

Project Controls

Master Specification

PC-ENV2 Environmental Protection Requirements

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PC-ENV2 Environmental Protection Requirements

1 General

- 1.1 This part specifies the minimum environmental protection requirements that the Contractor shall comply with. The requirements specified in this part apply unless stated otherwise by the Principal. It shall apply in conjunction with PC-ENV1 “Environmental Management”.
- 1.2 Where appropriate to the work being undertaken, the Contractor shall comply with the following:
 - a) any applicable environmental legislation;
 - b) SA Environment Protection Authority (EPA) standards and guidelines;
 - c) Department Protecting Waterways Manual;
 - d) Department Water Quality Monitoring Manual for Construction;
 - e) Department Environmental Code of Practice for Construction, Road, Rail and Marine Facilities;
 - f) Department Vegetation Removal Policy;
 - g) Department Environmental Instruction 21.7: Management of Noise and Vibration: Construction and Maintenance Activities;
 - h) Department Cultural Heritage Guidelines;
 - i) AS 1940 “The storage and handling of flammable and combustible liquids”;
 - j) AS 4373 “Pruning of Amenity Trees”; and
 - k) AS 4970 “Protection of Trees on Development Sites”.
- 1.3 Department publications are available from: <https://www.dpti.sa.gov.au/standards/environment>.

2 Construction Methods and Temporary Works

General

- 2.1 The Contractor’s construction methodology, including all temporary works, must be planned and undertaken to avoid environmental nuisance and harm and to minimise direct and indirect impacts to wetlands, watercourses, fauna habitat, native and non-native vegetation, the local community and other important environmental areas to the greatest extent possible.
- 2.2 Any Environmental Authorisations required shall be obtained by the Contractor (refer PC-ENV1 “Environmental Management”).
- 2.3 The Contractor must rehabilitate / remediate all disturbed areas progressively throughout the duration of the Contract. This includes all areas used for construction activities, such as, but not limited to, compound sites, stockpile sites and access and haul roads to, as a minimum, their original condition (as previously recorded by the Contractor) at the time of entering into the Contract, unless specified otherwise by the Principal.
- 2.4 The design and establishment of temporary creek crossings must ensure no changes to environmental flows, water quality and velocity, and maintain fish and fauna passage;
- 2.5 The design of temporary works shall address the management of contaminated material, wherever possible considering alignment with the waste management hierarchy within the Green Industries SA Act, 2004.

Borrow Pits

- 2.6 The Contractor shall rehabilitate / remediate any new or existing borrow pits that were established or utilised during the project. At a minimum, the Contractor shall ensure:
 - a) implementation of any Development Approval conditions, where required;

- b) the batter faces are flattened to a slope of 6:1 (Horizontal:Vertical) to reduce erosion potential;
- c) the over-burden with vegetation that was removed prior to beginning of quarrying operation is spread over the new floor;
- d) the existing floor of the pit is scarified to improve soil permeability and water infiltration; and
- e) diversion drains are constructed around the edge of the pit to minimise erosion caused by water flowing into the pit across exposed soil surfaces (batter slopes).

Stack Sites

- 2.7 If Works under the Contract includes the use of existing stack sites, the Contractor shall:
- a) ensure that the stack sites are left in a neat and tidy state, with any remaining material supplied by the Contractor removed;
 - b) avoid contamination of the stack sites by bituminous products and clean up any accidental spills in accordance with EPA requirements (including notification of the EPA);
 - c) prevent leachate contamination of sites where pre-coated materials are used; and
 - d) ensure weed hygiene controls are in place during stack site use.

3 Vegetation Impacts and Protection

Vegetation Clearing and Pruning

- 3.1 The Contractor shall not remove, disturb or damage any vegetation, including aquatic vegetation, unless otherwise approved by the Principal.
- 3.2 The Contractor shall obtain all approvals required in accordance with the Department's Vegetation Removal Policy and relevant legislation prior to commencing vegetation clearance / removal and pruning work.
- 3.3 To obtain Hold Point Release, the Contractor shall provide vegetation impacts documentation that demonstrates the following:
- a) the vegetation requiring removal or pruning is justified and corresponds with the vegetation impacts indicated on the drawings;
 - b) the vegetation offset requirements in accordance with the Department's Vegetation Removal Policy;
 - c) the Contractor has obtained all necessary approvals under legislation and the Contract; and
 - d) the Contractor has undertaken all necessary stakeholder engagement regarding the vegetation impacts.
- 3.4 Provision of vegetation impact documentation to the Principal prior to vegetation pruning and / or removal shall constitute a **Hold Point**.
- 3.5 The Contractor shall:
- a) undertake all tree pruning and removal in accordance with PR-LS-C11 "Tree Pruning and Removal" and in accordance with AS 4373 "Pruning of Amenity Trees";
 - b) not prune, remove or otherwise damage any vegetation beyond the Contractor's Activity Zone (CAZ) (refer PC-SM2 "Site and Access Management"). Vegetation clearance beyond the CAZ is only allowed with prior approval of the Principal or where pruning is required to meet AS 4373, however it must be limited to the minimum amount practicable;
 - c) identify and relocate tree hollows in accordance with Clause 4.3;
 - d) liaise and obtain any authorisations or approvals from the relevant landowner (e.g. private owners, local Council, Government Agencies, etc), and other key stakeholders, and obtain any necessary authorisations, prior to vegetation removal, canopy pruning or works within the Tree Protection Zone (including root pruning); and

- e) dispose of excess vegetative material in accordance with PR-LS-C11 “Tree Pruning and Removal” and PR-MA-M1 “Herbicide and Wood Weed Control”.
- 3.6 All tree pruning and removal shall be undertaken by a suitably qualified arborist, unless the vegetation removal:
 - a) is limited to clearing and grubbing; and
 - b) is wholly undertaken by plant such as a bulldozer, front end loader or grader.
- 3.7 The Contractor shall allow for and program the appropriate statutory assessment and approval timeframes (e.g. State Commission Assessment Panel; Local Government; Native Vegetation Council).
- 3.8 The Contractor is responsible for offsetting the vegetation removal and pruning in accordance with the Department’s Vegetation Removal Policy.

Protection of Non-target Vegetation

- 3.9 “Non-target Vegetation” means vegetation that is not authorised or approved to be impacted.
- 3.10 The Contractor shall ensure that any non-target vegetation is not damaged as a result of construction activities.
- 3.11 The Contractor shall:
 - a) not damage roots within the Structural Root Zone (as defined in AS 4970) of any remaining tree;
 - b) not park or store vehicles, plant or equipment, or stockpile material within the Tree Protection Zone (TPZ, as defined in AS 4970), or on any remaining native or amenity vegetation;
 - c) minimise root damage within the TPZ and clean saw cut any roots exposed during works;
 - d) undertake works close to trees using non-destructive methods (e.g. hydro-vacuum) or by hand to avoid damage by equipment;
 - e) minimise the number of anchoring points (marine environments); and
 - f) ensure works are planned to avoid impacting High Value Vegetation unless otherwise authorised by legislation and / or the Principal.
- 3.12 The Contractor must determine the Tree Protection Zone (TPZ) for High Value vegetation in accordance with AS4970, and must comply with the tree protection measures set out in AS4970. The TPZ must be included on design / construction drawings including any notes required to protect the trees.
- 3.13 Non-destructive excavation techniques (e.g. hydro vacuum / under boring) must be undertaken within the tree protection zones of High Value vegetation, unless otherwise approved by the Principal. A suitably qualified arborist must oversee and recommend a construction methodology to protect ongoing tree health and stability for working within the TPZ of High Value vegetation. The Contractor must comply with the arborist’s recommendations.
- 3.14 Provision of the arborist’s recommendation report to the Principal shall constitute a **Hold Point**.
- 3.15 Methods for protecting Non-target Vegetation shall be included in the Contractor’s Environmental Management Plan (CEMP) (refer “PC-ENV1 “Environmental Management Requirements”).

High Value Vegetation

- 3.16 High Value Vegetation is considered to be:
 - a) vegetation covered under the Native Vegetation Act 1991;
 - b) Regulated / Significant Tree under the Development Act 1993 (including those that may be exempt from Development Approval);
 - c) Native and non-native vegetation located in and on the margins of waterways;
 - d) vegetation covered by any other environmental legislation;
 - e) vegetation that is located on third party land (i.e. land not owned by the Principal);

- f) any other vegetation that may be identified by the Principal or the community as providing localised amenity or ecological value; or
- g) Rail and Roadside Significant Sites.

4 Fauna Protection

- 4.1 Approval documentation for fauna impacts must be provided to the Principal prior to those impacts occurring and shall constitute a **Hold Point**. This applies to authorisations under the Environment Protection and Biodiversity Conservation Act 1999.
- 4.2 The Contractor shall:
 - a) implement all reasonably practicable measures to minimise disturbance to fauna (including marine mammals and other marine fauna, where applicable) and prevent injury to fauna;
 - b) contact Fauna Rescue SA, the RSPCA or a veterinarian for advice if any injured fauna is found on the Site;
 - c) under the supervision of a suitably qualified specialist, relocate any native fauna to a similar habitat if that fauna's habitat will be destroyed by the Contractor's work;
 - d) provide fauna ladders and fish passage devices, to enable fauna to pass through or around the construction site as required;
 - e) instigate work practices which allow marine fauna that are sensitive to noise to depart without risk of harm; and
 - f) notify the Principal if any injured or dead native fauna is found on the Site.
- 4.3 The Contractor must:
 - a) relocate hollows that have been removed from a tree where material of between 400 mm and 1000 mm in length that contains hollows greater than 50 mm in diameter or hollow apertures greater than 40% of the trunk diameter is removed from a tree; and
 - b) place these hollows on the ground amongst existing vegetation in a location where they do not smother native vegetation or present a hazard to persons or property.
- 4.4 Methods for protecting fauna on the site shall be included in the Contractor's Environmental Management Plan (CEMP) (refer "PC-ENV1 "Environmental Management Requirements")

5 Weed, Pest and Disease Control

- 5.1 The Contractor shall:
 - a) ensure that declared animals, declared plants and environmental weeds (including seeds and other propagules) are not introduced to the site or spread as a result of any site activities. Effective hygiene practices must be used on all vehicles, plant and equipment. Environmental weed species are listed in the Department's Weeds List available from: <https://www.dpti.sa.gov.au/standards/environment>;
 - b) consult, obtain the required authorisations and comply with the requirements of the Natural Resources Management Act 2004 (NRM Act) in regard to declared animals and plants, including control, transport and disposal (advice can be obtained from DEW (<http://www.naturalresources.sa.gov.au>) and Primary Industries and Regions SA (PIRSA) BiosecuritySA (<https://www.pir.sa.gov.au/biosecurity>);
 - c) undertake all weed control activities in accordance with PR-MA-M1 "Herbaceous and Woody Weed Control";
 - d) maintain all declared pest plants and environmental weeds within the Contractor's Activity Zone to a height or spread less than 300 mm;
 - e) notify the Principal in the event of any outbreak of declared animal, declared plant or environmental weed resulting from activities associated with this Contract;

- f) develop and implement a management plan to control the outbreak of declared and environmental weeds, up to the end of the Defects Liability Period, until the outbreak is eradicated or as agreed to by the Principal;
 - g) ensure that any dredged sand / material being deposited in a location where it could reasonably return to the water is free of declared pests and weeds; and
 - h) ensure that, where relevant, marine vessels and floating plant should be cleaned in accordance with the EPA Code of Practice for vessel and facility Management (marine and inland waters) to avoid depositing exotic aquatic plants.
- 5.2 Methods for controlling weeds, pests and disease on or from the site shall be included in the Contractor's Environmental Management Plan (CEMP) (refer "PC-ENV1 "Environmental Management Requirements").

Phytophthora Control

- 5.3 Phytophthora is a plant pathogen that can result in dieback of vegetation. The Contractor must plan and undertake its construction activities in accordance with the Department's Phytophthora (Dieback) Control Environmental Instruction 21.3.
- 5.4 The Contractor must undertake a Phytophthora Risk Assessment to determine the required hygiene procedures and disposal requirements, and must implement those procedures during work.

6 Protecting Waterways

- 6.1 The Contractor shall ensure that any water entering the natural watercourse system, marine environment or stormwater drainage system from areas disturbed by the Contractor complies with the Environment Protection (Water Quality) Policy 2015.
- 6.2 When working in a waterway the Contractor shall:
- a) not cause destabilisation of the bed and banks of the watercourse;
 - b) ensure all excavated material are be removed from the watercourse and placed and stabilised in in a location where it will not return to the watercourse;
 - c) shall compact loose material placed in and around the bed and banks of the watercourse to prevent downstream sedimentation; and
 - d) immediately after the completion of earthworks areas (including batters, drains, cut and fill areas), or if earthworks areas are to remain essentially the same for 2 days or more, install temporary measures to prevent erosion and / or control sediment.
- 6.3 The Contractor shall not:
- a) pollute groundwater sources; or
 - b) extract or reinject groundwater unless appropriate Environmental Authorisations (including those under the Natural Resources Management Act 2004) have been obtained where required.

Soil Erosion and Drainage Management Plan

- 6.4 The Contractor is responsible for the design, construction, operation and maintenance of drainage and temporary erosion control measures.
- 6.5 The Contractor shall develop, implement and maintain a Soil Erosion and Drainage Management Plan (SEDMP). The SEDMP shall be developed in accordance with:
- a) EPA Stormwater Pollution Prevention Code of Practice for Local, State and Federal Government; and
 - b) Department Protecting Waterways Manual.
- 6.6 The SEDMP shall include the following, as required:
- a) objectives, targets, responsibilities, permits / licences, control measures, monitoring and environmental incident / emergency response;

- b) any management requirements from a Water Affecting Activities Permit or EPA licence;
 - c) details on how any stormwater and intercepted groundwater collected during the course of the construction activities will be managed and treated prior to release;
 - d) details on how stormwater systems and waterways will be protected to ensure that no untreated stormwater is able to leave the project site;
 - e) site plans (e.g. Site Environmental Plans / Project Control Plans) that identify types of sediment and erosion control measures and their locations for all stages of construction works; and
 - f) the Water Quality Monitoring Plan (in accordance with the Department's Water Quality Monitoring Manual for Construction Sites).
- 6.7 The SEDMP shall be updated prior to any changes to construction processes that may impact upon erosion or sedimentation.
- 6.8 The SEDMP shall be a sub-plan the Contractor's Environmental Management Plan (CEMP) (refer PC-ENV1 "Environmental Management").
- 6.9 Provision of the SEDMP and Site Environmental Plans / Project Control Plans or any amendments to shall constitute a **Hold Point**.

Water Quality Monitoring

- 6.10 The Contractor shall:
- a) determine the required level of water quality monitoring in accordance with the Department's Water Quality Monitoring Manual for Construction Sites;
 - b) develop and implement a Water Quality Monitoring Program (WQMP) to the level determined by the assessment in 6.10(a). The monitoring regime and frequency shall be designed to verify that site activities have not caused serious or environmental harm;
 - c) include the WQMP into the SEDMP;
 - d) undertake the required level of monitoring until Completion or as specified by the Principal;
 - e) provide results of water quality monitoring to the Principal upon request..

7 Sand Management – Marine Environments

- 7.1 The following applies where the works involve movement of sand in the marine environment.
- 7.2 The Contractor shall ensure the sand is free of litter, debris and weeds of any kind generated by the Works.
- 7.3 All vehicles shall give way to all pedestrian traffic on the beach and at shared use pathways. Appropriate signage indicating heavy machinery in use and the speed of vehicles on the beach shall not exceed 25 km/h.
- 7.4 Access points to the beach shall remain clear of any deposited sand stockpiles so as to allow vehicle and pedestrian access at all times.
- 7.5 The Contractor shall advise the Local Council when the sand movement will be undertaken.

8 Construction Noise and Vibration Management

- 8.1 The Contractor shall manage noise and vibration in accordance with the Department's Environmental Instruction 21.7 Management of Noise and Vibration: Construction and Maintenance Activities.
- 8.2 The Contractor has liability for and shall bear all costs associated with any damage caused to existing structures, buildings and services as a result of any construction/ maintenance activity. This extends to responding to any claims of vibration induced damage, reinstatement or rectification of the damaged or impacted structures, buildings and services to the condition existing prior to the commencement of work or as otherwise directed by the Principal.

- 8.3 The Contractor shall assess and implement methods to monitor and manage the risk of vibration-induced damage, and identify any required, pre and post condition surveys to be undertaken.

Construction Noise and Vibration Management Plan

- 8.4 The Contractor shall prepare and implement a Construction Noise and Vibration Management Plan in accordance with the Department's Environmental Instruction 21.7 Management of Noise and Vibration: Construction and Maintenance Activities.
- 8.5 The CNVMP shall be a sub-plan the Contractor's Environmental Management Plan (CEMP) (refer PC-ENV1 "Environmental Management Requirements").
- 8.6 Submission of a CNVMP to the Principal shall constitute a **Hold Point**.

Night Works Management Plan

- 8.7 The Contractor shall prepare and implement Night Works Management Plans (NWMPs), where required in accordance with Environmental Instruction 21.7. NWMPs may be prepared as:
- an All of Project NWMP, included as a sub-plan the Contractor's Environmental Management Plan (CEMP) (refer "PC-ENV1 "Environmental Management Requirements"), that adequately covers all construction activities (including noise contour plans) and mitigation throughout the course of the Contract; or
 - NWMP for each individual works activities.
- 8.8 Submission of an All of Project NWMP or individual NWMP shall constitute a **Hold Point**.

Works in marine environments

- 8.9 Where piling or other activities potentially disturbing to marine mammals are to be undertaken, the Contractor shall prepare and implement an Underwater Noise and Vibration Management Plan in accordance with the Department's Underwater Piling Noise Guideline.
- 8.10 Submission of an Underwater Noise and Vibration Noise Management Plan shall constitute a **Hold Point**.

9 Air Quality Protection

- 9.1 The Contractor shall suppress nuisance dust from any construction activities including access tracks, haul roads and stockpile sites and ensure that effective dust control measures are in place.
- 9.2 The Contractor shall:
- cease any activity where that activity creates a dust hazard of nuisance to the public, personnel working on the Site or properties in the vicinity of the Works;
 - where dust is likely to be raised, ensure that appropriate dust control measures are planned and implemented including ensuring that an adequate number of water carts are on-site at all times during the Contract and that they are used appropriately (separate payment will not be made for the use of the water cart); and
 - not permit the emission of odorous substances or particulates, which create or are likely to create objectionable conditions for the public.
- 9.3 If specified by the Principal, the Contractor shall prepare and implement an Air Quality Management Plan that includes a dust monitoring regime to enable verification that applicable air quality criteria has not been exceeded and air quality conditions have not caused an environmental nuisance.
- 9.4 Air quality protection and monitoring measures shall be included in the Contractor's Environmental Management Plan (CEMP) (refer PC-ENV1 "Environmental Management").

10 Materials, Fuels and Waste Management

10.1 Environmental management requirements identified in this Clause shall be included in the Contractor's Environmental Management Plan (CEMP).

Construction Water

10.2 The water source(s) to be used for construction purposes (including dust control) shall be identified in the CEMP.

10.3 The Contractor shall comply with any permanent water conservation measures and current SA Water restrictions applicable to the Site.

Storage and Handling of Hydrocarbons and Hazardous Liquids

10.4 The Contractor shall ensure that any fuel, oil, lubricants and other chemicals stored on site:

- a) are stored in accordance with the relevant Australian Standards;
- b) are stored within a bund with an impervious floor; and
- c) are not stored in an area which is subject to flooding or is within 20 metres of a natural or built drainage line.

10.5 The Contractor shall ensure that:

- a) fuel, oil or lubricants do not leak from machinery;
- b) appropriate methods during refuelling and maintenance are implemented to ensure that any spills / leaks are contained (including refuelling activities being attended at all times);
- c) when operating in the marine environment, refuelling shall be undertaken in accordance with the EPA Code of Practice for Vessel and Facility Management (Marine and Inland Waters)
- d) hydrocarbon spill kit(s) for the purpose of cleaning up oil and fuel spillage is accessible at all times and personnel trained in the efficient deployment of the spill kit are readily available in the event of a spill;
- e) appropriately trained personnel shall be present and supervise refuelling activities by at all times;
- f) maintenance of vehicles and machinery is carried out off-site where practicable. If maintenance is to occur on-site, the location and procedure shall be documented in the CEMP.

10.6 In the event of a spill to the terrestrial and marine environments the Contractor shall implement its Emergency Response Plan and Incident Control Systems (refer PC-ENV1 "Environmental Management").

Waste Management

10.7 The Contractor shall implement the principles of the waste hierarchy and if required dispose of waste to an appropriately licensed waste and / or recycling facility.

10.8 Except for any material to be mulched, all waste material resulting from the work under the Contract is the property of the Contractor and shall be removed from the site within 7 days or placed in a container with fitted lids for disposal at a later date but prior to Completion.

10.9 On completion of the work on Site, all rubbish and waste shall be removed and the Site shall be left in a clean and tidy condition.

11 Contamination Management

11.1 All site contamination considerations and assessment are to be undertaken in accordance with PC-SC1 "Site Contamination".

12 Aboriginal Heritage

- 12.1 All Aboriginal Heritage assessments and management are to be undertaken in accordance with PC-H1 “Aboriginal Heritage and Native Title”.
- 12.2 The Contractor shall document in the Contractor’s Environmental Management Plan (refer “PC-ENV1 “Environmental Management”) or as sub-plan (e.g. Cultural Heritage Management Plan) any actions required to manage heritage and associated risks.

13 Non-Aboriginal Heritage

- 13.1 All Non-Aboriginal Heritage assessments and management are to be undertaken in accordance with PC-H2 “Non-Aboriginal Heritage”.
- 13.2 The Contractor shall document in the Contractor’s Environmental Management Plan (refer “PC-ENV1 “Environmental Management”) or as sub-plan (e.g. Conservation Plan) any actions required to manage heritage and associated risks.

14 Environmental Handover Documentation

- 14.1 At completion of the project, or as requested by the Principal, the Contractor shall handover any reports, monitoring data, models and raw data, spatial information and details of any ongoing management measures and / or Environmental Authorisation(s) conditions relevant to the ongoing operation and maintenance of the infrastructure.

15 Hold Points

- 15.1 The following is a summary of Hold Points referenced in this Part:

Table PC-ENV2 15-1 Hold Points

Document Ref.	Hold Point	Response Time
3.4	Provision of vegetation impact documentation	10 Working Days
3.14	Arborist’s recommendation report	10 Working Days
4.1	Approval documentation for fauna impacts	10 Working Days
6.9	Provision of the SEDMP and Site Environmental Plans / Project Control Plans	10 Working Days
8.6	Submission of a Construction Noise and Vibration Management Plan	10 Working Days
8.8	Submission of an All of Project Night Works Management Plan or individual Night Works Management Plan	10 Working Days
8.10	Submission of an Underwater Noise and Vibration Noise Management Plan	10 Working Days