ARTC

Engineering Design & Project Management Matrix
Version 8.0
October 2020

Document Number: EGP0103F-01
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Rail Safety Work Descriptor	Structures Design (10)			Track Design (10)			Geotechnical Design (10)			Civil Design (9) (10)			Mechanical Design (10)			Electrical Design (10)			ICT Design (10)			Systems/Safety Engineering (8)			Infrastructure Construction/Maintenance Design								Civil Engineering Representative (3)		Independent Competent Person (Rail Vehicles) (6)			Project Management									
	Designer (7) (12)	Design Verifier/Approver (7) (12)	Scoping/Acceptance of Design (5) (7) (12)	Designer (7) (12)	Design Verifier/Approver (7) (12)	Scoping/Acceptance of Design (5) (7) (12)	Designer (7) (12)	Design Verifier/Approver (7) (12)	Scoping/Acceptance of Design (5) (7) (12)	Designer (7) (12)	Design Verifier/Approver (7) (12)	Scoping/Acceptance of Design (5) (7) (12)	Designer (7) (12)	Design Verifier/Approver (7) (12)	Scoping/Acceptance of Design (5) (7) (12)	Designer (7) (12)	Design Verifier/Approver (7) (12)	Scoping/Acceptance of Design (5) (7) (12)	Designer (7) (12)	Design Verifier/Approver (7) (12)	Scoping/Acceptance of Design (5) (7) (12)	Designer (7) (12)	Design Verifier/Approver (7) (12)	Scoping/Acceptance of Design (5) (7) (12)	Supervision of Major Construction (13)	Major Construction Verification - Path 1 or (13)	Major Construction Verification - Path 2 (13)	Supervision of Medium Construction (13)	Medium Construction Verification - Path 1 or (13)	Medium Construction Verification - Path 2 (13)	Supervision of Minor Construction/Maintenance (13)	Minor Construction/Maintenance Verification (2) (13)	Civil Engineering Representative Path 1 (13)	Civil Engineering Representative Path 2 (13)	Independent Competent Person Path 1 (12)	Independent Competent Person Path 2 (7) (12)	Independent Competent Person Path 3 (12)	Project Director (Path 1) (7) (13)	Project Director (Path 2) (13)	Senior Project Manager (Path 1) (7) (13)	Senior Project Manager (Path 2) (13)	Design Manager (Path 1) (7) (12)	Design Manager (Path 2) (12)	Project Manager (Path 1) (7) (13)	Project Manager (Path 2) (13)	Project Engineer Path 1 (7) (12)	Project Engineer Path 2 (12)	Project Officer/Technician (12)
Essential Education and Training																																												
CPEng/NER/RPEQ (11)		X			X			X			X			X			X			X			X											X (1)		X (1)		X (1)		X (1)			
AIPM RegPM or PMI PMP/PgMP/PfMP or ARTC agreed equivalent (14)																																			X (1)		X (1)		X (1)		X (1)			
Tertiary Qualification - Engineering Bachelor Degree (11)	X (1)		X	X (1)		X	X (1)		X	X (1)		X	X (1)		X	X (1)		X	X (1)		X	X (1)		X		X (1)			X (1)			X		X			X		X	X	X (1)
Tertiary Qualification - Engineering Technologist or Associate (11)	X (1)			X (1)			X (1)			X (1)			X (1)			X (1)			X (1)			X (1)																				X (1)
Current CV	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Record of Relevant Experience	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Years of Required Relevant Experience																																												
2 YEARS	X			X			X			X			X			X			X			X				X			X													
3 YEARS																																												X
5 YEARS			X			X			X			X			X			X			X			X									X				X			X		
7 YEARS		X			X			X			X			X			X			X			X	X			X		X						X		X					
10 YEARS																										X							X										
15 YEARS																																X		X										
Relevant Experience Questions (4)																														To attain these roles you will need to request a copy of the competency assessment document from standards@artc.com.au and complete a submission to address the required knowledge and experience.		To attain these roles you will need to request a copy of the competency assessment document from standards@artc.com.au and complete a submission to address the required knowledge and experience.																				
1. Provide evidence of a comprehensive understanding of Risk Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
2. Provide evidence of an understanding of network configuration management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3. Provide evidence of an understanding of Asset Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
4. Provide evidence of an understanding of Engineering Competency	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5. Provide evidence of an understanding of implementing standards and waivers	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6. Provide evidence of the understanding of design approval processes	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
7. Provide evidence of an understanding of Rail System Safety	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8. Provide evidence of the understanding of logistics in a railway environment	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9. Provide evidence of the integration of engineering with other professional input.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10. Provide evidence of where you developed engineering solutions.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
11. Provide evidence where you identified constraints on potential engineering solutions.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12. Provide evidence of interpreting and scoping design requirements.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
13. Discuss where you prepared concept proposals including advice on the latest technology.	X		X	X		X	X		X	X		X	X		X	X		X	X		X	X		X																			
14. Discuss when you implemented planning and design processes.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
15. Provide evidence of when you reviewed a design to achieve acceptance.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16. Provide evidence of preparing and maintaining documentation during the design process.	X	X		X	X		X	X		X	X		X	X		X	X		X	X		X	X		X			X			X			X			X			X		
17. Provide evidence of design validation.	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				X			X			X			X			X		
18. Discuss when you contributed to engineering business strategies.	X		X	X		X	X		X	X		X	X		X	X		X	X		X	X		X	X			X			X			X			X			X		
19. Provide evidence of when you managed the implementation of engineering plans within a business.			X			X			X			X			X			X			X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
20. Provide evidence of when you monitored engineering business performance.																										X	X		X	X													
21. Discuss situations when you have managed people.																									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
22. Provide evidence of when you have managed the physical resources within a project.																									X	X	X	X	X	X	X	X	X	X	X								
23. Provide evidence of when you have managed quality, safety, environment and risk.																									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
24. Discuss when you have managed cost and procurement for a project.																									X			X			X			X			X			X		
25. Provide evidence of the management of timing and progress of a project.																									X			X			X			X			X			X		
26. Provide evidence of the finalisation of a project.																										X	X		X	X		X											
27. Provide evidence of planning operations and systems.																									X	X	X	X	X	X	X												
28. Provide evidence of when you have measured and documented engineering operations and systems.																										X	X		X	X													
29. Discuss when you have managed contractual issues.																																			X	X	X	X	X	X	X	X	X	X
30. Provide evidence of the integration of all functions of project management																																			X	X	X	X	X	X	X	X	X	

Notes

1. Either qualification acceptable
2. Refers to the Minor Track Infrastructure Maintenance or Construction Verifier. This is minimum requirement and an applicant can have over and above these skills and knowledge when it comes to the verification of infrastructure.
3. The CER role is an in-house ARTC role for track maintenance engineers.
4. Evidence provided must be your own work.
5. The Scoping/Acceptance of Design is an in-house ARTC role only.
6. Qualifications to be related to vehicles or mechanical engineering.
7. Evidence of current CPEng, RPEQ or NER registration and a current CV is sufficient evidence for Designer, Design Verifier/Approver, Scoping/Acceptance of Design roles, Project Management roles and the Independent Competent Person (Rail Vehicles) Path 2 role. The Years of Experience requirement needs to be met.
8. Digital and Geographic Information System (GIS) Engineering to be included in this discipline where those designs are Rail Safety Work (RSW).
9. Hydraulic, Hydrological and Environmental designs to be included in this discipline where they are RSW.
10. Designs for Utilities which are RSW come under the relevant design discipline.
11. An equivalent qualification or registration may be approved by the GM Technical Standards.
12. This role has four year recertification per EGP-01-03 section 3.4.1.
13. This role has four year reconfirmation per EGP-01-03 section 3.4.1.
14. AIPM RegPM certification levels CPPM, CPSPM, CPPD and CPPE are acceptable. CPPP is not acceptable.

Version Content Information
Version 8.0 Corrected Design Manager and Project Engineer Path 1 Tertiary Qualification requirement. Removed PICS and Note 11 as already covered in the Track and Civil Matrix. Removed Digital and GIS Engineering and added Note 8 to Systems/Safety Engineering. Added AIPM and PMI registrations for project management pathways. Added new Note 11 regarding equivalent qualifications. Added new Note 12 regarding 4 year recertification requirement. Added new Note 13 regarding 4 year reconfirmation requirement. Added new Note 14 regarding AIPM registration levels. Added new document number. Deleted 1 Year Experience row as this is unused.

Samples of Evidence

- Engineering Drawings integrating various design components
- Project Feasibility Reports
- Project Management Plans
- Project Progress Reports
- Engineering Waivers
- Meeting minutes with relevant comments
- Meeting minutes of Project Scope & Objectives with Stakeholders
- Risk Assessments
- Safe Management Plans
- Network Alteration Notice
- Engineering Document Change Requests
- Tender Evaluation Criteria and Grid
- Transmittal notices
- Consultation Comment Forms
- Change Notification
- Contribution to ARTC Business Plan
- Project Closeout Reports
- Maintenance and Capital Works Plans
- Asset Management Plans
- Work Method Statements
- Product Description
- Phase/Stage/Execption Plan
- Team Status Reports
- Forecast Movement Reports
- New Equipment and Systems Approval Proforma
- Issue Log
- Authorisation to Recruit and Appoint
- Emails with Relevant Information
- WHS and Environmental Control Management Plans
- Safety Notices
- Purchase Orders
- Inventory Issues/Transfer/Adjustment Forms
- End Stage Report
- Lessons Learned Report