Construction Environmental Management Plan (CEMP) Template

*Insert Project Name*

*Insert Project Location*

Version: Click here to enter text.

Endorsed By (Name): Click here to enter text.

Endorsed By (Role): Click here to enter text.

Signature (Wet Sign): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date: Click here to enter a date.



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# PLEASE READ

*The purpose of this document is to provide a working template that may be used as a starting point by proponents that are compiling a Construction Environmental Management Plan. Please note that this document is an example only – proponents will need to build upon and adapt the section headings, text and management plans to suit each project.*

*Text shown in italics below has been included as a guide to demonstrate content and level of detail expected in each section of the Plan. This text has largely been taken from PPA’s Guidelines for Preparing a Construction Environmental Management Plan. It is recommended that proponents preparing their own CEMP review these guidelines before preparing their own document.*

*It is important to note that the PPA will not reject a proponent’s CEMP if it is not in the exact format and/or structure of the PPA’s CEMP template. The PPA will accept other documents in place of a CEMP (e.g. Health Safety and Environment Plan, Work Method Statement) as long as they meet the intent and minimum information requirements of the PPA’s CEMP Guidelines.*

*The PPA Environment and Heritage team is available to able assist proponents by helping to identify the key environment and heritage risks and offer management measures that are relevant to a particular site, activity or operation. The PPA encourages early engagement to ensure this happens. This will maximise the value of this input, allow timely assessment of the CEMP and prevent submission of unnecessary (or over-complex) information.*

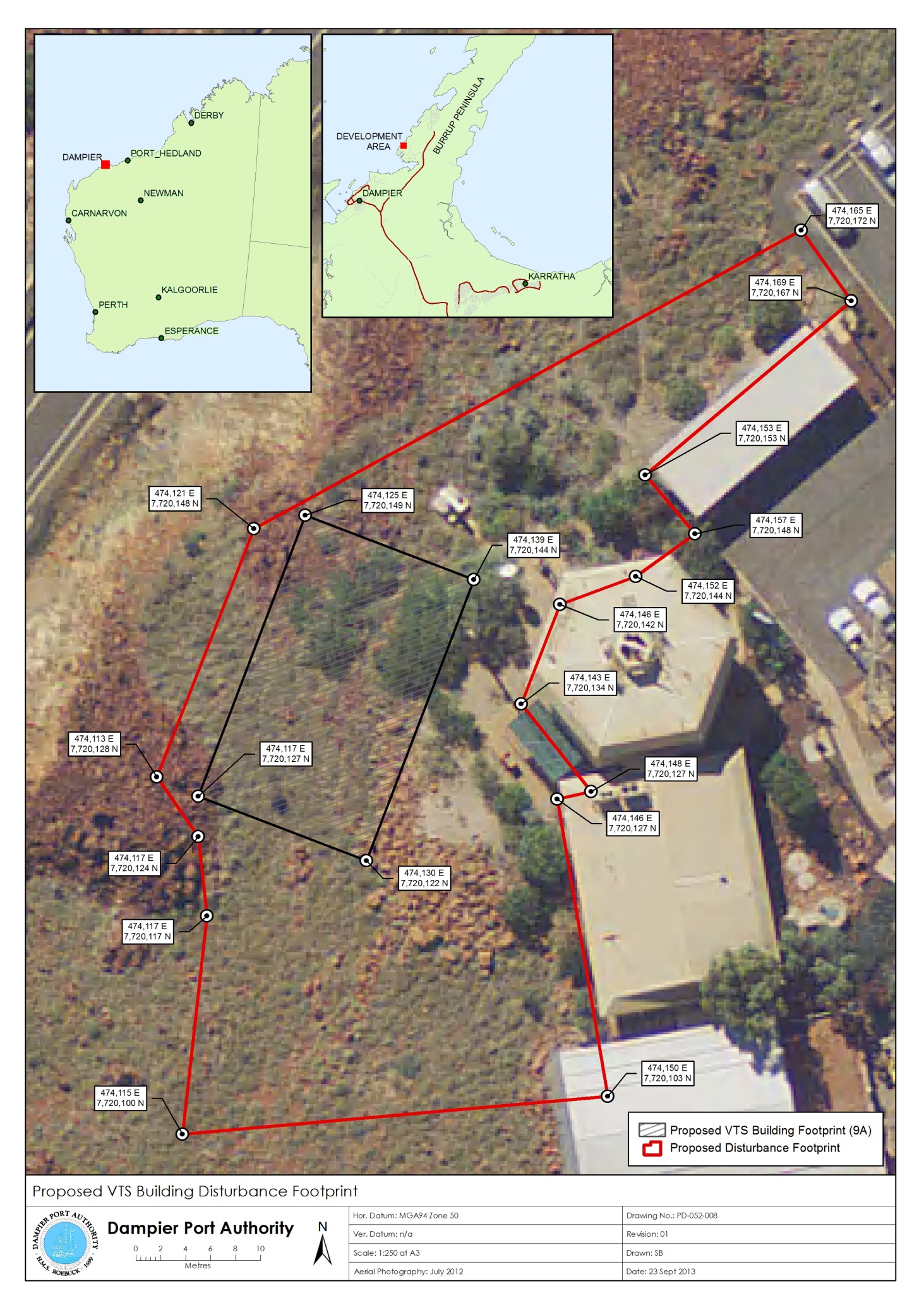
*Note well that unnecessarily lengthy, complex and/or non- site specific documents are unlikely to be approved.*

*To get started,* ***delete this entire section and begin completing text under each of the suggested headings.***

# PROJECT DESCRIPTION

*The project description will need to be clearly defined in an approved CEMP. This section would generally include some context to the development and its location, the duration of works and a site plan. The following points can be used as a general guide to the type of information required in this section.*

* **Overview of the Project:** Include some brief background to the project, a brief description of why the construction is being undertaken;
* **Scope of Construction Works:** Description of the full range of construction works / activities proposed (e.g. clearing of X hectares of land, placement of engineered rock fill, filter rock, geotextile fabric and armour rock; installation of piles; mucking out, drilling, pinning and grouting of piles etc.).
* **Description of the Construction (Disturbance) Footprint:** Full description of the existing land / marine areas that will be disturbed by the construction works and those immediately adjacent;
* **Timing of Works:** Provide a description of both the total duration of the works and the time of year they will occur. The latter would include consideration of expected climate during this time (e.g. anticipated rainfall / cyclone events, wind direction and speeds);
* **Site Plan:** The project site plan would clearly show the full extent of the proposed works area of the construction project. This would typically include a map with the full construction boundary and disturbance footprint marked clearly over a current aerial photograph (i.e. including all construction activities, associated laydown areas etc.). It would also include site specific information, for example the location of any important waterways or adjacent vegetation to be protected, national heritage listed areas, or the location of sediment and erosion traps. Note that the PPA can provide a current aerial photo of the works area on request.



**Figure X**: Locality of Project Area and Total Disturbance Footprint (**EXAMPLE ONLY**)

# PROJECT ROLES, RESPONSIBILITIES AND CONTACTS

*All positions across the project have environmental responsibilities to some extent. These vary in relation to duties described in Table 1, but everyone has a base level Duty of Care to prevent Environmental Harm as described in the Environmental Protection Act 1986.*

*The interdependencies of positions on the project are shown in Table* ***X*** *(over page). Names and contact numbers are correct for this revision, but may change during the project.*

**Table X**: Project Roles, Responsibilities and Contact Details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Position | Responsibilities | Line Manager | Name | Contact DETAILS\* |
| Project Manager |  |  |  |  |
| Site Supervisor |  |  |  |  |
| Environment Officer |  |  |  |  |
| HSE Representative |  |  |  |  |

*\* Contact details (e.g. email addresses, landline and/or mobiles phone numbers) for all of these roles should be provided.*

# Training, AWARENESS and Competency

*Outline how environmental training, awareness and competency will be delivered / assessed throughout the project, to ensure the relevant aspects of this CEMP are communicated to the project team and front line staff (including contractors and sub-contractors). Examples may include:*

* Site Environment Induction
* Daily Pre-Start Meetings
* Environmental Toolbox Talks
* Incident bulletins
* Sub-contractors kick-off meeting
* Contractor and client site kick-off meeting

# ENVIRONmeNT AND HERITAGE RISK MANAGEMENT

*The purpose of this section in a CEMP is to present a summary of the environment and heritage risks and controls that have been identified for the proposed construction project. The proponent would generally determine what these risks and proposed management controls are through a project risk assessment or (for smaller projects) by developing a job hazard analysis for specific task(s).*

*The PPA encourages proponents to engage with the PPA Environment and Heritage team early during this project risk assessment process. Preferably, this will be in the form of a face-to-face meeting on the proposed construction site. This process will help to ensure the end product is looks at the site specific risks and is as concise as possible.*

*Summarised in bullet point below and in the tables that follow (Sections 5.2 – 5.12) are several examples of risk management tables for the following environmental management areas:*

* *Underwater Noise*
* *Introduced Marine Pests*
* *Turbidity Management*
* *Noise Management*
* *Dust Management*
* *Use of Marine Water for Dust Suppression*
* *Sediment and Erosion Control*
* *Oil and Other Noxious Substances*
* *Housekeeping and Waste*
* *Terrestrial Fauna*
* *Native Vegetation and Weeds*

*These may be considered when developing your CEMP. Note that this is not an exhaustive list, and it would be expected that proponents develop risk management strategies, controls etc. that suit the scale / nature of each construction project. A template table has been provided in Section 5.1 to enable proponent’s to develop risk management plans unique to their own site.*

## Template

|  |  |  |  |
| --- | --- | --- | --- |
| TEMPLATE | | | |
| Objective(s) |  | | |
| Management Strategy |  | | |
|  | | **Responsibility** | **Timing** |
| Control(s) |  |  |  |
| Performance Indicator(s) |  |  |  |
| Monitoring |  |  |  |
| Reporting |  |  |  |
| Corrective Action(s) |  |  |  |

## Heritage

| HERITAGE | | | |
| --- | --- | --- | --- |
| Objective(s) | To minimise the impacts of development, operation and maintenance of the Project on the heritage values in the Project area. | | |
| Management Strategy | Ensure heritage impacts are minimised, and impacts outside of the approved disturbance area are avoided. | | |
|  | | **Responsibility** | **Timing** |
| Control(s) | Identify heritage values within the project area (desktop research, consultation and surveys as appropriate).  Ensure personnel undertake appropriate inductions.  Develop and implement a Cultural Heritage Management Plan (CHMP) in consultation with PPA and other relevant stakeholders i.e. Traditional Owners, Statutory Authorities (such as Department of Aboriginal Affairs, Heritage Council). The CHMP should include but not be limited to:   * Identification all known heritage values within a development area; * Strategies to avoid/minimise impacts such as buffer zones, fencing, signage, inductions, blast mats, salvage, relocation etc…; * Site impact process i.e. consultation, surveys, statutory applications; and * Heritage incident response procedures. |  |  |
| Performance Indicator(s) | No disturbance of heritage values outside of the approved disturbance area.  No complaints or allegations of unauthorised disturbance of heritage values. |  |  |
| Monitoring | Monitoring of first ground disturbance at terrestrial heritage sites.  Daily monitoring of disturbance footprint.  Regular monitoring of all heritage sites for impacts. |  |  |
| Reporting | Incidents are to be reported immediately to the PPA Project Manager and the Environment and Heritage Manager.  Copies of all heritage survey reports, statutory approval applications, CHMPs and any subsequent consents are to be provided to the PPA Environment and Heritage Manager.  Copies of all report backs required by statutory approvals are to be provided to the PPA Environment and Heritage Manager.  Copies of incident investigations and outcomes are to be provided to the PPA Environment and Heritage Manager. |  |  |
| Corrective Action(s) | Cease works in the impact area immediately.  Implement measures outlined in CHMP.  Review and modify procedures/CHMP if necessary. |  |  |

## Underwater Noise

| UNDERWATER NOISE | | | |
| --- | --- | --- | --- |
| Objective(s) | 1. To minimise the impacts of underwater noise to marine fauna, particularly dugongs, whales, dolphins and turtles. | | |
| Management Strategy | Underwater noise to be managed primarily through administrative (procedural) controls during the construction phase (i.e. marine fauna observations prior to and during piling). | | |
|  | | **Responsibility** | **Timing** |
| Controls | Pre-start-up visual observations for the 2 km line of sight radius exclusion zone for whales, and for the 300m line of sight radius exclusion zone for marine turtles, dugongs and dolphins will be undertaken for at least 20 minutes before the commencement of piling activities.  While piling is in progress, visual observations of the exclusion zone will be maintained and if these animals are sighted within their respective exclusion zones, piling activities will cease within two minutes of the sighting occurring. Piling operations will only recommence when these animals are observed to have moved outside their exclusion zone or 20 minutes have passed since the last sighting.  Start-up piling operations will commence following the pre-start visual observations and be initiated as soft 'fairy taps' building up to full driving force. (i.e. the first five impacts will be at no more than 50% of full hammer weight).  During periods of low visibility (where a distance out to two kilometres cannot be clearly viewed), including night time, pile driving activities may be undertaken provided that during the preceding 24 hour period: (a) there have not been 3 or more stop work situations instigated by whales, marine turtles, dugongs or dolphins; and (b) a 2 hour period of continual observations was undertaken in good visibility (to a distance of 2 kilometres) and no whales, marine turtles, dugongs or dolphins were sighted. |  |  |
| Performance Indicator(s) | No. of logged marine fauna observations v’s piling events  Number of operational shut downs (or other agreed management strategies) as a result of marine fauna sighting prior to / during piling operations.  No. of piling log records demonstrating soft start-up procedure adhered to |  |  |
| Monitoring | Daily review of records and compliance to marine fauna procedure (i.e. marine fauna observations undertaken, piling logs demonstrating soft start-up being undertaken)  Daily piling supervisor’s inspections.  Internal Auditing (e.g. Loss Prevention Inspections) |  |  |
| Reporting | A log of all visual observations of whales, marine turtles, dugongs and dolphins maintained and available to PPA on request.  All operational shut down events shall be immediately communicated to PPA Project  Manager and Environment and Heritage Manager.  Incidents (including breaches of this management strategy or marine fauna procedure) to be reported immediately to the PPA Project Manager and Environment and Heritage Manager. |  |  |
| Corrective Action(s) | Cease piling works immediately  Implement corrective measures (as agreed with PPA) prior to the recommencement of piling |  |  |

## Introduced Marine Pests

| INTRODUCED MARINE PESTS | | | |
| --- | --- | --- | --- |
| Objective(s) | To ensure that all non-trading vessels and associated immersible equipment required for the Project represent a low risk to the WA marine environment (in terms of introduced marine pests). | | |
| Management Strategy | Non-trading vessels and associated immersible equipment demonstrated as low risk (to the satisfaction of PPA and Department of Fisheries) *prior* to arrival in Port waters. | | |
|  | | **Responsibility** | **Timing** |
| Controls | Conduct risk assessment on non-trading vessels / immersible equipment to satisfaction of Department of Fisheries prior to departure for PPA Port. Risk assessment must demonstrate  Conduct biofouling inspections of non-trading vessels and immersible equipment prior to departure for Port. Inspections shall be completed by a suitably qualified WA Department of Fisheries endorsed inspector.  Ensure there is no sediment on or within the non-trading vessel and immersible equipment;  Any cleaning or treatment activities are undertaken to address invasive marine species risk, has been undertaken to an extent that the non-trading vessel or associated immersible equipment is considered by Department of Fisheries and PPA to represent a low risk to the West Australian marine environment  Ballast water (if any) has been, or will be, managed according to the Australian Department of Agriculture Forestry and Fisheries ballast water requirements. |  |  |
| Performance Indicator(s) | Non-trading vessels / immersible equipment represents low risk to WA marine environment;  No introduced marine pests of concern to WA Department of Fisheries found on vessel during inspections of hull and niche areas. |  |  |
| Monitoring | Conduct an in-water biofouling inspection for each non-trading vessel / immersible equipment within 6 weeks of arrival at the PPA Port to verify low-risk from introduced marine pests. |  |  |
| Reporting | Documented outcomes of the ‘Actions’ (listed above) shall be sent to the WA Department of Fisheries and PPA for review and approval prior to the departure of each vessel / immersible equipment to the Port. |  |  |
| Corrective Action(s) | Where an introduced marine pest is identified or potentially identified on the non-trading vessel / immersible equipment, this will be reported immediately with PPA and Department of Fisheries. |  |  |

## Turbidity

| TURBIDITY | | | |
| --- | --- | --- | --- |
| Objective(s) | 1. To minimise the volume of fine sediments / silts introduced into the marine environment through various construction activities.  2. To minimise / manage the spread of sediments generated by construction activities | | |
| Management Strategy | Undertake monitoring of turbidity through observations and in-situ measurements to proactively manage turbid plumes / sediment input. | | |
|  | | **Responsibility** | **Timing** |
| Control(s) | *In situ* (drogue) monitoring will be undertaken to verify construction activities (land-based and marine) do not exceed 5 NTU above background at 1,000m from the work site. Monitoring will be undertaken in accordance with monitoring plan approved by PPA.  Monitoring for turbid plumes generated by piling, drilling and material placement activities will be undertaken. Observations will be recorded daily during those activities and will be from an elevated location ensuring line of sight is maximised. These observations will include (but are not limited to) recorded information (*pro forma*) and site photographs demonstrating:  (a) Plume extent (e.g. estimated distance in metres from the drill rig or construction work face),  (b) Plume direction  (c) Prevailing metocean conditions (e.g. wind, tide, swell)  (d) Start-up and shut down times for drilling / piling operations  (e) Any other notable visual characteristics of the plume or piling / drilling activity.  All material from drilling / mucking out operations will be recovered on land and not discharged directly into the marine environment.  All marine based mucking out and drilling shall take place during daylight hours only unless otherwise approved by the PPA. |  |  |
| Performance Indicator(s) | Turbidity measurements generated by construction activities not to exceed 5NTU above background conditions @ 1000m from worksite |  |  |
| Monitoring | Daily (documented) observations and panoramic photographs of turbid plumes generated by work activities  Daily inspections of worksite |  |  |
| Reporting | All visual observations records (forms / photos etc.) of turbid plumes to be made available to PPA on request.  All operational shut down events shall be immediately communicated to PPA Project Manager and Environment and Heritage Manager.  Incidents (including breaches of this management plan) to be reported immediately to the PPA Project Manager and Environment and Heritage Manager. |  |  |
| Corrective Action(s) | Should turbidity monitoring indicate a level of 5NTU above background @ 1000m has been exceeded, response will be to cease the work creating the plume until monitoring levels fall within compliance.  Should the monitoring levels exceed the requirements on a continual basis, Marine and Civil shall investigate additional measures to control turbidity |  |  |

## Noise Management

| NOISE MANAGEMENT | | | |
| --- | --- | --- | --- |
| Objective(s) | 1. To minimise the impacts of noise on the amenity of the surrounding areas. 2. Construction activities undertaken in accordance with *AS 2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition* Sites. 3. Construction activities undertaken in accordance with *Environmental Protection (Noise) Regulations 1997* | | |
| Management Strategy | Noise to be managed primarily through administrative and equipment controls during the construction phase. | | |
|  | | **Responsibility** | **Timing** |
| Control(s) | All equipment used during the construction phase to be regularly maintained to ensure efficient operation;  Pre-start checks and maintenance schedules to ensure equipment performance is as required;  Noise-dampening equipment to be used on equipment with excessive noise generating characteristics;  Construction activities in accordance with AS2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites. |  |  |
| Performance Indicator(s) | No complaints from adjacent commercial premises and/or community. |  |  |
| Monitoring | Daily inspection of works sites to occur  Service logs for equipment/machinery used on site |  |  |
| Reporting | Any complaints or incidents to be reported to PPA project manager. |  |  |
| Corrective Action(s) | Investigate cause of excessive noise  Implement corrective measures prior to the recommencement of site works  Reschedule of noise-generating activities to reduce noise annoyance |  |  |

## Dust Management

| DUST MANAGEMENT | | | |
| --- | --- | --- | --- |
| Objective(s) | 1. To ensure the impacts of dust on adjacent areas and the community are minimised. | | |
| Management Strategy | Dust issues managed principally by emission controls at source, and administrative controls during works. | | |
|  | | **Responsibility** | **Timing** |
| Control(s) | Area to be disturbed minimised. Clearance lots to be approved by Project Manager.  Where dust is identified as an issue, dust control measures will be implemented. These will primarily be the use of water carts, but may include surface treatments.  Vehicle movements controlled (Traffic Management Plan) and kept to established tracks and haul roads.  Dust awareness issues in environmental induction process |  |  |
| Performance Indicator(s) | No complaints from adjacent commercial premises and/or community. |  |  |
| Monitoring | Daily inspection of works sites to occur, including:   * visual check for dust crossing the site boundaries * visual check of high potential dust areas, such as haul roads, stockpiles and operational areas. |  |  |
| Reporting | Any complaints or incidents to be reported to PPA project manager. |  |  |
| Corrective Action(s) | Investigate cause of excessive dust  Implement controls immediately (e.g. water carts)  Implement corrective measures prior to the recommencement of site works  Implement administrative controls if required, such as rescheduling of dust generating activities to more favourable weather conditions. |  |  |

## Use of Marine Water for Dust Suppression

|  |  |  |  |
| --- | --- | --- | --- |
| USE OF MARINE WATER FOR DUST SUPRESSION | | | |
| Objective(s) | 1. To ensure the use of marine waters for dust suppression does no impact adjacent areas | | |
| Management Strategy | Minimise the use of marine waters to as low as reasonably practicable. | | |
|  | | **Responsibility** | **Timing** |
| Control(s) | Waters applied sufficient to address dust suppression only, and excessive runoff waters not created.  Wherever possible, all site drainage to run internal to the site and allowed to infiltrate, and/or have the longest internal flow path possible.  Filling of the header tank (site storage) to be triggered by float mechanism in tank, indicating low and high level.  Operator to maintain watch during filling operation to ensure water cart not over-filled. | Project Manager | Throughout Project |
| Performance Indicator(s) | No evidence of salinity-related impacts to adjacent areas. | Project Manager | Throughout project |
| Monitoring | Daily inspection of work sites to occur, including:   * visual check for application of dust suppression water * visual check of water cart fill point | Project Manager | Throughout project |
| Reporting | Any issues to be reported to the Construction Manager and  Statistics reported in weekly and monthly environmental reports. | Project Manager | Throughout project |
| Corrective Action(s) | Investigate cause of excessive dust control waters  Implement controls as required (e.g. diversions)  Review issue with water cart operators and/or Construction Manager Implement administrative controls if required, such as rescheduling of dust generating activities to more favourable weather conditions. | Project Manager | Throughout project |

## Sediment and Erosion Control

| SEDIMENT AND EROSION CONTROL | | | |
| --- | --- | --- | --- |
| Objective(s) | 1. To ensure that the effects of erosion and sedimentation on the environment and biological communities are minimised. 2. Minimise soil disturbance, degradation and erosion. | | |
| Management Strategy | Ensure that direct impacts (land disturbance) are limited to the works area, and that secondary impacts do not impact adjacent areas. | | |
|  | | **Responsibility (Role)** | **Timing** |
| Control(s) | Disturbance area will be minimised and clearly demarcated.  Works will only be conducted within the works zone.  Vehicle movements will be restricted to the defined roads/tracks.  Where possible, works area will be designed to ensure stormwater runoff drains into the site.  Where runoff from the site is required, it will be via the longest flow path possible to ensure maximise sediment retention. Flows to undisturbed areas will be prioritised.  Where required, sediment controls will be put in place. These will include, but not be limited to, rock check dams, sediment basins, sediment fences and silt socks.  Sediment controls will be reviewed during site inspections and/or after significant rainfall (more than 10mm in 24hrs resulting in site runoff). |  |  |
| Performance Indicator(s) | No evidence of significant sediment deposition outside the works area. No evidence of significant rilling, gullies or other instances of run-off erosion. |  |  |
| Monitoring | Daily inspection of work site to occur.  Sediment controls will be reviewed during site inspections and/or after significant rainfall (more than 10mm in 24hrs resulting in site runoff). Review will include removal of accumulated sediments as required. |  |  |
| Reporting | Incident report for non-conformance of sediment control  Logging of sediment control structures - location and condition during weekly site inspection |  |  |
| Corrective Action(s) | Investigate cause of sediment control failure  Review flow path and determine most appropriate controls are in place, additional controls which can be place in-stream and/or changes that can be made to flow path  Review similar controls on-site (even though these may not have failed) for similarities |  |  |

## Oil and Other Noxious Substances

| OIL AND OTHER NOXIOUS SUBSTANCES | | | |
| --- | --- | --- | --- |
| Objective(s) | 1. To minimise the potential for spills of oils and other noxious substances to as low as reasonably practicable. |  |  |
| Management Strategy | Reduce quantity of hydrocarbons stored to that required, implement appropriate controls and provide appropriate training and resources for a spill response. |  |  |
|  | | **Responsibility (Role)** | **Timing** |
| Control(s) | All hydrocarbons to be stored in an appropriate bund that is capable of holding 110% of a spill from the largest container, or 10% of total volume of stored liquids, whichever is greater.  Refuelling of vehicles/equipment will be undertaken on land (not over water), unless the task is not possible.  To reduce the impact of a spill, the lowest volume of hydrocarbons required will be stored in proximity to the marine environment and in the onshore lay down areas.  A copy of the current hydrocarbon MSDS will be kept at an appropriate location on site.  Drip trays shall be placed under mechanical stationary equipment such as gensets if such equipment is not internally bunded.  Onsite spill response training will be carried out on a periodic basis. All deficiencies  identified through training and testing of the procedures will be documented and rectified immediately.  All equipment will be regularly serviced to reduce emissions and reduce the chance of oil leaks on site and in marine environments. Appropriate controls in place to contain hydrocarbon leaks should they occur whilst servicing. Controls may include use of drip trays when changing oil and transporting waste oils in bunded containers.  Only qualified personnel are to carry out services on plant, equipment and vessels.  A prescribed Isolation procedure must be followed prior to work on any plant or equipment.  Training / awareness to be included in site induction (including all staff, contractors, subbies etc.).  Appropriate volume and type of spill response materials will be available at each work site  Spill will be contained and cleaned-up immediately. Resultant wastes (soils, rags and absorbent material) appropriately stored and disposed of by an appropriately licenced waste contractor as controlled waste.  All spills reported and investigated as required. |  |  |
| Performance Indicator(s) | Minor spills (<10L) to land contained, controlled and all contamination removed / cleaned-up within 24 hours.  No spills to marine waters.  Reporting to PPA within timeframes specified below  No contamination of soil or surface / ground waters.  No spills that require an emergency response |  |  |
| Monitoring | Incident report outlining corrective actions taken and preventative measures to be implemented sent to PPA with 48 hours  Statistics reported to PPA in weekly meetings and monthly reports. |  |  |
| Reporting | All marine spills (regardless of volume) to be reported to the PPA communications tower (Dampier) immediately (VHF 11 or 16, (08) 9159 6556, 24 hour emergency mobile 0428 888 800).  A spill of oil or any other hazardous or noxious substance to the deck of the Dampier Cargo Wharf, Bulk Liquids Berth or to a PPA road (i.e. no spill to the marine environment) is reportable immediately to the PPA Duty Landside Operations Coordinator on 0427 770 859.  The following incidents must be reported to PPA on a monthly basis (e.g. at KPI meetings)   * If there is less than 10L spilt, the spill is contained on site and it is able to be fully cleaned up.   The following types of spill incidents must be reported to the PPA Environment and Heritage team immediately (including a follow-up incident investigation report within 48 hours):   * Any spill greater than 10L; * Any spill which cannot be fully cleaned up / contained immediately; OR * Any spill which leaves the lease area (e.g. as liquid discharge or dust emission). |  |  |
| Corrective Action(s) | Stop work immediately, contain spill (if safe). Investigate cause of spill and assess. Implement improvements as required.  Investigate and assess adequacy of response – implement improvements as required.  Implement corrective measures prior to the recommencement of site works. |  |  |

## Housekeeping and Wastes

| HOUSEKEEPING AND WASTES | | | |
| --- | --- | --- | --- |
| Objective(s) | Reduce waste volume, maximise recycling, reuse and recovery, prevent any construction waste/litter entering the environment. | | |
| Management Strategy | Minimise environmental impacts through appropriate controls and site inductions of employees and sub-contractors. | | |
|  | | **Responsibility (Role)** | **Timing** |
| Control(s) | Provide appropriate waste bins, type, volume and service frequency to accommodate anticipated waste streams.  All loads arriving or leaving the site will be appropriately secured.  Provide information regarding waste management in site specific inductions, including waste separation and importance of securing vehicle loads.  Ensure licensed contractors are used to collect controlled wastes |  |  |
| Performance Indicator(s) | Hazardous materials all appropriately disposed.  Recycling of all recyclable construction metal waste  Records kept of waste leaving site. |  |  |
| Monitoring | Daily inspection of work site to occur. Review of waste bins (% full, time to next service).  Waste volumes leaving site from waste contractors |  |  |
| Reporting | Environmental incident reports. | Project Manager | Throughout project |
| Corrective Action(s) | Investigate cause of inappropriate waste disposal  Review cause of issue and develop response, such as variation to bin size, service schedule or waste separation awareness.  Implement controls | Project Manager | Throughout project |

## Terrestrial Fauna

| TERRESTRIAL FAUNA | | | |
| --- | --- | --- | --- |
| Objective(s) | 1. To minimise the impact to fauna 2. To prevent the spread of introduced species | | |
| Management Strategy | Ensure impacts to fauna are minimised, and impacts outside the disturbance zone are avoided. | | |
|  | | **Responsibility (Role)** | **Timing** |
| Control(s) | Provide site specific information on fauna within the Environmental Induction  Include identification sheets in prominent locations for priority species (olive python, Pilbara Leaf-nosed bat and Northern Quoll)  Include identification of feral species in prominent locations  Include toolbox talks for site specific fauna information during project to ensure currency of information  Ensure no activities outside the works zone through clear delineation of the works area, and communication in site inductions  Ensure traffic is restricted to established tracks and roads, and speed limits observed.  Where excavations are created which may entrap fauna, suitable escape measures are put in place, and excavation are checked for fauna before backfilling.  Contact wildlife carer groups/vet for injured fauna  Domestic animals prohibited on-site  Ensure appropriate waste management (lidded bins), including food scraps, to reduce potential for feral species to become established on-site |  |  |
| Performance Indicator(s) | No disturbance outside the disturbance zone  No injury or death of any fauna caused by vehicles or excavations  No injury or death of protected fauna.  No domestic animals on-site |  |  |
| Monitoring | Daily inspection of work site to occur. |  |  |
| Reporting | Sightings and incidents reported in weekly contractor/PPA meetings. Injured native fauna to be reported to PPA Environment and Heritage team |  |  |
| Corrective Action(s) | Investigate cause of incident  Review opportunities/constraints for further minimisation of potential incidents given work procedure parameters  Implement corrective measures prior to the recommencement of site works |  |  |

## Native Vegetation and Weeds

| NATIVE VEGETATION AND WEEDS | | | |
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| Objective(s) | 1. To minimise the disturbance to existing flora 2. To minimise the introduction and/or spread of weed species | | |
| Management Strategy | Ensure impacts to native vegetation are minimised, impacts outside the disturbance zone are avoided and appropriate management is in place to control spread / introduction of weeds. | | |
|  | | **Responsibility (Role)** | **Timing** |
| Control(s) | Provide site specific information on flora within the Environmental Induction  Ensure that any native vegetation clearing occurs within the limits of an approved area under the PPA whole of Port native vegetation clearing permit.  Ensure no activities outside the works zone through clear delineation of the works area, and communication in site inductions  Ensure traffic is restricted to established tracks and roads, and speed limits observed.  Ensure effective sediment and erosion control to reduce potential impacts to non-disturbance zone.  Ensure all plant and equipment coming to site has been cleaned for site access (weeds and seeds).  No fires on-site. |  |  |
| Performance Indicator(s) | No disturbance of vegetation communities outside the disturbance zone  No introduction of weed species |  |  |
| Monitoring | Daily inspection of work site and boundary to occur. |  |  |
| Reporting | Any accidental clearing of native vegetation to be reported to the PPA project representative and followed through with an incident report. |  |  |
| Corrective Action(s) | Investigate cause of incident  Implement corrective measures prior to the recommencement of site works  Review opportunities/constraints for further minimisation of potential incidents given work procedure parameters. |  |  |