# Appendix P

## Construction Environmental Management Plan (CEMP)

# Haughton Pipeline Stage 2 Project

## Construction Environmental Management Plan

Townsville City Council

17 December 2021

→ **The Power of Commitment**

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# 1. Introduction

## 1.1 Project overview

Townsville City Council (TCC) is undertaking the Haughton Pipeline Stage 2 (HPS2) Project which includes a new pump station and pipeline (herein referred to as the 'Project area'), connecting to the constructed Stage 1 and Stage 1.1 Haughton Pipeline Duplication Project (HPDP), to provide transfer of 364 ML/day of raw water from the Burdekin River to the Ross River Dam. The project is a joint funding arrangement between the Queensland Government (the State) and TCC and includes:

– Stage 1 of the HPDP was completed in 2020 and comprises approximately 33 km of DN1800 pipeline constructed from the Haughton River to Toonpan Creek at the head of Ross River Dam
– Stage 1.1 of the HPDP was completed in 2021 and is an extension of the Stage 1 pipeline works from the Haughton River by 3 km, directed towards the Stage 2 pipeline alignment. The Stage 1.1 works end with an isolation valve pit and is the connection point for Stage 2
– Stage 2 comprises the construction of a new pump station adjacent to the Burdekin River (between the Tom Fenwick Pump Station and Clare Weir) and 28.5 km of DN1800 Glass Reinforced Polymer (GRP) pipeline from the pump station to Stage 1.1, to provide an integrated water transfer system.

Construction of the HPS2 Project will be split into two pipeline construction packages, with the pump station being a separate package of work.

Figure 1 provides an overview of the HPDP and HPS2 Project area.

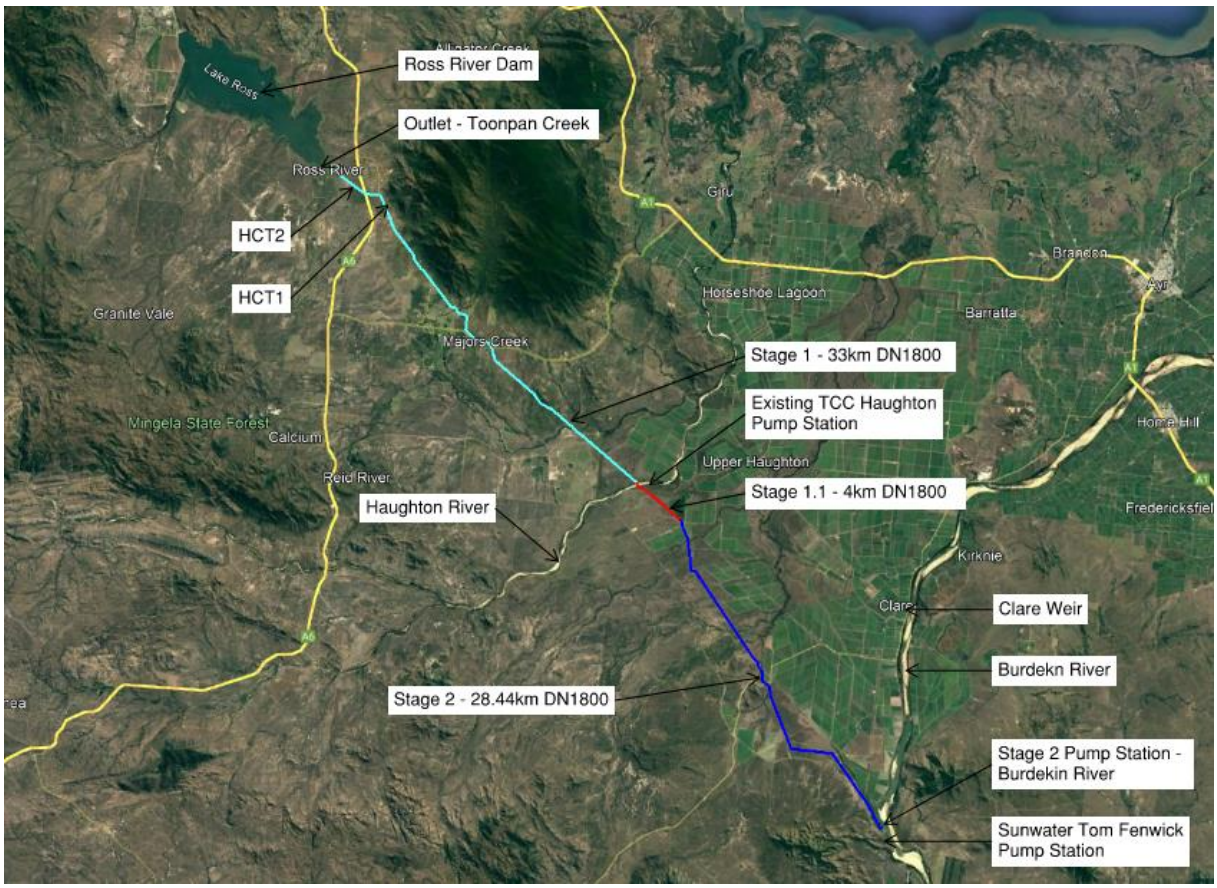


***Figure 1 HPDP and HPS2 Project area***

## 1.2 Purpose and scope of this management plan

TCC have commissioned GHD to prepare this Construction Environmental Management Plan (CEMP) for the HPS2 Project. The CEMP identifies control measures to manage or mitigate environmental risks during the Projects construction. A CEMP is a management tool providing methods and procedures to be applied in order to achieve environmental compliance.

The purpose of this CEMP is to:

– Provide a project overview
– Describe design and construction details
– Outline legal requirements for the construction activities in the context of environmental legislation and approval documentation
– Identify environmental personnel and responsibilities
– Outline the monitoring and reporting requirements and procedures for each environmental aspect

This CEMP is an evolving document to be regularly reviewed and revised when substantial changes to construction methodology or environmental management occur, or in response to an incident.

## 1.3 Limitations

This report: has been prepared by GHD for Townsville City Council and may only be used and relied on by Townsville City Council for the purpose agreed between GHD and the Townsville City Council as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Townsville City Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible. The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared. The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

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# 2. Project description

## 2.1 Project location

The HPS2 Project area lies approximately 60 km south-east of Townsville and will connect to the completed Stage 1.1 pipeline. The pipe alignment (approximately 28.5 km in length) extends in a north westerly direction from the new pump station on the Burdekin River to the previously built stage 1.1 pipeline (Figure 2)

The pipeline will intersect a number of waterways, local roads, state-controlled roads, Burdekin Shire Council (BSC) road reserves and private properties.

The project resides within the BSC Local Government Area (LGA).

## 2.2 Design and construction details

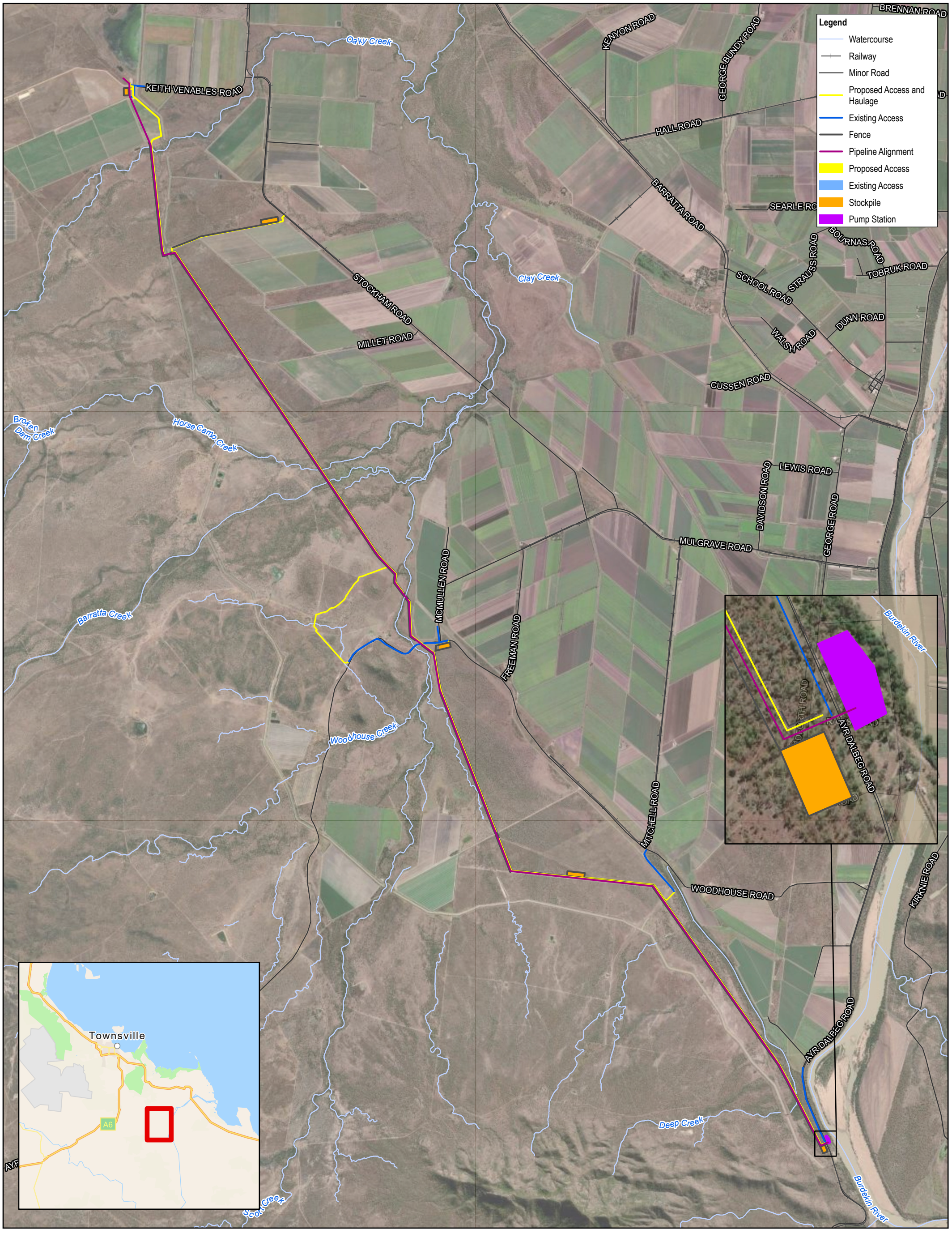
The project will involve construction of the following:

– River abstraction intake and pump station located on the Burdekin River adjacent to the Sunwater Tom Fenwick pump station
– Buried DN1800 pressure pipeline (approximately 28.5 km in length) connecting to the completed Stage 1.1 pipeline. The pipeline will be a hybrid of DN1800 Glass Reinforced Polymer (GRP) pipe and DN1800 Mild Steel Cement Lined (MSCL) pipe
– Temporary support facilities including laydown areas for materials and equipment, and temporary access roads to the pipeline construction corridor and along the length of the pipeline construction corridor
– Above ground facilities including pipeline air release valves, pipeline scour valves and pipeline isolation valves for operation and maintenance

Project construction works will typically involve the following:

– Clearing vegetation for the pipeline alignment construction corridor, river intake and pump station site
– Stockpiling topsoils to be used in the rehabilitation process
– In-river construction works for construction of an edge of bank intake in the Burdekin River, access road, discharge pipeline and bank erosion and scour protection works
– Civil and building works at top of bank for construction of new pump station and supporting infrastructure
– Construction of access tracks to the pipeline construction corridor and along the pipeline construction corridor
– Construction of temporary pipe delivery stockpile yards
– Delivery of pipe to designated temporary stockpile holding yards and stringing out along the pipeline construction corridor
– Use of excavators, trenching machines and conventional methods to create an open trench for the pipeline
– Assembly of pipe in the trench, bedding around the pipe with imported embedment materials, and backfilling the trench with stockpiled excavated materials and topsoil
– Rehabilitation of construction and non-operational areas

A typical section of the pipeline construction corridor is provided in Figure 3.






Paper Size ISO A3

0 1 2

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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**Townsville City Council**
**Haughton Pipeline Stage 2 - MNES Assessment**

**Haughton Pipeline Stage 2 project area**

Project No. **12537606**
Revision No. **0**
Date **12/17/2021**

# FIGURE 2

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Print date: 17 Dec 2021 - 09:59c

Data source: DoR: Roads, Railway, Watercourses (2021); GHD: Site Layout (2021); World Navigation Map: Department of Resources, Dept.of Environment and Science, Esri, HERE, Garmin, FAO, NOAA, USGS
World Imagery: Earthstar Geographics

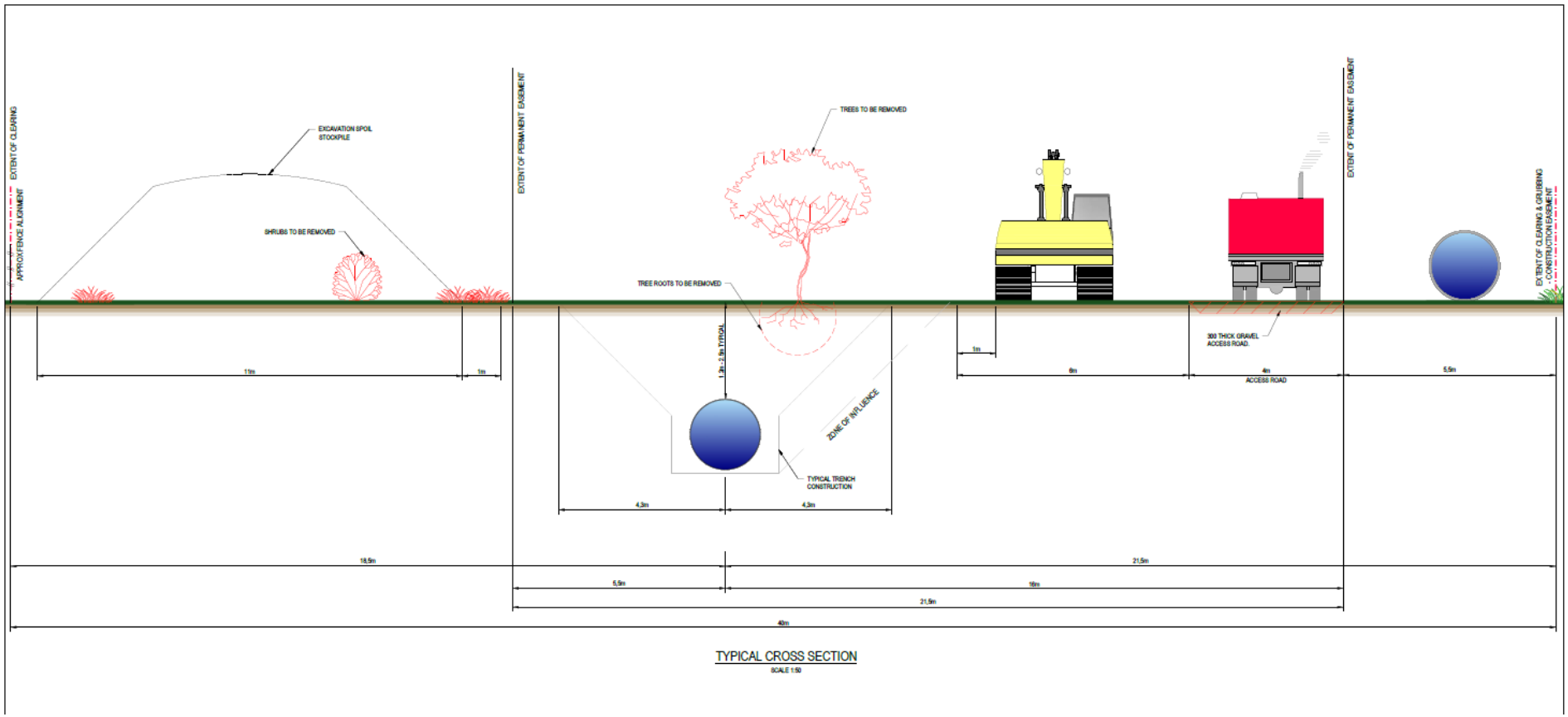


***Figure 3*** ***Pipeline construction corridor (outside riparian zones)***

# 3. Environmental legislation and other requirements

## 3.1 Regulatory framework

The key legislative requirements for consideration in this CEMP are provided in Table 1.

***Table 1 Key Commonwealth and Queensland legislative requirements***

| Legislation | Authorising Body |
|---|---|
| **Commonwealth** | |
| *Environment Protection and Biodiversity Conservation Act 1999* | Commonwealth Department of Agriculture, Water and the Environment (DAWE) |
| **Queensland** | |
| *Biosecurity Act 2014* | Queensland Department of Agriculture and Fisheries (DAF) |
| *Planning Act 2016* | Queensland Department of State Development, Infrastructure and Local Government Planning (DSDILGP) |
| *Nature Conservation Act 1992* | Queensland Department of Environment and Science (DES) |
| *Environmental Offset Act 2014* | DES |
| *Water Act 2000* | Queensland Department of Resources (DoR) |
| *Forestry Act 1994* | DAF |
| *Environmental Protection Act 1994* | DES |
| *Vegetation Management Act 1999* | DoR |
| *Aboriginal Cultural Heritage Act 2003* | Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships |

Other guidelines and policy applicable to this CEMP include:

- Burdekin Shire Council – *Environmental Policy (effective 24 August 2021)*
- Townsville City Council – *Environmental Policy (Version No.5, 15.12.20)*
- Department of Natural Resources, Mines and Energy 2019, *Riverine protection permit exemption requirements WSS/2013/726 Version 2.01*
- Department of Regional Development, Manufacturing and Water 2021, *OSW/2020/5467 Exemption requirements for constructing authorities for the take of water without a water entitlement OSW/2020/5467 Version 4.01*.

# 4. Roles and responsibilities

The following section provides an overview of the proposed implementation for the project relating to the construction environmental responsibilities.

## 4.1 The Client (Principal)

### 4.1.1 Principles Representative

The Principle's Representative is responsible for:

- Obtaining State and Commonwealth statutory approvals for the project
- Reviewing Contractors construction phase plans and submittals for executing the works
- Consult with the Manager of Environmental and Health Service at Burdekin Shire Council on environmental performance related requirements
- Monitor and inspect Contractors construction activities for Health Safety and Environment (HSE) and Quality compliance
- Monitor progress of site work to verify that Contractor are executing works in accordance with their contract requirements
- Undertake environmental and cultural heritage audits to verify compliance with this CEMP.

## 4.2 Contractors responsibilities

The Contractor's Project Manager, Site Supervisor and HSE Manger will be responsible for the day-to-day implementation of the CEMP. Specific responsibilities are outlined below.

### 4.2.1 Project Manager

The Project Manager is responsible for:

- Preparation of construction specific management plans, quality plans and HSE plans
- For ensuring that the project environmental performance meets Client requirements and in particular is responsible for the integrity of the work and commercial performance of the project
- Ensure all environmental requirements are implemented in accordance with the project approvals, client requirements, the specification, the contract requirements and legislative obligations
- Reviewing and implementing this CEMP
- Communicating requirements of this CEMP to the project team, and ensuring compliance
- Ensuring project environmental documentation records are maintained and provided to Client and their representatives as necessary
- For issuing controlled electronic and hard copies of the CEMP
- Engage qualified and experienced staff and provide management support to ensure all activities relating to environmental performance are undertaken by trained and competent personnel and in accordance with the contract
- Select subcontractors and suppliers based on an evaluation of their ability to meet the specified requirements including those for environmental and ensure compliance with same.

### 4.2.2 Site Supervisor

The Site Supervisor is responsible for:

- Ensure all environmental requirements are implemented in accordance with the client requirements, the specification, the contract requirements and legislative obligations
- Monitor the effectiveness of the environmental controls implementation and escalate issues for rectification to the Project Manager
- Monitor the subcontractors and suppliers based on an evaluation of their ability to meet the specified requirements including those for environmental and ensure compliance
- Manage the development of construction methods, ensuring that complex or specific processes for safety, environment or quality aspects for the portion of the works are completed in accordance with construction codes of best practice, legislative requirements, Client specifications and in coordination with the Project Manager and HSE Advisor
- Ensure that all personnel are inducted in their roles and responsibilities
- Establish and maintain a list of current contact names and telephone numbers for all personal relevant to environmental matters. This list shall include, but is not limited to the Principle's Representative, Contractor's Site Supervisors, HSE Manger and the DES Pollution hotline (ph 1300 130 372)
- Conduct daily visual inspections and weekly site checklists (provided in Appendix A).

### 4.2.3 Contractor HSE Manager

The HSE Manger is responsible for coordinating the implementation and maintenance of the project management system, including the CEMP:

- Ensure that all workers are made aware of the CEMP requirements related to their scope of work
- Establish and plan the controls for environmental compliance for the project
- Maintain the project non-conformance system

## 4.3 All Site Personnel

### 4.3.1 Environmental commitment

All staff will be responsible for:

- Following the requirements of the CEMP and those of the Site Supervisor
- Reporting any potential environmental issues to the Site Supervisor, including but not limited to excessive dust generation, non-conformance to noise and vibration, non-conformance to air quality management and uncontrolled waste storage
- Carrying out work in accordance with the requirements of this CEMP
- Exercising due care, skill and judgment when carrying out tasks
- Implementing corrective actions which have been approved by the appointed site supervisor
- Comply with all relevant environmental laws associated with delivery of the project and undertake works in accordance with the BSC Environmental Policy (BSC 2018).

# 5. CEMP implementation

## 5.1 Training, awareness and competence

All personnel involved in the process shall be required to attend a compulsory construction Contractor induction before commencing any work at the site. The environmental component of the induction shall include (but not be limited to) the following items:

- All staff shall be made aware of the environmental obligations and requirements, including any weeds, pests and pathogen risks
- All staff will undertake cultural heritage awareness training, including in the procedure to follow for an unexpected find/heritage discovery
- All staff shall be made aware of waste management practices including segregation, storage, waste management and duty to report issues
- All staff shall be made aware of their environmental responsibilities under the CEMP in relation to implementing mitigation measures, reporting environmental incidents and complaints, and implementing corrective actions
- All staff shall be given instructions on environmental emergency response procedures (i.e., spill kit locations and usage)

Task specific training sessions covering areas such as hazardous waste, hazardous material handling and weed quarantine management will be undertaken on an 'as needed basis'. A training register and sign off sheets will be maintained at the project site office and be able to be provided to the Principals Representative on request.

## 5.2 Compliance auditing and monitoring

### 5.2.1 Daily visual inspection

The Contractor's Site Supervisor will carry out daily visual inspections of all applicable work areas, noting potential environmental risk and incidents. Inspections should confirm that management options are complying with those outlined in this CEMP. Daily visual inspections should be recorded and be available for review during weekly site checks (refer to Section 5.2.2) and monthly interview audits (refer to section 5.2.3).

### 5.2.2 Weekly site checklist

The Contractor's Site Supervisor will carry out weekly site checklists to ensure compliance with environmental obligations, task and actions outlined in this CEMP. An example weekly site checklist is provided in Appendix A.

A final project specific site checklist will need to be prepared and accepted by TCC and the Contractor prior to commencement of construction works to reflect approval requirements.

### 5.2.3 Monthly internal audit

The Contractor's HSE Manager will conduct monthly internal audits. The audit will focus on:

- Review of all environmental and cultural heritage incidents and corrective actions
- Review of daily visual inspection records
- Review of weekly site checklists
- Implementation of all management plans

Monthly audit reports will be submitted to the Contractor's Site Supervisor and will include the date of the audit and the timeframe that the Contractor has to complete any required action.

### 5.2.4 Independent environmental and cultural heritage auditing

The Principle's Representative will conduct independent audits at quarterly intervals during the project to confirm that the CEMP is effectively implemented. The audits should be timed to be undertaken alongside project milestones, such as, commencement of early works, commitment of any major works, prior to the commencement of wet season, mid-term (during construction), prior to the commencement of dry season and upon completion of the project.

Audits will be provided to the Contractor's Project Manager and include the date of the audit and the timeframe that the Contractor has to complete any required action. Corrective actions may be regulated between the Principles Representative and the Contractors Project Manager.

## 5.3 Incident reporting

An environmental incident is an event which has caused or has the potential to cause, damage or harm to the environment. In the event of an environmental incident the Contractor's HSE Manger should be notified and an Environmental Reporting Form should be completed (Contractor to provide an Environmental Reporting Form). If environmental harm becomes apparent the HSE Manager is to immediately contact the Principle's Representative. Where activities have caused or threatened to cause serious environmental harm, TCC and the Contractor will notify DES. An investigation may be initiated, and a response plan developed and implemented. In this case, all monitoring events and associated data shall be recorded, stored, and presented to DES upon request.

## 5.4 Complaints

Complaints represent an opportunity for improvement or enhancement of project environmental performance. All project complaints shall be recorded. The Project Manager (or authorised delegate) shall be responsible for investigating and responding to complaints in a timely manner.

## 5.5 Non-conformance

Non-conformances managed by the CEMP shall include the following:

– An incident or near miss with potential or actual environmental impact
– Complaints regarding project activities
– Not meeting an objective or target
– Management review not being undertaken

The Project Manager shall be responsible for identifying and implementing any preventative and/or corrective actions in response to any non-conformance. Preventative and corrective actions shall be incorporated into the EMP as required.

## 5.6 Statutory notifications

### 5.6.1 Notification for the interference or disposal of forest products on Crown Land

Native timber production from state owned land is managed by DAF and owned by the state. As a result, the state may wish to harvest the native forest product on state land for future use.

DAF are required to be notified prior to any vegetation clearing (within Crown Land) for works that require the construction of infrastructure, which may involve the interference with or disposal of forest products and quarry materials.

# 6. Environmental management issues and controls

This CEMP consists of the following elements to address the activities outlined in Section 2.2 with the potential to impact on environmental values of the area and surrounds:

– Water quality, erosion and sediment control and dewatering management
– Vegetation and fauna
– Weed and pest management
– Noise and vibration
– Air quality
– Cultural heritage
– Contaminated land and hazardous substance
– Waste management

The above environmental management and safeguards are addressed in the following sections.

# 7. Water quality, Erosion and sediment control and Dewatering Management

## 7.1 Aspect

Water quality, erosion sediment control and dewatering management will be developed for the areas of works. This will consider soil characteristics and erodibility, slope and best practice management options.

The aim of this management plan will be to prevent controllable erosion and minimise the adverse impacts of sediment transport from disturbed areas during works. Sediment laden run-off and the exportation of associated pollutants, if not correctly managed will degrade water quality and cause sedimentation in watercourses.

## 7.2 Management Plan

| **Environmental Objective** | | |
|---|---|---|
| Minimise impacts of sediment transport though implementing erosion control measures. | | |
| **Performance Criteria** | | |
| – All works are managed in accordance with the Best Practice Erosion and Sediment Control Guidelines and any other relevant approval and statutory requirements.<br>– No complaints are received in relation to erosion and sediment control issues. | | |
| **Mitigation Measures** | **Responsibility** | **Timing** |
| Minimise land clearance / disturbance to project area and slope angles. | Site Supervisor | At all times |
| Vehicles to drive on designated routes only, where practical. | All personnel | At all times |
| Vehicles to comply with designated speed limits. | All personnel | At all times |
| Vehicles are not to traverse eroded areas. | All personnel | At all times |
| Diversion of overland upstream flows around disturbed construction areas to limit erosion. | Site Supervisor | At all times |
| Conduct all major watercourse earthworks during the dry season and ensure that all bed and banks are stabilised prior to the onset of wet season. | Project Manager and site supervisor | At all times |
| Disturbance to ground cover and soil must be effectively returned to a stable, non-eroding condition equal or better than the existing condition. | Site Supervisor | At all times |
| Where trench dewatering is required, ensure the dewatering effluent is dispersed on stabilised ground via a suitable dispersion method. Sediment traps are to be used where required. | Site Supervisors and all personnel | At all times |
| Bunded areas are to be constructed for the mixing/ filling and the storage of fuel or chemical and hazardous materials. Bunded areas are to be constructed at least 200 m away from drains and waterways and will follow Australian Standards (i.e., AS/AZS 3833:2007, AS1940:2017, A3780:2008). | Site Supervisor | At all times |
| During refuelling activities ensure that drip mats are used and that it is conducted at least 50 m off a watercourse or 5 m from a drain. | Site Supervisor | At all times |
| Use water efficiently and minimise use of portable water for construction. | Project Manager, Contractor's HSE manager and all personnel | At all times |
| After construction remove all temporary erosion and sediment control structures and make good. | Site Supervisor | Upon completion of construction works |

| Monitoring | Responsibility | Timing |
|---|---|---|
| During any works around waterways/water courses water quality will need to be monitored. Downstream turbidity will need to maintained at comparable levels to upstream turbidity. Water samples are to be tested onsite by a calibrated water quality meter. Results are to be provided to the principle's Representative as requested. | Contractor's HSE Manager | At all times |
| Conduct daily, weekly, and monthly environmental inspection. | Site Supervisor | Daily, weekly, and monthly |
| **Reporting** | **Responsibility** | **Timing** |
| All personnel to report incidents including where erosion is occurring. | All personnel | At all times |
| Record and manage all complaints in a register and corrective actions taken. | Site Supervisor | At all times |
| Provide water quality and visual assessment results are to be given to the Principle's Representative to show sediment control measures are effective. | Contractor's HSE Manager | Upon completion of each monitoring event |
| **Corrective Action** | **Responsibility** | **Timing** |
| Appropriate control measures shall be implemented in a timely manner where sedimentation or erosion issues are identified or have the potential to occur in the future. | Site Supervisor | Following identification |
| If excessive sediments are collected in diversion drains/sediment traps, where possible sediments will need to be removed. | Contractor's HSE manager, site supervisor and all personnel | Following identification |
| All incidents and complaints in relation to erosion and sediment control shall be investigated, and as required, legitimate problems be reflected. | Project Manager | Upon request of complaint |

# 8. Vegetation and Fauna

## 8.1 Aspect

Activities that have the potential to impact on listed, threatened species or conservation significant vegetation communities will be managed through the HPS2 Rehabilitation Management Plan, any approved Species Management Programs and this plan (where applicable). Activities must also comply with the conditions of any Commonwealth and State development approvals obtained for the Project.

## 8.2 Management Plan

| **Environmental Objective** | | |
|---|---|---|
| To minimise disturbance to native flora, fauna and vegetation in order to maintain environmental quality and natural values of the project area. | | |
| **Performance Criteria** | | |
| – No complaints are received in relation to flora and fauna management<br>– Undertake clearing works in accordance with Operation Work Development Permit for clearing native vegetation<br>– No destruction or damage to any protected fauna species<br>– Active nests are retained until occupants vacate | | |
| **Mitigation Measures** | **Responsibility** | **Timing** |
| Tree clearing activities to avoid the core breeding season of threatened fauna. | Contractor's Project Manager and Contractor's HSE Manager | Prior to commencement of construction |
| Avoid the removal of mature trees and root systems where possible on the edge of the construction corridor which possible | Site Supervisor | At all times |
| Site inductions to include awareness of significant vegetation known to occur in the project area (e.g., Cat. A and B area containing vegetation 'of concern'). | Site Supervisor | At all times |
| Do not attach signs to trees. | All personnel | At all times |
| Do not stockpile dead fall. Timber should be mulched or cut into manageable pieces and removed form site. | Site Supervisor | At all times |
| Do not store or place stockpile material and/or equipment/machinery at or near the base of trees. | All personnel | At all times |
| Do not allow traffic into topsoil stockpiles. | Site Supervisor | At all times |
| Ensure vehicle speeds within areas of high fauna activity are regulated to avoid collisions. | All personnel | At all times |
| 'Fauna Warning' signs are to be used in areas of high fauna activity. | Contractor's HSE Manager | At all times |
| All fauna encounters are to be protected from construction works and left to move off on their own accord. | All personnel | At all times |
| Employ a fauna spotter/catcher during clearing activities. | Contractor's HSE Manager | Prior to commencement of construction |
| The fauna spotter/catcher to conduct a pre-clearing survey to identify the presence of active nests and tree hollows. | Site Supervisor and Contractor's HSE Manager | Directly prior to clearing works |
| Minimise the time that trenches remain open. Where open for more than 24-hours trench ramps are to be placed every 50 m (ramps to provide an escape option for fauna). | Site Supervisor | Throughout duration of works |

| | | |
|---|---|---|
| Species management programs are to be followed. | All personnel | Throughout duration of works |
| All injured wildlife to be taken to the nearest vet for treatment. | All personnel | At all times |
| Vegetation is not to be burnt on site. | All personnel | At all times |
| Implement Clearing management measures to include the following:<br>– Mark clearing areas prior to clearing including setout by licenced surveyor<br>– Fauna spotter/catcher ahead of clearing works<br>– Mulching of cleared variation<br>– Separation of topsoil from subsoil for later placement<br>– Minimise felling of mature hollow bearing trees where practical | Site Supervisor | Prior to commencement of construction and duration of works |
| Implement the Rehabilitation Plan. Plan to include the following:<br>Conserve and stockpile topsoil for reuse in rehabilitation of site<br>Rehabilitate disturbed land as soon as practical with suitable native plant species. Native plant species should be determined in consultation with an experienced botanist. Plants that are considered a food source for threatened species should be considered and used where possible. All non-operational areas that have been disturbed during construction are to be rehabilitated to the condition that is compatible with the local natural environment and environmental values | Site Supervisor and Contractor's HSE Manager | At all times |
| Outcomes of the EPBC Act referral considered in the construction sub-management plans. | Project Manager and Contractor's HSE Manager | Prior to commencement of construction |
| **Monitoring** | **Responsibility** | **Timing** |
| Conduct daily, weekly, and monthly environmental inspection. | Site Supervisor | Daily, weekly, and monthly |
| Open trenches to be checked daily by a fauna spotter and any trapped fauna to be removed. | Site Supervisor and Contractor's HSE Manager | Throughout duration of works |
| | | |
| Report any incident involving damage to flora or fauna to the Principle's Representative. | Project Manager | At all times |
| Record any wildlife interaction in a register. | All personnel | At all times |
| In the event of a significant environmental management issue report immediately to the Principles Representative. | Project Manager | At all times |
| **Corrective Action** | **Responsibility** | **Timing** |
| All complaints shall be investigated promptly, and appropriate actions taken. | Project Manager | Upon request of complaint |
| Where investigations identify environmental nuisance or potential to harm fauna, revision to management plans shall be undertaken and further controls implemented, as necessary. | Site Supervisor | Following identification |

# 9. Weed and Pest Management

## 9.1 Aspect

The spread of weeds and pests can impact the environment including environmental values, flora and fauna, project personnel, and the community. Avoiding the spread of weeds, weed seeds and plant pathogens by contaminated machinery, clothing or footwear is imperative to the project.

This CEMP addresses weed control within the project area and neighbouring surrounds.

## 9.2 Management Plan

| **Environmental Objective** | | |
|---|---|---|
| Avoid and effectively manage potential impacts associated with weeds and pests. | | |
| **Performance Criteria** | | |
| – No introduction or spread of new (invasive) weeds, pests and pathogens.<br>– No complaints are received about weeds and pest introduction or distribution. | | |
| **Mitigation Measures** | **Responsibility** | **Timing** |
| Implement a weed and pest management plan | Site Supervisor | Throughout the duration of work |
| Establish and construct wash-down areas at project location to minimise the spread of weeds. All wash-down areas are to be constructed at least 200 m of any watercourse/waterway. | Site Supervisor | Prior to the commencement of works |
| Only clean vehicles, machinery and equipment that are free from soil and plant material are to be accepted onto site. | All personnel | At all times |
| Wash-down and inspect all plant, vehicles and equipment between crossing change of landowner properties. | Site Supervisor and all personnel | At all times |
| All vehicles, machinery and equipment obtained from Fire Ant, Yellow Crazy Ant or Eclectic Ant regions are to be washed down and inspected prior to entering the project area. Wash-down certificates must be presented to Principle's Representative via the Site Supervisor | All personnel | At all times |
| In high weed infested areas soil is to be identified and not moved/transported to other areas within the project site. | Contractor's HSE Manger | At all times |
| Imported material shall be sourced from week and pest free areas. | Project Manager and Contractor's HSE Manger | At all times |
| Control key weed species under the weed and pest management plan. | Project Manager and Contractor's HSE Manger | At all times |
| Monitor disturbed areas for new weed establishment | Project Manager and Contractor's HSE Manger | At all times |
| Do not feed, keep or release pest species | All personnel | At all times |
| Food scraps to be disposed of into lidded bins | All personnel | At all times |
| **Monitoring** | **Responsibility** | **Timing** |
| All vehicles and equipment to be inspected for weeds | Site Supervisor | At all times |
| Maintain a wash-down and inspection register for all vehicles, machinery and plant. | Contractor's HSE Manger | At all times |
| Conduct daily, weekly, and monthly environmental inspection. | Site Supervisor | Daily, weekly, and monthly |

| Reporting | Responsibility | Timing |
|---|---|---|
| All personnel to report incidents. | All personnel | At all times |
| Record and manage all complaints in a register. | Project manager | At all times |
| **Corrective Action** | **Responsibility** | **Timing** |
| Where investigations show restricted/declared weeds, and pests present, revision to management plans shall be undertaken and further controls implemented, as necessary. Controls may include use of contracted licensed weed eradicator or pest exterminator. | Project Manager | Following Identification |

# 10. Noise and Vibration

## 10.1 Aspect

Activities that have the potential to significantly increase noise and vibration need to be managed appropriately to avoid environmental harm.

This management plan aims to minimise noise pollution and vibration impact.

## 10.2 Management Plan

| **Environmental Objective** | | |
|---|---|---|
| To prevent and minimise noise and vibration generation. | | |
| **Performance Criteria** | | |
| – No complaints are received in relation to noise or vibration. | | |
| **Mitigation Measures** | **Responsibility** | **Timing** |
| Implement a noise and vibration management plan. | Site Supervisor | Prior to the commencement of works |
| Conduct operations within approved working hours. This is between the hours of 6:30 am and 6:30 pm Monday to Saturday. No works are to be conducted on Sundays or public holidays | Site Supervisor | At all times |
| Noise reducing devices are to be fitted and maintained on all equipment and plant as per the manufacture's recommendations | Site Supervisor | At all times |
| Notify neighbours of the proposed work schedule and of any noise or vibration producing activities | Site Supervisor | Prior to the commencement of works |
| Prior to undertaking any works in the vicinity of livestock, notify the livestock owner and allow enough time for transportation of cattle to another area if they require. | Site Supervisor | At all times |
| **Monitoring** | **Responsibility** | **Timing** |
| Conduct regular inspections of equipment noise direction during site works. | Site Supervisor | At all times |
| Conduct daily, weekly, and monthly environmental inspection. | Site Supervisor | Daily, weekly, and monthly |
| **Reporting** | **Responsibility** | **Timing** |
| All non-conformance to noise and vibration are to be reported to the Principle's Representative. | All personnel | At all times |
| **Corrective Action** | **Responsibility** | **Timing** |
| All complaints related to noise or vibration shall be investigated promptly and appropriate actions are to be taken to mitigate. | Site Supervisor | At all times |

# 11. Air Quality

## 11.1 Aspect

Activities that have the potential to significantly increase dust emissions within the project area and surrounds or impact air quality during the construction period need to be managed appropriately to avoid environmental harm.

This management plan aims to minimise dust emissions within the project area and surrounds during the construction and operational phases.

## 11.2 Management Plan

| **Environmental Objective** | | |
|---|---|---|
| To prevent and minimise the increase in dust emissions. | | |
| **Performance Criteria** | | |
| – Minimal dust generation | | |
| **Mitigation Measures** | **Responsibility** | **Timing** |
| Implement an Air Management Plan. | Site Supervisor | At all times |
| Adopt dust reduction techniques such as, dust suppression dampening disturbed areas with water. | Site Supervisor | At all times |
| Cover loads during transportation. | Site Supervisor | Transporting material |
| Provide dust suppression to stockpiles during windy conditions. | Site Supervisor | At all times |
| Minimise number of vehicle movements where possible to prevent the movement of dust emissions. | All personnel | At all times |
| Do not burn any materials or light fires on the construction site. Provide protective measures in the event of a fire. | All personnel | At all times |
| **Monitoring** | **Responsibility** | **Timing** |
| Conduct daily, weekly, and monthly environmental inspection. | Site Supervisor | Daily, weekly, and monthly |
| **Reporting** | **Responsibility** | **Timing** |
| All non-conformance to the air management plan are to be reported to the Principle's Representative. | All personnel | At all times |
| **Corrective Action** | **Responsibility** | **Timing** |
| All complaints related to dust generation shall be investigated promptly and appropriate actions are to be taken to mitigate. | Site Supervisor | At all times |

# 12. Cultural Heritage

## 12.1 Aspect

No evidence of cultural heritage has been identified to date through cultural heritage surveys conducted for the project. However, if any is found it will be protected under the terms of the *Aboriginal Cultural Heritage Act 2003.* Construction activities are unlikely to cause environmental impacts outside of the project area if this CEMP is followed. There is potential for inadvertent disturbance to unidentified cultural heritage sites / objects. Any cultural heritage material that has been unearthed must be cordoned off and the Principle's Representative is to be notified.

## 12.2 Management Plan

| Environmental Objective | | |
|---|---|---|
| To contain disturbance to the project area and to ensure that cultural heritage values are not destroyed during project activities. | | |
| **Performance Criteria** | | |
| – All works managed in accordance with the relevant legislation<br>– No damage or disturbance to cultural heritage sites or objects | | |
| **Mitigation Measures** | **Responsibility** | **Timing** |
| All staff members to complete the environmental and cultural heritage site inductions. | Site Supervisor and All personnel | Prior to the commencement of construction works |
| Do not form new tracks, alter existing tracks, remove vegetation, cut fences or perform any activities not specified under the construction drawings or otherwise required under the contract without prior approval by the Principle's Representative. | Site Supervisor | At all times |
| Implement cultural heritage management and mitigation actions as agreed with Aboriginal Parties if required. Include provisions to the clearing plan. | Contractor's HSE Manager and all personnel | At all times |
| If cultural heritage material is unearthed during earthworks the below steps must be followed:<br>– **Stop Work Immediately** at the location of the cultural finds.<br>– **Avoid disturbance** of the area and adjacent area.<br>– **Protect** the finds by erecting a temporary barrier.<br>– **Advise** the Principle's Representation | Site Supervisor and all personnel | During earthworks |
| **Monitoring** | **Responsibility** | **Timing** |
| Any discovery of Aboriginal cultural heritage sites will be recorded. | Project Manager | Upon identification |
| Monitor excavations and ground clearing for potential signs of cultural heritage. | All personnel | At all times |
| **Reporting** | **Responsibility** | **Timing** |
| Principle's Representative to report incidents to the Cultural Heritage Unit of the Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships. | Principle's Representative | Upon identification |
| **Corrective Action** | **Responsibility** | **Timing** |
| All complaints relating to cultural heritage management issues will be investigated promptly and appropriate actions taken. | Project Manager | Upon receipt of complaint |
| Where investigations identify issues with cultural heritage management actions, revision to management plans will be undertaken and further controls implemented, as necessary. | Project Manager | Following investigation |

# 13. Contaminated Land and Hazardous Substances

## 13.1 Aspect

Contamination of land and water from oils, greases, hydraulic fluid, fuel and chemicals used during construction is an environmental risk that has the potential to cause significant environmental harm. Specifically, these risks include:

– Contamination of soils with waste materials/ hazardous chemicals used in earthworks activities.
– Asbestos Containing Material (ACM). If any ACM is identified at the site during the earthwork activities, it will be handled in accordance with the National Code of Practice for the Safe Removal of Asbestos. All asbestos containing material will be removed and disposed off-site at the licensed facility.

## 13.2 Management Plan

| **Environmental Objective** | | |
|---|---|---|
| To prevent the contamination of land and water with the HPS2 project area. | | |
| **Performance Criteria** | | |
| – Fuel and hazardous substances stored on site is undertaken in accordance with A1940 the storage and handling of flammable and combustible liquids.<br>– No petroleum, oil and lubricants (POL) to enter drains or watercourse.<br>– No unauthorised disturbance to and/or disposal of potentially contaminated material.<br>– No complaints received from regulatory authorities or the community in relation to the storage and utilisation of fuel and hazardous material. | | |
| **Mitigation Measures** | **Responsibility** | **Timing** |
| Bunded areas are to be constructed for the mixing/ filling and the storage of fuel or chemical and hazardous materials. Bunded areas are to be constructed at least 200 m away from drains and waterways and will follow Australian Standards (i.e., AS1940:2017, AS3780:2009, AS/NZS 3833:2007). | Site Supervisor | At all times |
| Storage sites must be bunded | Site Supervisor | At all times |
| Storage sites must be in accordance with Australian Standards and away from waterways/water courses. | Site Supervisor | At all times |
| Fuel storage on site to be minimised. | Site Supervisor | At all times |
| Store materials and equipment on-site in a manner that prevents damage to the site and minimises hazards to persons. | Site Supervisor | At all times |
| Spill kits must be available and maintained at all POL storage and refuelling areas. | Site Supervisor | At all times |
| Prepare and implement a spill response and containment procedure in the event of a spillage or hazardous waste substance, including the immediate containment, clean-up and disposal to a licenced trade waste site. | Site Supervisor | At all times |
| Site workers are required to wear long-sleeved shirts, cotton drill pants and ankle lace up boots which will limit contact with potentially hazardous substances. | All personnel | At all times |
| **Monitoring** | **Responsibility** | **Timing** |
| Conduct daily, weekly, and monthly environmental inspection. | Site Supervisor | Daily, weekly, and monthly |
| Visual inspections of plant, machinery and works site to ensure no oil leaks, hydraulic leaks, fuel leak/spills or any other hazardous material. | Site Supervisor | At all times |

| | | |
|---|---|---|
| An incident register shall be maintained which includes corrective actions undertaken and persons notified. | Site Supervisor | At all times |
| Visual inspection for any Unexploded Ordinance (UXO) items. If suspected UXO are identified on site the following actions should be followed:<br>– Immediately stop work<br>– Note item. This includes noting any colour or markings that are visible. Do not touch the item.<br>– Mark the location of the item<br>– Report the finding to the Project Manager and await further instruction.<br>– Provide actions on discovery of UXO and ensure any UXO finds are handled appropriately by an Explosive Ordnance Detection (EOD) technician or persons appropriately qualified. | All personnel | At all times |
| **Reporting** | **Responsibility** | **Timing** |
| Notify the Principle's Representative immediately if any of the following hazardous materials are found that have not been known to the site. These include, but are not limited to:<br>– UXO's<br>– Flammable or explosive liquids or gases<br>– Toxic, infectious or contaminated materials<br>– Noxious or explosive chemicals<br>– Tanks or containers that may have previously been used to store explosives or toxic substances. | Project Manager | Immediately following identification of any hazardous material |
| Environmental incidents involving spills shall be recorded including time of incident, persons involved, details of incident mitigation measures and actions taken to minimise the probability or reoccurrence. | Project Manager | At all times |
| **Corrective Action** | **Responsibility** | **Timing** |
| All complaints relating to fuels, chemicals or hazardous material use shall be investigated promptly and appropriate actions taken. | Project Manager | Upon receipt of complaint |
| Disposal of contaminated soil (small or large quantities) shall be undertaken of in accordance with relevant regulations. | Site Supervisor | When required |
| In the event of a spill of dangerous goods, work procedures and control measures must be reviewed and revised is necessary. | Site Supervisor | When required |

# 14. Waste Management

## 14.1 Aspect

Waste will be generated on the site as a result of earthworks activities. This includes works waste and personnel waste (general rubbish). Waste materials are to be managed and disposed of appropriately in accordance with the Queensland *Waste Reduction and Recycling Act 2011* so as to avoid land contamination, maintain environmental value and to reduce the likelihood of waste attracting fauna and pest species.

The following waste may be generated as part of the HPS2 works:

– Oil and water mixtures or emulsions, or hydrocarbons and waste mixtures or emulsions.
– Sewage, sludge and residues, including septic tank sludge
– Tyres

## 14.2 Management Plan

| **Environmental Objective** | | |
|---|---|---|
| To prevent or minimise the generation of wastes and to appropriately contain, control and dispose of all waste generated. | | |
| **Performance Criteria** | | |
| – No complaints received by the public in relation to waste issues<br>– All works are managed in accordance with the Queensland *Waste Reduction and Recycling Act 2011*<br>– All waste is appropriately stored and disposed of upon the completion of works | | |
| **Mitigation Measures** | **Responsibility** | **Timing** |
| Dispose of all onsite generated waste offsite in accordance with the *Waste Reduction and Recycling Act 2011*. | Site Supervisor and all personnel | At all times |
| Adopt the waste management hierarchy when dealing with waste (avoid, reduce, reuse, recycle, recover, treat, dispose). | Site Supervisor and all personnel | At all times |
| Store waste (including general refuse and hazardous chemicals) in designated areas away from watercourses as per the relevant Australian Standards. | Site Supervisor and all personnel | At all times |
| No waste is to be dumped in any other location other than the designated storage area. Waste must not enter drainage lines or any other area. | All personnel | At all times |
| Collect waste hydrocarbons in an appropriate storage container and store in a clear location on site. All hydrocarbon waste will be taken to a licence disposal or recycling facility as soon as possible. | Site Supervisor and all personnel | At all times |
| Do not burn waste. | All personnel | At all times |
| General housekeeping shall be implemented to kept site in a tidy condition (i.e., clean and remove all waste including all unwanted construction material from the construction site). | All personnel | At all times |
| File substantial written evidence (dockets, invoices and receipts) for all waste disposals. Provide copies of records to the Representative's Council when requested. | Project Manger | At all times |
| Construct a Concrete Washout area at designated locations. Ensure the washout area is self-contained, lined with black plastic and located at least 200 m for any waterway/water course. | Contractor's HSE manager, all personnel | At all times |
| **Monitoring** | **Responsibility** | **Timing** |
| Conduct daily, weekly, and monthly environmental inspection. | Site Supervisor | Daily, weekly, and monthly |
| Regular inspections of on-site facilities shall be undertaken to ensure waste is being generated, stored, handled, disposed and transported in accordance with regulations. | Site Supervisor | At all times |

| | | |
|---|---|---|
| Monitor waste disposal evidence (dockets, invoices and receipts). | Site Supervisor | At all times |
| **Reporting** | **Responsibility** | **Timing** |
| Provide waste disposal evidence upon request. | Site Supervisor | Upon request |
| All personnel to report incidents where waste material has been a contributing factor. | All personnel | At all times |
| Record and manage all complaints in a register and corrective actions taken. | Project Manager | At all times |
| **Corrective Action** | **Responsibility** | **Timing** |
| All complaints relating to waste issues shall be investigated promptly and appropriate actions taken to clean up the affected area and manage the waste generated. | Project Manager | Upon receipt of complaint |
| Where inspections have shown unacceptable waste management, revisions of management plans are to be made and further controls implemented. | Project Manager | Following identification |

# Appendices

# Appendix A

## Weekly Site Checklist (example only)

| Item | TASK | Yes/No/NA | Date | Initial |
|---|---|---|---|---|
| **Site Inspection** | | | | |
| **AIR** | | | | |
| 1 | Equipment maintained to minimise smoke and fume emissions. | | | |
| 2 | Vehicles adhering to speed limit. | | | |
| 3 | Dust suppression is being undertaken regularly using a water truck. | | | |
| 4 | Review register of complaints. | | | |
| **NOISE** | | | | |
| 5 | No unnecessary use of horns or other audible signals on mobile plant or equipment. | | | |
| 6 | No unnecessary revving or idling of engines on mobile and stationary machines. | | | |
| 7 | Equipment turned off when not in use. | | | |
| 8 | Review register of complaints. | | | |
| **WATER AND LAND** | | | | |
| 9 | Plant and equipment fuelled on contained, impervious areas where feasible. | | | |
| 10 | No evidence of spills, all spills cleaned up. | | | |
| 11 | Regular inspection of all equipment for fluid, oil or fuel leaks. | | | |
| 12 | Erosion and sediment control measures have been installed and maintained. | | | |
| 13 | Spill kits are present at designated locations and maintained. | | | |
| 14 | Topsoil stockpiles area protected from sediment runoff (catch drain / silt fence) | | | |
| 15 | No construction wastewater is released within 100 metres of a riparian buffer zones, groundwater buffer zone or nest buffer zones. | | | |
| 16 | Review monitoring data, incident reports and complaints register. | | | |
| **WASTE** | | | | |
| 17 | All waste oils and fluids are stored appropriately. | | | |
| 18 | General wastes stored in bins (covered where appropriate). | | | |
| 19 | Regulated wastes only removed from site by a regulated waste contractor | | | |
| 20 | Review incident reports (product spills etc). | | | |
| **FLORA AND FAUNA** | | | | |
| 21 | Vegetation clearance to be limited to areas designated for vegetation removal. | | | |

| Item | TASK | Yes/No/NA | Date | Initial |
|---|---|---|---|---|
| 22 | Sequential clearing is being undertaken, with clearing works commencing from clear areas towards vegetated areas. | | | |
| 23 | Felled native trees (with exception of logs) are being recycled (milled, chipped or mulched) and reused as mulch for landscape works and/or erosion weed control | | | |
| 24 | Any felled non-native vegetation is disposed of at an appropriate waste disposal facility or mulched and reused provided that no seed-bearing material is present. | | | |
| 25 | Stockpiling of trees only occurs within the construction footprint (ie. areas to be cleared). Stockpiling is not being undertaken within exclusion zones or adjacent vegetated areas. | | | |
| 26 | Where significant habitat trees have been identified, construction works have been undertaken to avoid the breeding season of the hollow-roosting species. | | | |
| 27 | A spotter-catcher is present during clearing activities. | | | |
| 28 | Vegetation and soil disturbance is minimised during construction. | | | |
| 29 | Prior to entering or leaving the site, all vehicles and equipment involved in clearing and weed removal works are cleaned down to remove soil and plant material to prevent spreading of soil borne disease and weed seeds or plant material. | | | |
| **Documentation Review** | | | | |
| 1 | Incident reporting and procedures - have all incidents have been documented and correctly reported and investigated? | | | |
| 2 | Sight evidence of regulated wastes tracking paperwork and receipts. | | | |
| 3 | Review Site Supervisor has records of daily site observations, actions and notifications in diary. | | | |
| 4 | Sight evidence of staff training. | | | |
| 5 | Sight evidence that vehicle and equipment maintenance has been undertaken as per the manufacturer's instructions. | | | |
| **OTHER** | | | | |
| 1 | Have any changes to daily operations have been made since last inspection – If Yes then are any updates to the CEMP required. | | | |
| 2 | Have any complaints been received? Does the complaints log need to be updated? | | | |
| 3 | Does DES need to be notified of any breaches of the licence? | | | |
| 4 | Does an audit report need to be completed following this audit? | | | |
| **LIST ADDITIONAL ISSUES FOR INSPECTION FROM AUDIT AND/OR INCIDENT INVESTIGATIONS** | | | | |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |

*Table 2 [Insert Table Caption]*

| Follow Up on Previous Audit | | | |
|---|---|---|---|
| Item No. | Result / Details of Issue | Further Action Required | Action Closed<br>(Signature of person closing action / date) |
| | | | |
| | | | |
| | | | |
| | | | |

Inspected by: _____ _____ _____

Print Name Signature Date

Acknowledged by: _____ _____ _____

(Site Supervisor) Print Name Signature Date

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The Power of Commitment