NON CONFORMANCE REGISTER

## Redlands Coast Sport and Recreation Precinct Incident/ Non-Conformance Register

| No | Date/Time | Incident Location | Reported by | Incident / Non-Conformance Description | Corrective Action | Responsible Person/s | Reported to (date time) |
|---|---|---|---|---|---|---|---|
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