

Project Controls

Master Specification

PC-ENV3 Environmental Design

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Document Management

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Contents

Contents	3
PC-ENV3 Environmental Design	4
1 General	4
2 Contractor's Obligations	4
3 Environmentally Sensitive Areas	4
4 Vegetation	5
5 Fauna	5
6 Noise	6
7 Vibration assessment	6
8 Air quality	6
9 Heritage	6
10 Groundwater	7
11 Contamination	7
12 Water Quality	7

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-SI3 "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 approvals, permits, authorisations required for the Works.

3 Environmentally Sensitive Areas

- 3.1 Prior to undertaking any design activities, the Contractor shall prepare an Environmentally Sensitive Areas Drawing which identifies, as a minimum:
 - a) known Aboriginal sites, objects or remains and non-Aboriginal heritage places / sites;
 - b) contaminated soils and / or contaminated groundwater;
 - c) actual or potential acid sulphate soils (to be included in foundation plans);
 - d) operational or disused irrigation / production wells;
 - e) Rail and Roadside Significant Sites;
 - f) Areas of native vegetation and Regulated Trees (including structural root zones and tree protection zones);
 - g) waterways; and
 - h) noise sensitive areas / receivers

- 3.2 Prior to undertaking any design works under this Contract The Contractor's design teams shall be made aware of all Environmentally Sensitive Areas and associated Environmental Objectives for consideration throughout the Design Phase for each aspect of the design.
- 3.3 The Contractor shall include Environmentally Sensitive Areas, at a minimum, are clearly shown on the relevant Design and / or Construction Documentation. Note restrictions around disclosure of confidential or sensitive information under the Aboriginal Heritage Act 1988.

4 Vegetation

- 4.1 The Contractor's design shall minimise the destruction or disturbance to all High Value Vegetation (refer PC-ENV-2 "Environmental Protection Requirements") and other vegetation identified in vegetation surveys.
- 4.2 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 include:
- a) 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) 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) Details of how the mitigation hierarchy of Avoid, Minimisation, Rehabilitation of Restoration and Offset (refer DPTI Vegetation Removal Policy) has been applied to either individual trees or areas of vegetation;
 - f) Details of specialist Arborist advice obtained; and
 - g) Demonstrates how the design and / or construction, to the greatest extent practicable, complies with recommendations contained within vegetation surveys.
- 4.3 For individual High Value Trees where works are to disturb the TPZ and the SRZ the Contractor shall obtain specialist Arborist advice to minimise impacts
- 4.4 The Contractor shall ensure that the landscape design incorporates offsets for impacted native, amenity, regulated and significant vegetation in accordance with the DPTI Vegetation Removal Policy, Native Vegetation Act 1991 and Development Act 1993, where relevant.
- 4.5 The Contractor shall prepare all documentation and obtain any necessary approvals in accordance with DPTI'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.

5 Fauna

- 5.1 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.

- 5.2 Fauna assessments and surveys shall be undertaken in accordance with the DPTI Fauna Impact Assessment Guidelines.
- 5.3 The Contractor shall engage a suitably qualified Ecologist to undertake fauna assessments and surveys.
- 5.4 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) DPTI "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.
- 5.5 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.

6 Noise

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

7 Vibration assessment

- 7.1 The Contractor must undertake an operational assessment associated with the design to demonstrate compliance at all sensitive receivers with:
- 7.2 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,
- a) 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
 - b) EPA: Guidelines for the assessment of noise from railway infrastructure.
- 7.3 The implications of structure borne vibration shall be included in the assessment.

8 Air quality

- 8.1 The Contractor shall undertake an air quality assessment in accordance with:
- a) DPTI Environmental Instruction 21.9 Assessment of air quality impacts from road infrastructure projects
- 8.2 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.
- 8.3 The Contractor shall engage a suitably qualified specialist that meets the requirements of Section 4.3.1 of DPTI Environmental Instruction 21.9 to undertake the air quality assessment.

9 Heritage

- 9.1 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”
- 9.2 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).
- 9.3 The Contractor shall observe restrictions around disclosure of confidential or sensitive information under the Aboriginal Heritage Act 1988.

10 Groundwater

- 10.1 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;
- 10.2 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 128 of the Natural Resource Management Act 2004 (NRM Act) for the Works.
- 10.3 The project shall be designed to eliminate the ‘taking’ of groundwater in Prescribed Areas to avoid the need for ongoing operational authorisations under the NRM Act.

11 Contamination

- 11.1 For requirements regarding site contamination refer PC-SC1 “Site Contamination”.

12 Water Quality

- 12.1 For requirements regarding water quality assessments refer RD-DK-D1 “Road Drainage Design”.
- 12.2 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.
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