Engineering Design & Project Management Matrix
Version 6.0 May 2017

Rail Safety Work Descriptor	Structures Design			Track Design			Geotechnical Design			Civil Design			Mechanical Design			Electrical Design			ICT Design			Systems/Safety Engineering		
	Designer **(7)**	Design Verifier/Approver **(7)**	Scoping/Acceptance of Design **(5) (7)**	Designer **(7)**	Design Verifier/Approver **(7)**	Scoping/Acceptance of Design **(5) (7)**	Designer **(7)**	Design Verifier/Approver **(7)**	Scoping/Acceptance of Design **(5) (7)**	Designer **(7)**	Design Verifier/Approver **(7)**	Scoping/Acceptance of Design **(5) (7)**	Designer **(7)**	Design Verifier/Approver **(7)**	Scoping/Acceptance of Design **(5) (7)**	Designer **(7)**	Design Verifier/Approver **(7)**	Scoping/Acceptance of Design **(5) (7)**	Designer **(7)**	Design Verifier/Approver **(7)**	Scoping/Acceptance of Design **(5) (7)**	Designer **(7)**	Design Verifier/Approver **(7)**	Scoping/Acceptance of Design **(5) (7)**
Essential Education and Training																								
CPEng/NER/RPEQ		X			X			X			X			X			X			X			X	
Tertiary Qualification - Bachelor Degree	X (1)		X	X (1)		X	X (1)		X	X (1)		X	X (1)		X	X (1)		X	X (1)		X	X (1)		X
Tertiary Qualification - Technologist or Associate	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
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
Years of Required Relevant Experience																								
1 YEAR																								
2 YEARS	X			X			X			X			X			X			X			X		
3 YEARS																								
5 YEARS			X			X			X			X			X			X			X			X
7 YEARS		X			X			X			X			X			X			X			X	
10 YEARS																								
15 YEARS																								
Relevant Experience Questions (4)																								
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	
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
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
19. Provide evidence of when you managed the implementation of engineering plans within a business.			X			X			X			X			X			X			X			X
20. Provide evidence of when you monitored engineering business performance.																								
21. Discuss situations when you have managed people.																								
22. Provide evidence of when you have managed the physical resources within a project.																								
23. Provide evidence of when you have managed quality, safety, environment and risk.																								
24. Discuss when you have managed cost and procurement for a project.																								
25. Provide evidence of the management of timing and progress of a project.																								
26. Provide evidence of the finalisation of a project.																								
27. Provide evidence of planning operations and systems.																								
28. Provide evidence of when you have measured and documented engineering operations and systems.																								
29. Discuss when you have managed contractual issues.																								
30. Provide evidence of the integration of all functions of project management																								

Rail Safety Work Descriptor	Infrastructure Construction/Maintenance Design								Civil Engineering Representative **(3)**		Independent Competent Person (Rail Vehicles) **(6)**			Project Management								
	Supervision of Major Construction	Major Construction Verification - Path 1 or	Major Construction Verification - Path 2	Supervision of Medium Construction	Medium Construction Verification - Path 1 or	Medium Construction Verification - Path 2	Supervision of Minor Construction/Maintenance	Minor Construction/Maintenance Verification **(2)**	Civil Engineering Representative Path 1	Civil Engineering Representative Path 2	Independent Competent Person Path 1	Independent Competent Person Path 2 **(7)**	Independent Competent Person Path 3	Project Director (Path 1) **(7)**	Project Director (Path 2)	Senior Project Manager (Path 1) **(7)**	Senior Project Manager (Path 2)	Project Manager (Path 1) **(7)**	Project Manager (Path 2)	Project Engineer Path 1 **(7)**	Project Engineer Path 2	Project Officer/Technician
Essential Education and Training																						
CPEng/NER/RPEQ												X		X		X		X		X		
Tertiary Qualification - Bachelor Degree		X (1)			X (1)				X		X										X	X (1)
Tertiary Qualification - Technologist or Associate		X (1)			X (1)								X									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
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
Years of Required Relevant Experience																						
1 YEAR																						
2 YEARS		X			X		X	X														
3 YEARS																		X		X		X
5 YEARS									X							X			X		X	
7 YEARS	X			X		X						X		X			X					
10 YEARS			X								X				X							
15 YEARS										X			X									
Relevant Experience Questions (4)																						
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
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
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
4. Provide evidence of an understanding of Engineering Competency	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
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
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
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
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
10. Provide evidence of where you developed engineering solutions.	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														
12. Provide evidence of interpreting and scoping design requirements.	X	X	X	X	X	X	X	X	To attain these roles you will need to request a copy of the competency assessment document 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 and complete a submission to address the required knowledge and experience.			X	X	X	X	X	X	X	X	X
13. Discuss where you prepared concept proposals including advice on the latest technology.																						
14. Discuss when you implemented planning and design processes.	X			X			X															
15. Provide evidence of when you reviewed a design to achieve acceptance.																						
16. Provide evidence of preparing and maintaining documentation during the design process.	X			X			X															
17. Provide evidence of design validation.																						
18. Discuss when you contributed to engineering business strategies.	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														
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
22. Provide evidence of when you have managed the physical resources within a project.	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
24. Discuss when you have managed cost and procurement for a project.	X			X			X							X	X	X	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	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	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
30. Provide evidence of the integration of all functions of project management														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.

Version Content Information

Version 6.0 Corrected qualification required for Track Design for the competency of Scoping/Acceptance of Design. Added Version Content Information area.

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