Job No: 18478	**Client:** United Civil Construction			
Project Name: Tangiteroria Bridge Strengthening		A	Issued for Approval	Grant Withers	14/4/2025
***ACTIVITY DEFINITIONS: C**=Check; **R**= Review; **P**=Perform; **H**=Hold Point; **W**=Witness Point; **M**=Monitor Point*		**REV**	**REV DESCRIPTION**	**APPROVED**	**Date**

ITEM	PROCESS DESCRIPTION IN SEQUENCE	QUALITY CONTROL ACTIVITY & RESPONSIBILITY	ACCEPTANCE CRITERIA		VERIFICATION	INSPECTION ACTIVITY					
			REFERENCE/STANDARD	CLAUSE	RECORDING DOCUMENT	ACTIVITY	PRODUCTION	ACTIVITY	QA/QC INSPECTOR	ACTIVITY	CLIENT /TPI
1.0	PRE-SITE INSTALLATION/ERECTION										
1.1	Compile Site Delivery Schedule/Truck Lists	Truck Lists/Delivery Dockets to be maintained, fabricated components to be delivered to site in such a sequence to minimize time for erection and exposure to potential damage	ISO 9001	CEC QMS		P					
1.2	Drawings and document revision review	Drawings showing details for all steel elements shall be prepared and submitted to the Clients Engineer no less than 14 working days prior to commencing site installation	AS/NZS 5131 AS1100, AS 1101.3 Structural Specification	4.4 All 9.6	Drawings and document revision review	R		R		H	
1.3	Erection Sequence Methodology	Confirm erection methodologies and install sequence, Fabricated steelwork shall be delivered to site in such sequence as shall minimise time for erection, and exposure to potential damage	AS/NZS 5131	All	CEC Erection sequence Methodology	P					
1.4	Bolting procedure	Installation of all high strength structural bolts to be carried out in accordance with CEC SOP – "Installation of High Strength Structural Bolts"	CEC SOP 02-037-01	All							
2.0	MATERIAL RECEIPT										
2.1	Material Check	Check for any damage to delivered assemblies/components or products and report all non-conforming materials to CEC Quality department, any non-conforming assemblies/components or products to be segregated/quarantined, NCR to be raised as applicable.	AS/NZS 5131 ISO 9001	5 All		P		R			
2.2	Material Storage	Store products to avoid visual damage, environmental damage, mechanical damage and distortion.	AS/NZS 5131 Structural Specification	6.11 & 11.5.6 3411.3.2		P		R			
2.3	Bolts, Nuts & fasteners	All bolts, nuts and washers are to comply with AS/NZS 1252:2016, inclusive of verification testing by the manufacturer or supplier, any bolt assemblies supplied to the previous version of this standard shall have verification testing completed in accordance with appendix A of SCNZ practise note MAT1010 by the manufacturer or supplier	AS/NZS 1252 AS/NZS 5131 Structural Specification SCNZ MAT 1010	All 5.5 9.8.2		R		R			
2.4	Threaded Rod	All threaded rod is to comply with the requirements of SCNZ MAT 1011 including verification testing completed in accordance with appendix A by the manufacturer or supplier, unless otherwise approved by the design engineer	Structural Specification	9.8.3		P		R			

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3.0	INSTALLATION AND ERECTION										
3.1	Snug Tightening of Bolts	Snug tightening shall proceed from the stiffest part of the connection towards the free edges, snug tightening to be achieved by a few impacts of an impact wrench or by the full effort of a person on a standard spud wrench	AS/NZS 5131 CEC SOP 02-037	Section 8	Bolting Records	P					
3.1	Tensioning of Bolts	Type /TB and /TF bolts are to be tightened using either the part-turn method or load indicating washers. Where the part-turn method is used, the nut and shank are to be clearly marked to allow easy visual identification of degree of turn. Bolt Tensioning is to be monitored by a suitably qualified person. Tensioned bolt heads to be permanently marked by tensioning crew when compliant. Bolt tensioning records to be compiled released as areas are completed.	AS/NZS 5131 Structural Specification	Section 8.5 11.2.2	Bolting Records	P		R			
3.3	Chemical Anchors	Chemical anchors to be installed in accordance with the manufacturer's instructions. All anchor holes shall be cleaned out using water and a mechanically powered brush to ensure that no concrete dust or paste residue remains prior to insertion of the epoxy grout. Raise RFI's and confirm remediation methodologies If correct embedment cannot be achieved	AS/NZS 5131 Structural Specification			P		R			
3.4	Proof Testing of Chemical and Mechanical Anchors	Chemical and mechanical anchors to be proof load tested at the specified load and testing rate. Prior to installing shear brackets, 3 x test anchors shall be installed in the deck soffit using This installation methodology: following curing of the epoxy adhesive, pull out tests at a load of 30kn (approximately 80% of ULS tensile load capacity of anchors) shall be undertaken. Anchor load (pressure gauge) to be monitored during pull out test, and if anchors are failing prior to 30kn, load achieved and pull-out force at time of failure is to be recorded. Results to be submitted for engineer's review and further advice. For the shear bracket anchors to be installed, clear quality assurance documentation for all anchors is to be	Structural Specification General Notes drawings			P		R			

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		submitted to the engineer for review. After testing, test anchors to be cut off flush with concrete surface and two coats of zinc rich paint applied to cut surface for corrosion protection (Resene Armourzinc 110 or similar approved).									
3.6	Stiffener Cutting Methodology	Cutting methodology to existing stiffeners shall be provided to design engineer for approval. All care must be taken to avoid damage to the girder.	Drawing General Notes		Methodology Statement	H		R			
4.0	SITE DIMENSIONAL CHECKS										
4.1	Site Dimensional Checks	Dimensional documentation to be submitted in MDR of erected structural steelwork to verify the structure and components have been installed as defined on the Project Drawings to the tolerances defined in AS/NZS 5131.	AS/NZS 5131	11.3 & Appendix F		H		H			
4.2	Tolerances	Erection tolerances shall conform to the requirements of AS/NZS 5131, the tolerance class for functional tolerances shall be Class 1 UNO on the project drawings.	AS/NZS 5131	Appendix F		H		R			
5.0	SITE WELDING										
5.1	Chemical Composition Testing	Chemical composition testing in accordance with AS/NZS 1050 shall be carried out on the existing steel to determine the material composition. Culham Engineering shall review chemical composition results and develop a welding procedure appropriate to the material composition.	Structural Specification	10.2.4		H		H			
5.2	Welding Procedure Specifications	Welding procedure specifications shall be prepared by Culham Engineering and approved by the Welding Inspector then submitted together with any necessary test certificates	AS/NZS 1554.1 Structural Specification	All 10.2.4	WPS Register	R		H			
5.3	Welder Qualifications	CEC Welding Inspector to review all welder qualifications prior to welding taking place	AS/NZS 1554.1, AS/NZS 2980, AS/NZS ISO 9606 Structural Specification	All	Welder Qualification Register	R		H			
5.3	Welding Consumables	Welding consumables to be used as stated on the relevant WPS and stored in accordance with the requirements of AS/NZS 5131 and manufacturers recommendations as applicable	AS/NZS 5131 AS/NZS 1554	7.5 All	Welding Consumables Register	P		R			

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5.4	Paint Removal Before Welding	Paint on the existing structure at weld locations shall be removed prior to welding.	Drawing General Notes			H		R			
5.5	Weld Defects	All weld defects revealed by visual examination or NDE shall be repaired with the same process as used in the initial weld and subject to at least the same method/type of NDE method undertaken that revealed the defect	AS/NZS 5131 AS/NZS 1554 Structural Specification	13.6 6.7 10.2.6	Weld Control Record	P		H			
6.0	INSPECTION										
6.1	Visual inspection of completed welds	100% visual scanning of all welds, 100% visual examination of all welds to be complete by Culham Engineering certified welding inspector	AS/NZS 5131 Structural Specification	Appendix I	Visual Inspection Report			H			
6.2	NDE requirements	100 % Ultrasonic Testing of Complete Penetration Butt Site Welds.	AS/NZS 5131 AS/NZS 1554 Structural Specification	Appendix I Section 6	Weld Control Record NDT Reports			H			
6.3	Bolting Inspection	Inspection of all bolted connects shall be performed, all bolts shall be the correct size and grade, and be tightened and marked in accordance with the requirements	AS/NZS 5131 Structural Specification	Section 13.7	Bolting Records	P		R			
7.0	RELEASE AND HANDOVER										
7.1	All Non-Conformances and Remedial work Closed Out	All relevant CEC and Sub Contractor quality records audited any non-conformances relating to the project are closed	ISO 9001	CEC QMS		H		H			
7.2	Site is Clean and tidy	All rubbish, construction materials equipment and tools removed from site	Contract Requirement			P					
8.0	FINAL INSPECTION AND DOCUMENTATION										
8.1	Construction Producer Statement (PS3)	Project manager or nominee to complete the construction producer statement(s) in accordance with the local territorial authorities' requirements	Structural Specification			H		H			
8.2	Manufacturers Data Report (MDR)	Compile all quality documentation as required by the specification and submit to client	AS/NZS 5131	Appendix E		R		P			