

Master Specification

Part PC-ENV3

Environmental Design

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PC-ENV3 Environmental Design

1 General

- a) This Master Specification Part sets out the minimum environmental requirements for the design of the Works and Temporary Works, including:
 - i) the documentation requirements, as set out in section 2;
 - ii) the Contractor's environmental obligations, as set out in section 3;
 - iii) the environmental and heritage impact assessment requirements, as set out in section 4;
 - iv) the environment and heritage Constraints and Values Sketch requirements, as set out in section 5;
 - v) the vegetation requirements, as set out in section 6;
 - vi) the fauna requirements, as set out in section 7;
 - vii) the noise and vibration assessment requirements, as set out in section 8;
 - viii) the air quality requirements, as set out in section 9;
 - ix) the heritage requirements, as set out in section 10;
 - x) the groundwater requirements, as set out in section 11;
 - xi) the contamination requirements, as set out in section 12; and
 - xii) the water quality and waterways requirements, as set out in section 13.
- b) The environmental design must comply with the Reference Documents, including:
 - i) AS 4970 Protection of trees on development sites;
 - ii) AGRD Part 5 Drainage - General and Hydrology Considerations; and
 - iii) Department Environment and Heritage Technical Manual (EHTM), including all attachments and supporting documentation (available from: <https://dit.sa.gov.au/documents/manuals>).
- c) The design must meet the environmental objectives identified in PC-ENV1 "Environmental Management".
- d) The Contractor must undertake all necessary environmental investigations (refer PC-SI2 "Site Investigations") to enable assessment of environmental aspects under this Master Specification Part.

2 Documentation

2.1 Design Documentation

In addition to the requirements of PC-EDM1 "Design Management", the Design Documentation must include:

- a) all assessments, reports, investigations, sketches and drawings required by this Master Specification Part (including the EHTM);
- b) the impacts on vegetation, as required by section 6d); and
- c) for the relevant Design Reports:

- i) documentation of the recommendations, mitigations or requirements of any Environment and Heritage Impact Assessment Report (EHIAR) and associated investigations undertaken in the previous project phase, as required by section 4b); and
- ii) demonstration of how relevant environmental objectives identified in PC-ENV1 “Environmental Management” have been assessed and achieved.

3 Contractor’s environmental obligations

- a) The Contractor must ensure all environmental assessments, necessary for the execution of the Works or Temporary Works, are undertaken.
- b) The Contractor must undertake any and all environmental assessments in accordance with the requirements of this Master Specification Part.
- c) If not completed previously by the Principal, the Contractor must undertake all requirements of this Master Specification Part.
- d) The Contractor must 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 of the Contract Documents.
- e) The Contractor is responsible for obtaining any environmental and planning Approvals, (including all permits, authorisations, etc.) required for the Works or Temporary Works.

4 Environment and heritage impact assessment

- a) Where not previously provided or undertaken by the Principal, the Contractor must undertake assessments and investigations in accordance with Department EHTM Attachment 1A - Environment and Heritage Impact Assessment Guideline.
- b) The Contractor must review any EHIAR and associated investigations undertaken in the previous project phase, and ensure that the recommendations, mitigations or requirements are implemented as part of the design process and documented in the relevant Design Report(s). Where non-compliance with the EHIAR mitigations, recommendations or requirements is proposed then the Design Departure process must be followed and any such non-compliances must be approved by the Principal.
- c) The Contractor must provide an update or an addendum to the EHIAR throughout the design development process to capture all additional investigations undertaken, Approvals sought or obtained, and mitigation measures implemented.

5 Environment and heritage Constraints and Values Sketch

- a) Where not previously provided or undertaken by the Principal, the Contractor must develop a Constraints and Values Sketch (as defined in Department EHTM Attachment 1A - Environment and Heritage Impact Assessment Guideline) in accordance with Department EHTM Attachment 1A - Environment and Heritage Impact Assessment Guideline.
- b) The Contractor must utilise the identified Constraints and Values Sketch to inform the design development.
- c) Prior to undertaking any design work, the Contractor’s Designer must be made aware of all environment and heritage constraints and values and associated environmental objectives identified in PC-ENV1 “Environmental Management”, for consideration throughout the design phase for each aspect of the design.
- d) The Contractor must design the Works or Temporary Works to avoid, or minimise, the impacts to all environment and heritage constraints.
- e) The Contractor must ensure environment and heritage constraints and values, at a minimum, are clearly shown on the relevant Design Drawings or Construction Documentation and are

provided in any update or addendum to an EHIAR. Note restrictions around disclosure of confidential or sensitive information under the *Aboriginal Heritage Act 1988* (SA).

6 Vegetation

- a) The Contractor must apply the mitigation hierarchy of avoid, minimisation, rehabilitation or restoration and offset in accordance with Department EHTM Attachment 4B - Vegetation Impact Assessment Guideline, to all High Value Vegetation (refer PC-ENV-2 “Environmental Protection Requirements”) and other vegetation identified in vegetation surveys.
- b) Unless otherwise provided by the Principal, the Contractor must undertake all necessary vegetation surveys in accordance with PC-SI2 “Site Investigations” and Department EHTM Attachment 4A - Vegetation Survey Guideline, required for the Works or Temporary Works.
- c) For individual High Value Trees where works are to disturb the tree protection zone (TPZ) or Structural Root Zone (as per AS 4970 Protection of trees on development sites), the Contractor must design the Works and Temporary Works to avoid impacts or obtain specialist advice from a suitably qualified arborist to minimise impacts and implement these recommendations in consultation with the Principal.
- d) The Contractor must determine and describe the impacts on vegetation (cleared / removed or pruned) for the design / construction / maintenance to the roots or canopy from the Contractor’s Activities. These details must be provided in the Design Documentation in accordance with Department EHTM Attachment 4B - Vegetation Impact Assessment Guideline, including:
 - i) the relevant Design Report (incorporating a vegetation impact assessment);
 - ii) vegetation impact sketches. The sketches must be used to inform design development and justify and demonstrate impacts to vegetation. The sketch must be of sufficient quality to support vegetation impact approval applications;
 - iii) vegetation and demolition drawings (which must correspond to the vegetation impact sketches). The IFA Design Documentation and IFC Design Documentation must be based on vegetation approved for removal only; and
 - iv) vegetation on drawings / sketches and reports must 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 / arborist assessments.
- e) The Contractor must ensure that where the vegetation offset strategy includes on-ground works, the landscape design incorporates offsets for impacted native, amenity, regulated and significant vegetation in accordance with Department EHTM Attachment 4B - Vegetation Impact Assessment Guideline, *Native Vegetation Act 1991* (SA), and *Planning, Development and Infrastructure Act 2016* (SA), where relevant.
- f) The Contractor must prepare all documentation and obtain any necessary Approvals in accordance with Department EHTM Attachment 4B - Vegetation Impact Assessment Guideline, or relevant Laws for the removal of vegetation where these have not already been obtained by the Principal (refer PC-ENV1 “Environmental Management”). This will include preparation and submission of any necessary referrals or approval under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

7 Fauna

- a) The Contractor’s design must minimise the destruction or disturbance of fauna habitat and provide safe fauna passage and habitat connection, where feasible during the construction and operation of the Project.
- b) Preliminary and detailed fauna assessments and surveys must be undertaken in accordance with Department EHTM Attachment 5A - Fauna Impact Assessment Guideline.
- c) The Contractor must engage a suitably qualified ecologist to undertake fauna assessments and surveys.

- d) Where the Works or Temporary Works will occur in or across an existing waterway, or is likely to prevent the safe passage of fauna or fragment habitat, the design must allow for the provision of fauna and fish passage in accordance with relevant Laws and all relevant Reference Documents including:
 - i) AGRD Part 5 Drainage - General and Hydrology Considerations; and
 - ii) Department EHTM Attachment 5A - Fauna Impact Assessment Guideline, Appendix A (Maintaining Fish Passage and Aquatic Habitat during Design and Construction).
- e) The Contractor must prepare all documentation and obtain any necessary Approvals (including all necessary Environmental Authorisation) in accordance with all Laws (including the relevant environmental legislation) where these have not already been obtained by the Principal (refer PC-ENV1 "Environmental Management"). This must include preparation and submission of any necessary referrals or approval under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth).

8 Noise and vibration

The Contractor must undertake an operational noise assessment and treatment design, and operational vibration assessment in accordance with:

- a) PC-ENV4 "Noise Assessment, and Treatment Design, and Implementation";
- b) Department EHTM Attachment 7A - Road Traffic Noise Guidelines, Part B "Road Traffic Vibration Assessment"; and
- c) Department EHTM Attachment 7B - Operational Rail Noise [EPA: Guidelines for the Assessment of Noise from Rail Infrastructure].

9 Air quality

The Contractor must undertake an air quality assessment in accordance with Department EHTM Attachment 3A - Air Quality Assessment Guidelines.

10 Heritage

- a) All Aboriginal and Non-Aboriginal heritage considerations and assessments must be undertaken in accordance with:
 - i) PC-H1 "Aboriginal Heritage and Native Title"; and
 - ii) PC-H2 "Non-Aboriginal Heritage".
- b) The design must:
 - i) avoid, or if approved under the *Aboriginal Heritage Act 1988* (SA), minimise impacts to known Aboriginal heritage sites, objects or remains located within or adjacent to the Site;
 - ii) ensure that the design does not materially affect the amenity value of any heritage listed sites or place (e.g. national, state, local) and complies with recommendations contained within heritage reports; and
 - iii) include drawings or images (including the environment and heritage Constraints and Values Sketch) which 'overlay' the proposed design to highlight the visual / direct or indirect impacts of the design to aid the external approval processes (e.g. an Approval under the *EPBC Act 1999* (Cth)).
- c) The Contractor must observe restrictions around disclosure of confidential or sensitive information under the *Aboriginal Heritage Act 1988* (SA).

11 Groundwater

- a) The Contractor must undertake a groundwater level assessment to determine if the design of the Project will intercept groundwater, based on historic, current, and future groundwater levels.
- b) Where groundwater is likely to be intercepted, the Contractor must liaise with the relevant authority to determine the need for an authorisation pursuant to section 105 of the *Landscape South Australia Act 2019* (SA) for the Works and Temporary Works.
- c) Unless otherwise approved by the Principal, the Project must be designed to eliminate the 'taking' of groundwater in Prescribed Areas (as defined in the *Landscape South Australia Act 2019* (SA)) to avoid the need for ongoing operational authorisations under the *Landscape South Australia Act 2019* (SA).

12 Contamination

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

13 Water quality and waterways

- a) For requirements regarding water quality assessments, the Contractor must comply with RD-DK-D1 "Road Drainage Design" and Department EHTM Attachment 6A - Protecting Waterways Guideline.
 - b) Where applicable to the Works and the Temporary Works, the design must ensure the management of pollutants generated from the operation and maintenance of the infrastructure, including from road or rail runoff and vehicle spills.
 - c) The Contractor must determine if the Contractor's Activities constitute a Water Affecting Activity (refer to Department EHTM Attachment 6B - Water Affecting Activities Best Practice Operating Procedure), and require a permit under the *Landscape South Australia Act 2019* (SA) and, where applicable, apply for the permit for the Contractor's Activities to occur.
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