

Project Controls

[Master Specification](#)

[PC-EDM3 Independent Design Certification](#)

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Document Management

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PC-EDM3 Independent Design Certification

1 General

- 1.1 This Part specifies the requirements for Independent Design Certification. The Contractor must ensure that Independent Design Certification is undertaken in accordance with the requirements of this Part.

Definitions

- 1.2 The following definitions apply to terms used in this Part:

Table PC-EDM3 1-1 Definitions

| Term | Definition |
|----------------------------------|--|
| Design Review | A separate Design Review undertaken by the Principal or an organisation engaged by the Principal. |
| External Authority | An authority separate to the Principal with ownership, liability or “care and control” of an asset within and / or adjacent to the Site. |
| Independent Design Analysis | An independent design analysis, calculations and / or models based on the Contractor’s design drawings, reports and specification and extensive review / checking of the design documents to confirm compliance and enable Independent Design Certification of the Design. |
| Independent Design Certification | An independent design certification to assure compliance of the design with the stated objectives, the Project requirements, government requirements and statutory requirements. |
| Independent Design Certifier | The organisation(s) and the nominated representative(s) who provide Independent Design Certification. |
| Independent Design Review | An independent detailed and extensive review / checking of the design inputs, process, documents, drawings, reports, calculation, models and specifications and enable Independent Design Certification of the Design. |

2 Obligations of the Independent Design Certifier

- 2.1 The Design Certifier must be Independent to the Designer’s and / or Contractor’s organisation.
- 2.2 The Independent Design Certifier must not have participated in the preparation of any part of the design of the Works in any manner whatsoever;
- 2.3 In performing its obligations under this Contract, the Independent Design Certifier must act:
- impartially, honestly, diligently and reasonably; and
 - with the degree of professional, knowledge, skill, expertise, experience and care which would be reasonably expected of an expert professional providing services similar to those required under the Contract;
 - independently of the Principal, Designer’s and / or Contractor’s organisation and any of their subcontractors or consultants, and
 - within any timeframe specified in this Contract.
- 2.4 The Independent Design Certifier acknowledges that the Principal is relying upon the knowledge, skill, expertise and experience of the Independent Design Certifier in the performance of its obligations and is entitled to rely on any certificate or other document signed or given by the Independent Design Certifier pursuant to this Contract.

3 Obligations of the Contractor

- 3.1 The Designer and / or Contractor must not hinder or restrict the Independent Design Certifier to complete its obligations under its Contract. The Contractor must:

- a) not interfere with or attempt to improperly influence the Independent Certifier in the performance of any of its services;
- b) give the Independent Design Certifier access to the Site and to all documentation that is reasonably necessary for the Independent Design Certifier to carry out its functions; and
- c) co-operate with, and not impede, the Independent Design Certifier in the performance of its duties.

4 Delegation of Authority

- 4.1 The powers, duties, discretions and authorities vested in the Minister, Principal's Representative, Principal's Authorised Person or Principal under the clauses listed in the Contract and Department Master Specification **may** be delegated to the Independent Design Certifier.
- 4.2 The Principal shall confirm in writing the delegation of Authority in accordance with the Contract.
- 4.3 Where the Independent Design Certifier identifies any ambiguity in the delegation of authority under this clause the Independent Design Certifier shall write to the Principal Representative to clarify the ambiguity.
- 4.4 Provision of a request to clarify any ambiguity error or omission in the delegation of authority shall constitute a **Hold Point**.

5 Selection of the Independent Design Certifier

- 5.1 The Independent Design Certifier may be from a single organisation or a number of organisations.
- 5.2 Where the Independent Design Certifier is to be engaged directly by the Principal the Principal shall advise the Contractor of the Independent Design Certifier within 10 Business Days of the Date of Contract.
- 5.3 The Principal reserves the right to engage Department Technical Services to undertake Independent Design Certification duties.
- 5.4 Where the Independent Design Certifier is to be engaged as a tripartite agreement or within an Alliance or Delivery Partner, within 10 Business Days of the Date of Contract, the Contractor must submit to the Principal's Representative the Preferred Subcontractor for Independent Design Certification services (minimum of three) that the Contractor considers are suitable to undertake the Independent Design Certification for the Contract.
- 5.5 Where the Independent Design Certifier is to be engaged directly by the Contractor, within 10 Business Days of the Date of Contract, the Contractor must submit to the Principal's Representative the recommended Independent Design Certifier.
- 5.6 Provision of the Preferred Subcontractor list of selected Independent Design Certifier(s) shall constitute a **Hold Point**.
- 5.7 The Principal will review the proposed Independent Design Certifier and accept or otherwise.

6 Competency and Availability of the Independent Design Certifier

- 6.1 The Independent Design Certifier must include personnel with a sufficient degree of knowledge, skill, expertise and experience to perform its obligations under the Independent Certification Contract including for all the design elements being Independently Certified.
- 6.2 The Independent Design Certifier shall undertake, assess and provide evidence on the competency of all personnel engaged to undertake Independent Design Certification activities.
- 6.3 The Independent Design Certifier personnel must:
 - a) meet the requirements for qualifications, and competency;

- b) perform the services required of their respective positions; and
 - c) be available for consultation as any party may reasonably require from time to time.
- 6.4 Key Independent Design Certifier personnel must not be removed without the prior written consent of the Principal (which consent must not be unreasonably withheld) and if any of the people are removed:
- a) they must be replaced by people of at least equivalent qualifications, knowledge, skill, expertise and experience; and
 - b) prior to removal and replacement, there must be a proper and adequate handover to ensure that the new personnel have a reasonable understanding of the Project and the services.
- 6.5 The Principal may direct the Independent Design Certifier to remove personnel from the performance of the Services. The Independent Design Certifier must comply with any such direction.
- 6.6 Where there exists a Department prequalification for a technical discipline subject to IDC, the IDC shall be prequalified for that discipline or will engage a sub-consultant that is prequalified.
- 6.7 Competency assessment of the Independent Design Certifier's personnel shall constitute a **Hold Point**.

7 Correspondence with the Independent Design Certifier

- 7.1 The Principal may correspond and / or meet directly with the Independent Design Certifier at any time. All correspondence and / or meeting minutes between the Principal and Independent Design Certifier will be in writing and provided to the Contractor.
- 7.2 All correspondence between the Contractor and Independent Design Certifier (excluding commercial correspondence) must be in writing and copied to the Principal for their information.

8 Independent Design Certification Process

- 8.1 The Independent Design Certification process must:
- a) be a structured independent process integrated through the design lifecycle;
 - b) be transparent to the Designer and / or Contractor;
 - c) include consultation with Department Technical Services;
 - d) Include consultation with Department Asset Management Personnel, and
 - e) include consultation with any specified external Authorities.
- 8.2 The Designer and / or Contractor's Quality Management Plan and Design must include processes and procedures for ensuring the results of Independent Design Certification process are incorporated into the design lifecycle.
- 8.3 The Designer and / or Contractor's Program must include appropriate allowance for the Independent Design Certification process.

Review of Project Requirements

- 8.4 The Independent Design Certification process must include a detailed review of the design documents to ensure the Principal's Requirements are achieved including:
- a) Safety in design requirements;
 - b) Maintenance in design requirements;
 - c) Constructability of the design including temporary loading; and
 - d) Whole of life considerations.
- 8.5 The Independent Design Certifier shall consult with the Principal's Technical Services and Asset Maintenance personnel to clarify any ambiguity, error or omission in the Project Requirements.

- 8.6 Provision of a request to clarify any ambiguity, error or omission in the Project Requirements shall constitute a **Hold Point**.

Requirements Management

- 8.7 The Independent Design Certifier must systematically identify and record the Project Requirements, and statutory requirements.
- 8.8 Within the Independent Design Certification process the Independent Design Certifier must verify and review the Design's compliance to the requirements and trace and verify the Design's compliance to the requirements.
- 8.9 The compliance of the Design shall be communicated to both the Principal and the Contractor in the Independent Design Certification Report.
- 8.10 The Independent Design Certifier shall document the outcome of the Independent Design Certification within a comments and issues form at stages of the design development as detailed in PC-EDM1 "Design Management".
- 8.11 Submission of the documentation detailing the outcome of the Independent Design Certification at each design stage shall constitute a **Hold Point**.

Technical Meetings

- 8.12 The Independent Design Certifier must attend and independently participate in all technical design review meetings or workshops held between the Contractor and Minister, unless directed otherwise by the Principal's Representative.
- 8.13 The Independent Design Certifier must present issues identified through the design lifecycle and the outcomes of their work completed.

Consultation with the Department's Technical and Maintenance Specialist

- 8.14 Following and / or during the Independent Design Certification process the Independent Design Certifier is to consult and / or meet with the nominated Department technical and maintenance specialists / personnel to:
- demonstrate the nature and extent of Independent Design Certification completed to date;
 - advise on issues and / or discrepancies identified through the Independent Design Certification;
 - document any additional items and or clarification the Department technical and maintenance personnel;
 - advise on Contractor's response on identified issues from previous packages;
 - advise when identified issues have been addressed by the Contractor and closed by the Independent Design Certifier.
- 8.15 The Independent Design Certifier shall liaise with the Principal's Representative to nominate the appropriate technical and maintenance specialist to consult with for each design package.

Independent Design Review of Design Documents

- 8.16 The Independent Design Certifier must complete an Independent Design Review of the Contractor's Design documents of all design packages as specified in project scope.
- 8.17 The Independent Design Certifier shall ensure extent and level of review detail is commensurate with the risk and complexity of the element being Independently Certified as detailed in the Independent Design Certifier's Risk Assessment.
- 8.18 The Independent Design Certifier must identify issues (or potential issues) with compliance to the project requirements and specification and any additional comments based on its experience will assist the design achieving the project objectives and requirements.
- 8.19 Where the Independent Design Certifier identifies a potential non-compliance to the project scope the Independent Design Certifier must notify the Principal of the potential non-compliance.

- 8.20 The Independent Design Certifier identified issues and comments, and the designer's response shall be documented in an Issues and Comments Form for each individual package and design submission.

Independent Design Analysis

- 8.21 The Independent Design Certifier shall identify in the Independent Design Certifier's Risk Assessment, risk items that warrant Independent Design Analysis to ensure compliance of the Design to the Requirements.
- 8.22 As a minimum the Independent Design Certifier shall undertake, Independent Design Analysis as specified in Project of Independent Design Certification Services.
- 8.23 The Independent Design Analysis shall be based on the Contractor's construction drawings and specifications. The Independent Design Certifier must confirm compliance (or otherwise) to the Project Requirements.
- 8.24 The Independent Design Certifier's issues and comments, and the designer's response shall be documented in an Issues and Comments Form for each individual package and design submission.

9 Independent Design Certification Report

- 9.1 The Independent Design Certifier must prepare a report of the outcome of the Independent Design Certification process.
- 9.2 Independent Design Certification Reports shall be developed for each technical discipline.
- 9.3 The Independent Design Certification Report shall be submitted at the completion of the IFC design review for each technical discipline.
- 9.4 Independent Design Certification Report(s) must include as a minimum:
- identification of technical discipline that the report relates to;
 - details of the extent of services completed;
 - issues & comments identified and resolved during the Independent Design Certification process at each design gate;
 - summary & detailed outputs of Independent Design Analysis; and
 - reporting on compliance of the design to the requirements.
- 9.5 Provision of the Independent Design Certification Report will constitute a **Hold Point**.

10 Independent Design Certificate

- 10.1 The Independent Design Certifier shall provide a certificate to confirm the Independent Design Certification services have been completed.
- 10.2 Independent Design Certificates must be in accordance with the form included in Appendix 1: Independent Design Certificate. The Certificate must not be qualified in any way that could lessen the effect of the certificate without the written acceptance of the Principal's Representative.
- 10.3 Where the Independent Design Certifier identifies an issue that will limit providing an Independent Design Certificate or will require a condition to the Certificate, the Independent Design Certifier shall immediately raise the issue or condition to the Contractor's and Principal's attention for clarification.
- 10.4 Provision of the Independent Design Certification Certificate will constitute a **Hold Point**.

11 Amendments to the IFC Design

- 11.1 Any proposed change to the Design documents after the issue of the Issued for Construction design document must be reviewed by the Principal to determine if the proposed change could potentially

- have an impact on the nature of the design and warrants as review by the Independent Design Certifier.
- 11.2 Where the Principal determines the proposed change warrants a review by the Independent Design Certifier, the proposed design change may be referred to the Independent Design Certifier for review and written confirmation that the Independent Design Certificate remains valid.
- 11.3 Where the Independent Design Certifier advises the amendment to the design has the potential to validity of the Independent Design Certificate, the Independent Design Certifier must undertake further analysis and / or review to confirm the design complies with the requirements of the Project Requirements and issue and amended Independent Design Certification Certificate.
- 11.4 Provision of the amended Independent Design Certification Certificate will constitute a **Hold Point**.

12 Scope of Independent Design Certification Activities

- 12.1 The Independent Design Certifier shall undertake the Independent Design Certification in accordance with the Independent Design Certifier's defined scope and requirements.
- 12.2 The scope of the Independent Design Certifier activities is to be determined on a risk based approach to ensure the extent and level of Independent Design Certification activities are commensurate with risk of non-compliance of the design documents and the resulting risk of non-compliance is mitigated "so far as reasonably practical".
- 12.3 The Independent Design Certifier must undertake a risk based review of the defined scope in-consultation with representative of the Principal (including Department asset managers & technical specialists) and Contractor as appropriate.
- 12.4 In the event the risk assessment identifies any ambiguity, error or omission on the Scope of the Independent Design Certification services the Independent Design Certifier shall write to the Principal to confirm the scope of services.
- 12.5 Provision of the Independent Design Certifier risk assessment to confirm the Scope of Independent Design Services shall constitute a **Hold Point**.
- 12.6 Unless agreed otherwise or documented in the Contract Documents, the scope of Independent Design Certification activities shall be as detailed below.

Structures and Major Temporary Works

- 12.7 For the purpose of this clause only:
- a) "Major Temporary Works" means any temporary works which would have serious consequences (such as a risk to the safety of any person, a delay to work on the critical path or a compromise to the quality of the Works) in the event of the failure of the temporary works to perform as intended.
 - b) "Structures" includes bridgeworks, major service / drainage structures, overhead gantries, retaining walls greater than 1.0 m high and non-standard traffic barriers.
- 12.8 The scope of the Independent Design Certification must include, but not be limited to:
- a) **Independent Design Review** of the design assumptions, parameters and techniques;
 - b) **Independent Design Analysis** to ensure that the strength, stability, serviceability and other requirements defined in the Requirements including:
 - i) Structures as a whole;
 - ii) Individual structural elements; and
 - iii) Major Temporary Works.
 - c) **Independent Design Review** to ensure compliance of:
 - i) proposed erection procedures;
 - ii) falsework, particularly regarding lateral stability; and

iii) any temporary work or demolition work.

d) Independent Design Review to confirm:

- i) the accuracy of drawings, reports and specifications including:
 - critical detailing and geometry;
 - specifications for materials.
- ii) the structure achieves the specified durability requirements.

Geotechnical Engineering

12.9 The scope of Independent Design Certification must include, but not be limited to:

a) Independent Design Review of:

- i) the adopted geotechnical Category in accordance with AS 5100 "Bridge Design";
- ii) the foundation investigations, assumptions and interpretations;
- iii) the design assumptions, parameters, methodologies;
- iv) the material properties adopted.

b) Independent Design Review of:

- i) geotechnical foundations;
- ii) long term and short term settlement calculations; and
- iii) the accuracy of design drawings, reports and specifications.

Road Design

12.10 The scope of Independent Design Certification of the road design must include, but not be limited to, **Independent Design Review** of:

- a) the design assumptions, parameters and methodologies including - context sensitive design approach;
- b) the roadway geometric design;
- c) the roadway safety barriers;
- d) the safe systems approach;
- e) verge design;
- f) Integration of other design elements with the road design (e.g. landscaping);
- g) any temporary traffic design;
- h) the accuracy of drawings, reports and specifications.

12.11 The scope of Independent Design Certification of the road design of the pedestrian and cycling facilities designs must include, but not be limited to, **Independent Design Review** of:

- a) the design assumptions, parameters and methodologies;
- b) pathways and ramps geometric design;
- c) alignment of facilities to pedestrian and cyclists "desire" lines;
- d) accessibility of pedestrian facilities and compliance to Disability and Discrimination Act;
- e) the accuracy of design drawings, reports and specifications; and
- f) The Crime Prevention Through Environmental Design Procedures and Reports.

Traffic Modelling

12.12 The scope of Independent Design Certification of the Traffic modelling must include, but not be limited to, **Independent Design Review** of:

- a) the design assumptions, parameters and methodologies;
- b) traffic demand and route assessment modelling outcomes;
- c) signalised intersection modelling;
- d) level of service;
- e) traffic weaving and ramp operation;
- f) integration of traffic modelling outcomes with ITS operation.

Traffic Control Devices

12.13 Traffic control devices shall be reviewed by Department Roads and Marine Services, Traffic Services and are not included in the Independent Design Certification process.

Pavements

12.14 The scope of Independent Design Certification of the pavement design must include, but not be limited to, **Independent Design Review** of:

- a) subgrade material properties adopted within the pavement design;
- b) pavement material properties;
- c) design traffic and pavement loading;
- d) any geotechnical issues which may affect pavement performance;
- e) the maintenance strategies and while of life analysis; and
- f) the accuracy of design drawings, reports and specifications.

12.15 The scope of Independent Design Certification of the pavement design must include, but not be limited to, **Independent Design Analysis** of:

- a) pavement structural design.

Lighting Design

12.16 The scope of Independent Design Certification of the lighting design must include, but not be limited to, **Independent Design Review** of:

- a) the design assumptions, parameters and methodologies;
- b) the lighting and electrical design including:
 - i) light luminance (lux levels);
 - ii) lighting wiring;
 - iii) switchboards;
 - iv) conduit design.
- c) maintenance access strategies & maintenance methodologies;
- d) the compliance to electrical regulations;
- e) the compliance with Office of the Technical Regulator's requirements;
- f) the accuracy of design drawings, reports and specifications.

Traffic Signals or Intelligent Transport Systems (ITS)

12.17 The scope of Independent Design Certification of the Traffic Signals or Intelligent Transport Systems must include, but not be limited to, **Independent Design Review** of:

- a) the design assumptions, parameters and methodologies including
- b) power distribution system;
- c) schematic and line diagrams;

- d) communications system and network architecture;
- e) conduit and pit design;
- f) camera coverage;
- g) sightline distance and alignment;
- h) mounting;
- i) equipment suitability.
- j) the compliance to Department Specification, Technical Standards and Guidelines, design outputs and drawing presentation;
- k) the compliance to Electrical Regulations and Office of the Technical Regulator's requirements;
- l) the compliance to Australian Standards and Austroads Guidelines;
- m) the witness of equipment and subsystem testing and commissioning;
- n) the maintenance access strategies & maintenance methodologies;
- o) the accuracy of design drawings, reports and specifications.

Stormwater Management and Drainage Design

- 12.18 The scope of Independent Design Certification of the stormwater management design must include, but not be limited to, **Independent Design Review** of:
- a) the design assumptions, parameters and methodologies;
 - b) the design storm events are covered by the design;
 - c) the stormwater design calculations;
 - d) stormwater management infrastructure and drainage network; and
 - e) the accuracy of design drawings, reports and specifications.

Authority Services

- 12.19 The scope of Independent Design Certification of the Authority Services is limited to **Independent Design Review** of the coordination and integration of the Authority services design with the Works.

Landscape and Architectural Design

- 12.20 The scope of Independent Design Certification of the landscaping and architectural design must include **Independent Design Review** to confirm compliance to design requirements.

Environment and Sustainability

- 12.21 The scope of Independent Design Certification shall include **Independent Design Review** to confirm compliance to the Environmental Design, Sustainability in Design and Site Contamination requirements.

Noise Modelling

- 12.22 The scope of the Independent Design Certification of the noise assessment (and treatment measures, where required) must include **Independent Design Review** of the noise modelling, calculations and treatment measures.
- 12.23 In particular, the review must as a minimum confirm compliance of the following:
- a) modelling assumptions / inputs, monitoring, parameters and methodologies;
 - b) the compliance with the Department's Road Traffic Noise Guidelines;
 - c) the compliance with the EPA's Guidelines for the assessment of noise from railway infrastructure; and

Accessibility

12.24 The scope of Independent Design Certification shall include **Independent Design Review** to confirm compliance to the design requirements for Accessibility and Inclusion including requirements of the Contract Documents and legislative requirements.

13 Hold Points

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

Table PC-EDM3 13-1 Hold Points

| Document Ref. | Hold Point | Response Time |
|---------------|---|-----------------|
| 4.4 | Clarification of any ambiguity error or omission in the delegation of authority | |
| 5.6 | Contractor's Preferred list of Independent Design Certifiers | 10 Working Days |
| 6.7 | Competency assessment of the Independent Design Certifier's personnel | 10 Working Days |
| 8.6 | Clarification of any ambiguities in the Project Requirements | 10 Working Days |
| 8.11 | Detailing the outcome of the design review at each design gate | 10 Working Days |
| 9.5 | Provision of Independent Design Certification Report | 10 Working Days |
| 10.4 | Independent Design Certification | 10 Working Days |
| 11.4 | Amended Independent Design Certificate | 10 Working Days |
| 12.5 | Independent Design Certifier's Risk Assessment & confirmation of scope. | 10 Working Days |

