

Project Controls

[Master Specification](#)

[PC-ENV3 Environmental Design](#)

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2	Formatting for publishing	19/09/19
3	Amendments to Clause 1, 2, 3, 4 and 8	August 2020
4	New section (Section 3) regarding Impact Assessment and change to Section 4 to require a Constraints Sketch	August 2021

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PC-ENV3 Environmental Design

1 General

- 1.1 This Standard Specification sets out the minimum environmental requirements for the design of the works under the Contract.
- 1.2 For the purpose of this Standard Specification, the 'Works' can be activities associated with planning, design, supply, construction, maintenance or operation as defined by the Contract.
- 1.3 The design shall meet the Environmental Objectives identified in PC-ENV1 "Environmental Management".
- 1.4 The Contractor's Design Reports shall demonstrate how relevant Environmental Objectives have been assessed and achieved.
- 1.5 The Contractor shall undertake all necessary Environmental Investigations (refer PC-SI2 "Site Investigations") to enable assessment of environmental aspects under this part.
- 1.6 Where readily available and accessible to the Principal, previous or preliminary environmental assessments will be provided to the Contractor.

2 Contractor's Obligations

- 2.1 The Contractor must ensure all Environmental Assessments, necessary for the execution of the Works, are undertaken.
- 2.2 The Contractor shall undertake any and all Environmental Assessments in accordance with the requirements provided in this Standard Specification.
- 2.3 The Contractor may propose an approach that does not conform to the requirements of this Standard Specification. The Contractor shall obtain the Principal's approval, and where necessary the relevant authority's approval, to adopt the proposed approach, which shall constitute a **Hold Point**.
- 2.4 Notwithstanding the above, if not satisfactorily completed previously by the Principal, the Contractor shall undertake all requirements of this Standard Specification.
- 2.5 The Contractor shall review all previous or preliminary assessments provided by the Principal to determine, and undertake, all necessary updates to the assessments (including any changes in design, etc.) or determine if they meet the requirements under this Standard Specification.
- 2.6 The Contractor is responsible for obtaining any environmental and planning approvals, permits, authorisations, etc. required for the Works.

3 Environment and Heritage Impact Assessment

- 3.1 Where not previously provided or undertaken by the Principal, the Contractor shall undertake assessments and investigations in accordance with the Department's Environment and Heritage Impact Assessment Guideline (refer PC-PL2 "Planning Investigations").
- 3.2 The Contractor shall review any Environment and Heritage Impact Assessment Report and investigations undertaken in the previous project phase, and ensure that the recommendations, mitigations or requirements are implemented as part of the design process. Where non-compliance with the Environment and Heritage Impact Assessment mitigations, recommendations or requirements is proposed then the Design Departure Process shall be followed and approved by the Principal.
- 3.3 The Contractor shall provide an update or an addendum to the Environment and Heritage Impact Assessment Report throughout the design development process to capture all investigations, approvals undertaken and mitigation measures implemented.

4 Environment and Heritage Constraints and Values Sketch

- 4.1 Where not previously provided or undertaken by the Principal, the Contractor shall develop an Environment and Heritage Constraints and Values Sketch or Drawing in accordance with the Department's Environment and Heritage Impact Assessment Guideline.
- 4.2 The Contractor shall utilise the identified Environment and Heritage Constraints and Values Sketch or Drawing to inform the design development.
- 4.3 Prior to undertaking any design works under this Contract The Contractor's design teams shall be made aware of all Environment and Heritage Constraints and Values and associated Environmental Objectives for consideration throughout the Design Phase for each aspect of the design.
- 4.4 The Contractor shall design the Works to avoid, or minimise the impacts to, Environment and Heritage Constraints.
- 4.5 The Contractor shall include Environment and Heritage Constraints and Values, at a minimum, are clearly shown on the relevant Design and / or Construction Documentation and provided in any update or addendum to an Environment and Heritage Impact Assessment Report. Note restrictions around disclosure of confidential or sensitive information under the Aboriginal Heritage Act 1988.

5 Vegetation

- 5.1 The Contractor's design shall avoid or minimise the destruction or disturbance to all High Value Vegetation (refer PC-ENV-2 "Environmental Protection Requirements") and other vegetation identified in vegetation surveys.
- 5.2 The Contractor shall undertake all necessary vegetation surveys in accordance with Part PC-SI2 "Site Investigations" required for the Works. Where previous or preliminary vegetation surveys have been undertaken by the Principal these will be provided.
- 5.3 The Contractor shall determine and describe the impacts on vegetation from the works under this Contract, which shall be documented in a Design Report or similar. The Design Report shall:
 - a) Include details of all vegetation to be impacted (cleared / removed or pruned) for the design / construction / maintenance to the roots and / or canopy and its legislative status;
 - b) Include vegetation on drawings and reports shall be individually numbered to enable the identification of particular trees, shrubs or areas of vegetation by use of the numbering system used in the vegetation surveys;
 - c) Provide vegetation removal / impact design / construction drawings which:
 - i) 'overlay' the proposed horizontal design onto the vegetation survey drawings to justify all trees, shrubs and areas of vegetation that will require removal for the work under the works; and
 - ii) for all trees, identifies Tree Protection Zone and Structural Root Zone (as per AS 4970) shall be included on design / construction drawings (Refer to PC-ENV2 "Environmental Protection Requirements")
 - d) Provide an assessment to determine if there are likely to be any Significant Impacts on Matters of National Environmental Significance (under the EPBC Act Guidelines) based on the Contractor's design and construction methodology;
 - e) Detail how the mitigation hierarchy of Avoid, Minimisation, Rehabilitation of Restoration and Offset (refer Department Vegetation Removal Policy) has been applied to either individual trees or areas of vegetation;
 - f) Detail specialist Arborist advice obtained and how this has been considered/integrated into the design; and
 - g) Demonstrate how the design and / or construction, to the greatest extent practicable, complies with recommendations contained within vegetation surveys.

- 5.4 For individual High Value Trees where works are to disturb the TPZ and the SRZ the Contractor shall redesign the Works or obtain specialist Arborist advice to minimise impacts and implement these recommendations.
- 5.5 The Contractor shall ensure that the landscape design incorporates offsets for impacted native, amenity, regulated and significant vegetation in accordance with the Department's Vegetation Removal Policy, Native Vegetation Act 1991 and Development Act 1993, where relevant.
- 5.6 The Contractor shall prepare all documentation and obtain any necessary approvals in accordance with the Department's Vegetation Removal Policy or relevant legislation for the removal of vegetation where these have not already been obtained by the Principal (refer PC-ENV1.3 "Environmental Authorisations". This will include preparation and submission of any necessary referrals or approval under Environment Protection and Biodiversity Conservation Act (Cth) 1999.

6 Fauna

- 6.1 The Contractor's design shall minimise the destruction or disturbance of fauna habitat and provide safe fauna passage and habitat connection, where feasible during construction and operation of the project.
- 6.2 Fauna assessments and surveys shall be undertaken in accordance with the Department's Fauna Impact Assessment Guidelines.
- 6.3 The Contractor shall engage a suitably qualified Ecologist to undertake fauna assessments and surveys.
- 6.4 Where the Works will occur in or across an existing waterway, prevent the safe passage of fauna or fragment habitat, the design must allow for the provision of fauna and fish passage in reference to the following:
 - a) Austroads 'Guide to Road Design Part 6B: Roadside Environment'
 - b) Department "Protecting Waterways Manual", Appendix D;
 - c) NSW Fisheries Office of Conservation 'Fish passage requirements for waterways crossings' accessed at: http://www.dpi.nsw.gov.au/data/assets/pdf_file/0004/202693/Why-do-fish-need-to-cross-the-road_booklet.pdf; and
 - d) Witheridge, G.M. 2002, Fish Passage Requirements at Waterway Crossings – Engineering Guidelines. Catchments & Creeks Pty Ltd, Brisbane.
- 6.5 The design of channels and culverts shall facilitate native fish passage by increasing the water depth and reducing the water flow velocity, no step changes in grade through culvert and ensuring natural light sources for culverts where feasible.

7 Noise

- 7.1 All noise assessments and treatment design shall be undertaken in accordance with PC-ENV4 "Noise Assessment and Treatment Implementation".

8 Vibration assessment

- 8.1 The Contractor must undertake an operational assessment associated with the design to demonstrate compliance at all sensitive receivers with:
 - a) the evaluation criteria for intermittent vibration sources provided in Annex A of Australian Standard AS 2670.2-1990: Evaluation of human exposure to whole-body vibration,
 - b) Part 2-Continuous and shock-induced vibration in buildings (1 to 80Hz) and structural damage criteria in German Standard DIN 4150-3 Effects of Vibration on Structures; and
 - c) EPA: Guidelines for the assessment of noise from railway infrastructure.
- 8.2 The implications of structure borne vibration shall be included in the assessment.

9 Air Quality

- 9.1 The Contractor shall undertake an air quality assessment in accordance with the Department's Environmental Instruction 21.9 Assessment of air quality impacts from road and rail infrastructure projects.
- 9.2 The Contractor shall identify measures to avoid or minimise the effects the operation of the project on local air quality and the community and apply any necessary mitigation measures.
- 9.3 The Contractor shall engage a suitably qualified specialist that meets the requirements of Section 4.3.1 of the Department's Environmental Instruction 21.9 to undertake the air quality assessment.

10 Heritage

- 10.1 All Aboriginal and Non-Aboriginal heritage considerations and assessments are to be undertaken in accordance with:
 - a) PC-H1 "Aboriginal Heritage and Native Title"
 - b) PC-H2 "Non-Aboriginal Heritage"
- 10.2 The design shall:
 - a) Avoid, or if approved under the Aboriginal Heritage Act, minimise impacts to known Aboriginal heritage sites, objects or remains located within or adjacent to the project site;
 - b) ensure that the design does not materially affect the amenity value of any heritage listed sites / place (e.g. national, state, local) and complies with recommendations contained within heritage reports; and
 - c) include drawings / images which 'overlay' the proposed design to highlight the visual / direct or indirect impacts of the design to aid the external approval processes (e.g. EPBC).
- 10.3 The Contractor shall observe restrictions around disclosure of confidential or sensitive information under the Aboriginal Heritage Act 1988.

11 Groundwater

- 11.1 The Contractor shall undertake a groundwater level assessment to determine if the design of the project will intercept groundwater, based on historic, current and future groundwater levels;
- 11.2 Where groundwater is likely to be intercepted, the Contractor shall liaise with the relevant authority to determine the need for an authorisation pursuant to section 105 of the Landscape South Australia Act 2019 (LSA Act) for the Works.
- 11.3 The project shall be designed to eliminate the 'taking' of groundwater in Prescribed Areas to avoid the need for ongoing operational authorisations under the LSA Act.

12 Contamination

- 12.1 For requirements regarding site contamination refer PC-SC1 "Site Contamination".

13 Water Quality

- 13.1 For requirements regarding water quality assessments refer RD-DK-D1 "Road Drainage Design".
- 13.2 Where applicable to the Works, the design must ensure the management of pollutants generated from the operation and maintenance of the infrastructure, including from road / rail runoff and vehicle spills during the operation of the project.
- 13.3 The Contractor shall determine if the works constitute a Water Affecting Activity and require a permit under the Landscape South Australia Act 2019 and, where applicable, obtain the permit for the works to occur.

14 Hold Points

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

Table PC-ENV3 14-1 Hold Points

Document Ref.	Hold Point	Response Time
2.3	Principal's approval to adopt a proposed approach that does not conform to the requirements of Clause 2.2.	10 Working Days