

## **TENDER DOCUMENT**

# **TENDER NAME:** Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division

## **TENDER No. MR 10/2023**

Energy Fiji Limited 2 Marlow Street Private Mail Bag Suva Fiji Islands

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**Note:** Tenderers are assumed to have in their position a copy of New Zealand Standard NZS 3910:2013 "Conditions of Contract for Building and Civil Engineering Construction" on which this Tender is based.



Energy Fiji Limited 2 Marlow Street Private Mail Bag Suva Fiji Islands

## PART I

## INVITATION TO TENDER

**TENDER NAME:** Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division

## TENDER No.: M 10/2023

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Part 1: Invitation

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## INTRODUCTION

## INVITATION TO TENDER

Energy Fiji Limited ("EFL") invites tenders for the refurbishment including preparation and painting of a total of Eight Steel Lattice Towers on the Wailoa-Cunningham 132kV Transmission Line.

The 7 towers on the Wailoa-Cunningham 132kV Transmission Line, are stretching from The Wailoa Power station to Navuakece in Viti Levu Island, Fiji.

This tendering package will be as follows:

### Package 1 – Refurbishment of 7 Steel Lattice Towers.

**NOTE:** Successful tenderer will be required to commence works for package 1 after signing of contract and will have to provide their own solutions of accessing towers that are not accessible.

## DATE

This invitation to tender ("Invitation") is dated **14/01/2023** 

## **DOCUMENTS ENCLOSED**

The following documents ("Tender Documents") form part of this invitation

- Part 2 Scope and Programme of Works
- Part 3 Tender Letter and Appendices
- Part 4 General Conditions of Contract (Not included see note below)
- Part 5 Schedules to the General Conditions of Contract ("Special Conditions of Contract")
- Part 6 Specification
- Part 7 Drawings and Individual tower condition assessment drawings

### **ISSUE OF DOCUMENTS**

Tender documents issued to each tenderer for use in the preparation of tenders shall remain the property of EFL at all times.

## ACKNOWLEDGEMENT

Each Tenderer is required to acknowledge receipt of this invitation by completing the acknowledgement form annexed as Schedule 1 of the invitation and returning it to the address set out in the form within two working days of receipt of this invitation. Each Tenderer acknowledges that the EFL shall not be obliged to deal with any person(s) other than the person(s) so authorised and indicated in Schedule 1 of the invitation.

## TENDER CLOSE DATE

Tenders will close at **16:00HRS on Wednesday**, **25/01/2023** and must be electronically uploaded in the Tenderlink Electronic Tender Box and received at the address given below:

## TENDER NAME: Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division

## TENDER NUMBER: MR 10/2023

### DO NOT OPEN BEFORE: 16:00HRS on Wednesday, 25/01/2023

Tenders are to be submitted via Tenderlink Electronic Tender Box and should remain valid for a period of **120** days from the above closing date.

Tenders shall be addressed to:

The Secretary Tender Committee Energy Fiji Limited Head Office Suva FIJI

## NOTE:

- 1. It is <u>mandatory</u> for Bidders to upload a copy of their bid in the **Tenderlink Electronic Tender Box** no later than **16:00HRS on Wednesday**, **25/01/2023**. The Tenderlink Electronic Tender Box can be accessed via the following link: <u>https://www.tenderlink.com/efl/</u>
- 2. All late tenders and tenders without bidder's name and address will not be considered.

## SCHEDULE 1

## TENDER ACKNOWLEDGMENT FORM

TO.	The Secretary Tender Committee Energy Fiji Limited 2 Marlow Street Private Mail Bag Suva Fiji Islands	FROM.	
	Email: <u>tenders@efl.com.fj</u>		

## Please return this form completed to the Energy Fiji Ltd representative given in the Invitation Letter.

We acknowledge receipt on \_\_\_\_/ \_\_\_\_ of the Tender Document for:

## TENDER NO: MR 10/2023

## **TENDER NAME:** Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division

Please tick as appropriate and advise reasons(s) if you are not tendering;

We accept this opportunity and our Tender will be submitted by the stipulated time. The contact person for any correspondence relating to this Tender is indicated below.
We decline this opportunity to tender for the following reasons:
and we will destroy the INFORMATION directly.

With respect to the preparation of the Tender for the above contract, the contact person for correspondence is;

Name		
Company		
Address		
Telephone		
Facsimile		
e-mail	_	
Yours faithfully Signature Name in the capacity of:		

Part 1 Invitation



## PART 2

## SCOPE AND PROGRAMME OF WORKS

**TENDER NAME:** Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division

## **TENDER No.MR 10/2023**

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Part 2: Scope and Programme of Works

## SCOPE AND PROGRAMME OF WORKS

The scope of work, (the Works), is as described in Section 1.2, 2 and 3 of Part 6 – Technical Specification and incorporates the following:

- **1.0** The establishment, steel & Bolt replacement, preparation and painting of selected towers as detailed in the attached schedule (Appendix A)
  - **1.1** Site establishment
  - **1.2** Preparation and painting of designated structures
- **2.0** The delivery dates for the items to be provided by EFL are as follows:
  - **2.1** To be determined, if deemed necessary.
- **3.0** The key scheduled dates are set out below and the Works are to be executed in the time frames given:

3.1	Anticipated award of Tender:	28/02/2023
3.2	Anticipated Contract Signing:	27/03/2023
3.3	Anticipated Contractor start date on site:	3/04/2023

## **3.4** Tenderers site visit date: 18/01/2023.

## Site Visits for the tender shall be held as follows:

• **09:00hrs on 18/01/2023,** it is Mandatory bidders shall report to the Transmission Engineer - Projects at EFL, Kinoya Depot for tender meeting and discussion. EFL Kinoya Depot is located at <a href="https://goo.gl/maps/1fqm7cWgrDt">https://goo.gl/maps/1fqm7cWgrDt</a>. After the tender meeting bidders shall visit various tower sites.

Bidders shall arrange suitable 4x4 vehicle transportation for themselves. Suitable hiking gear is advised for cross-country hiking to multiple tower sites, possibly in slightly muddy conditions at times.

## Appendix A: WAILOA-CUNNINGHAM 132KV TRANSMISSION LINE – Work Scope

Structure ID	Туре	Legs	Tower Area	Rust	ZCP
PACKAGE 1					
WAI-CUN-A002	S30L-3	+/-0 , +/-0, 1, 3	121	3	74
WAI-CUN-A003	HSL-3	+/-0 , 1, 1, +/-0	120	6	86
WAI-CUN-A003A	S30L-3	+/-0 , 1, 1, 2	121	4	84
WAI-CUN-A004	STL+-0	-1 , 1, 1, +/-0	165	2	118
WAI-CUN-A005	S30L-3	+/-0 , -1, 1, +/-0	112	5	79
WAI-CUN-A006	DGL-3	2 , 2, 1, 1	161	4	107
WAI-CUN-A086	HSL+6	3, 1, +/-0, 1	180	7	137
		Totals			



## PART 3

## TENDER LETTER AND SUPPORTING INFORMATION

**TENDER NAME:** Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division

## TENDER No.: MR 10/2023

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## TENDER LETTER

Tenderers should submit a Tender Letter in the following format with all the appropriate supporting information attached in accordance with the requirements of the Tender Document

### (COMPANY LETTERHEAD)

- 1. We hereby acknowledge that such sums specified as liquidated damages in the Schedule to the General Conditions are not a penalty but are a genuine and fair pre-estimate of the losses which The Energy Fiji Limited will suffer in the event of the Contractor failing to complete the Works within the specified Time for Completion.
- We undertake if our Tender is accepted to commence work on the Contract upon receipt of the Letter of Acceptance and to complete and deliver the whole of the Works comprised in the Contract within weeks calculated from the date of the Letter of Acceptance.
- 3. We agree that this Tender shall constitute a binding offer for the period of 180 days from the date fixed for receiving the same and that it may be accepted at any time before the expiration of that period.
- 4. Unless and until a formal Contract Agreement is prepared and executed, this Tender, together with your written acceptance thereof, shall constitute a binding contract between us.
- 5. We understand that you are not bound to accept the lowest or any tender you may receive.
- 6. We undertake that we accept each and every term and condition contained in the General Conditions of Contract NZS 3910:2013, Special Conditions of Contract, Specification and Instructions to Tenderers and that our Tender conforms to the same except as listed in Form A Exceptions and Departures.
- 7. We acknowledge that we have the latest edition of the General Conditions of Contract, NZS 3910:2013 and that we accept the terms and conditions of the same.
- 8. We acknowledge that we have inspected the site, examined the tender documents and any other information supplied in writing and we are satisfied with the sufficiency of the tender price.

Attached and made a part of this proposal are all data required by the Tender Document.
Notices to Tenderers received and allowed for in this Tender are:
Tenderer: (Name)
Title:
Signature:
Duly authorised to sign Tenders for and on behalf of
Company:
Business Address:
Business Telephone:
Business Email Address:
Date:

## APPENDIX TO THE TENDER LETTER

### SUPPLEMENTARY INFORMATION

The following information shall be submitted with the Tender:

#### Form 1 - Exceptions and Departures

The Tenderer should detail each exception to or deviation from the Tender Document including Part 4 General Conditions of Contract

#### Form 2 - Contract Programme

The Tenderer should provide a programme for the Contract.

#### Form 3 - Sub-Contractor Listing

The Tenderer should provide a full list of sub-contractors and suppliers proposed for involvement in the Works.

### Form 4 – Contract Specific Systems Information

The Tenderer should answer questions on Form 4 detailing contract specific compliance with the safety, quality and environmental requirements of the Contract.

#### Form 5 - Labour, Plant and Equipment Rates

The Tenderer should provide a list of all labour, plant and equipment that will be utilised in executing the Works, indicating thereon the net hourly rates to apply in the format provided in Form 5.

#### Form 6 - Overheads and Profit

The Tenderer should indicate the percentage additions required to net rates and costs of labour, plant and equipment, sub-contractors and materials supplied, where used in formulation of prices to relate to variations and for day-works, in the format provided in Form 6.

### Form 7– Works Implementation Outline

The Tenderer should provide a method statement in the format provided in Form 7.

### Form 8 - Resource Listing

The Tenderer should provide details on its proposed resources and Contract structure in the format provided in Form 8.

### Form 9 – Schedule of Prices

The Tenderer should complete the Schedule of Prices indicating the makeup of the Tender sum. The Schedule shall be completed in the format provided in Form I.

## FORM 1 - EXCEPTIONS AND DEPARTURES

Tenderer's Name

List below any exceptions and departures proposed to any part of the Tender Document. Precise reference to appropriate clauses or sub-clauses is essential. No amendments to the Tender Document will be recognised unless expressly listed herein. If the Tenderer proposes no exceptions or deviations, **enter** "None" below.

If any modification to the original Tender is proposed after submission of the Tender, but before the closing date, a revised Form 1 should be submitted if appropriate.

## FORM 2 - CONTRACT PROGRAMME

The Tenderer should submit with its Tender its proposed Programme for carrying out the Works, incorporating the required key dates indicated in Part II - Scope and Programme of Works and showing the activities necessary throughout the Contract period.

The Programme should include a scheduled Gantt chart, individual structures identified, work force histogram and cost 'S' curves.

Details should include-

- Scheduled start and finish
- Activity duration in days
- Activity description
- Manpower histogram
- Monthly and cumulative invoicing predictions
- Details of work and leave patterns.
- Any other information the Tenderer considers will assist in understanding the Tenderers proposal and methodology.
- Working hours

## FORM 3 - SUB-CONTRACTOR-SUPPLIER LISTING

TENDERER'S NAME.....

Name and address of Sub-	Description of Sub-	Comments and Quality
contractor (see note below)	Contractor's Work Scope	Assurance Standard

**Sub-contractor** means suppliers of materials, equipment or services that the Tenderer intends to use if awarded the Contract.

## FORM 4 – CONTRACT SPECIFIC SYSTEMS INFORMATION

TENDERER'S NAME.....

Tenderers should enter information on their safety and quality management systems that would be specific to this Contract

## SAFETY

- 1. Who will be the site representative responsible for local safety co-ordination?
- 2. What specific safety procedures will be implemented for working in a tropical environment?
- 3. What communication systems will be employed to ensure emergency response protocols will be maintained during the period of works?

## QUALITY ASSURANCE

- 1. For this Contract, who has the overall responsibility for the quality of the work being carried out?
- 2. Who has the day-to-day on-site responsibility for the quality of work?
- 3. Who has the responsibility for controlling and issuing of all documents required for use in the inspection, checking, and carrying out of site works?
- 4. Who is responsible for preparation and issue of the work Instructions to the staff on site?
- 5. Who has responsibility for the determination and submission to the Engineer for approval of the necessary inspection plans for purchased materials, work in progress, and the finished work?
- 6. What specialist equipment will you be using to determine the finished quality of your work for this contract?

## FORM 5 - LABOUR, PLANT AND EQUIPMENT RATES

TENDERER'S NAME.....

## GENERAL

The rates given below will be used in the evaluation of any variation prices and when a portion of the works is to be completed on a day- work basis during the contract period.

## PLANT AND EQUIPMENT RATES

The Tenderer should list below all plant, equipment and vehicles including sub-contractor's plant, equipment and vehicles to be used on the site in carrying out the works, together with net hourly rates required for use. The rates should be for the **NET** running costs inclusive of fuel, lubricants, repairs, parts and service, maintenance, labour and applicable local taxes, but **EXCLUSIVE** of overhead charges, profit and GST and/or VAT. If an operator is required, this labour rate shall be included in the hourly rate for the equipment.

**NOTE 1** – The Principal may possibly provide some plant and vehicles for use by the contractor, during the duration of the works, this may include 4x4 utility crew trucks and water tanker. Tenderers to indicate details of envisaged vehicles required for the works. Tenderers are also required to submit their costs for the envisaged vehicles required for the works, if EFL does not provide these vehicles.

	Plant and Equipment Type (Indicate whether an operator is included)	Net Hourly Rate for Operating Equipment
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

## LABOUR RATES

The Tenderer should indicate below the **NET** hourly rates for all trades to be engaged on the Works. These rates should be the **NET** cost to the Contractor of all labour, tradesmen, foreman, sub-contractors, design staff, and management and should **EXCLUDE** overhead charges, profit and GST/VAT.

**NOTE 2** – The Principal may possibly provide some ground based labour i.e. truck driver, support labour etc. The tenderer shall identify the envisaged crew size and indicate what roles cannot be locally sourced.

	Trade – position	Rate Per Hour
1		
2		
3		
4		
5		
6		

## FORM 6 - OVERHEADS AND PROFIT

TENDERER'S NAME.....

The Tenderer should indicate below, the following percentages which will be applied by the Engineer in evaluating variations in accordance with General Conditions Section 9

- (a) The percentages to be added to the net Cost of labour, materials, plant and equipment and Sub-contractors for on-site and off-site overhead charges to derive the total costs
- (b) The percentages to be added to the total Costs in respect of profit, to derive the prices applicable for the variation.

	(a) Overheads %	(b) Profit %
Labour (Site)		
Materials		
Plant and equipment		
Sub-contractors		

## FORM 7 - WORKS IMPLEMENTATION OUTLINE

TENDERER'S NAME.....

The Tenderer should list below an outline of the proposed execution methodology. The outline should include such items as:

- 1. A narrative of the proposed execution of the Works, including mobilisation and logistic support in Fiji.
- 2. An indication of number and type of plant required to be on site during the contract period.
- 3. The proposed coating system to be used. The tenderer may submit multiple options for the proposed coated systems for the EFL's consideration.

**NOTE**: Tenderers are encouraged to give as much detail as possible; this will assist in the evaluation of the Tender.

## FORM 8 - RESOURCE LISTING

TENDERER'S NAME.....

The Tenderer should provide the following details:

### 1.0 Personnel

List the proposed key personnel, as follows:

- Project Manager
- Site Supervisor(s)
- Personnel holding ACA/NACE Coating Inspectors Certificates
- Personnel with line mechanic/steel replacement skills and experience
- Personnel holding live line competencies
- Any other persons identified in key roles within the Organisation for the Contract

## 2.0 Organisation

• Give details of your proposed organisation structure and an organisation chart.

### 3.0 Facilities

Gives details on the following:

- Specialist test equipment required for the Works
- Site installation, huts, offices, etc
- Any Specialist machinery or Equipment (HP water jetting etc)

## FORM 9- SCHEDULE OF PRICES

## NOTES TO THE SCHEDULE OF PRICES

TENDERER'S NAME.....

### 1.0 The Tender is for a measure and value Contract

- (a) The Schedule of Prices should be completed and will be used to assess payments due to the Contractor in accordance with the terms of the Contract and where appropriate, will be used in valuation of the variations.
- (b) The quantities and items included in the Schedule of Prices are not warranted as complete or accurate.
- (c) Detailed descriptions of works and materials required have not been repeated in the Schedule of Prices.
- (d) Anything not specifically listed in the Schedule of Prices but necessary to complete the Works in accordance with the Contract, shall be deemed to be included in the rates and prices listed against the appropriate item of the Schedule of Prices.
- (e) The Schedule of Prices will be read in conjunction with the remainder of the documents comprising the Contract.
- (f) The rates and prices indicated in the Schedule of Prices should include for labour, materials, subcontractors, constructional plant and equipment, preliminary and general items, including clearance of site during the Works and on completion and making good, for all on-site and off-site overheads, other costs of whatever nature and profit.
- (g) A rate or price should be entered against each item within the Schedule of Prices.

If a price is not entered against any item, the cost of that item is deemed to be included elsewhere in the Schedule of Prices.

- (h) All rates and prices should be exclusive of Goods and Services or Value added Tax.
- (i) Where Milestone payments are the method of payment, the Tenderer may propose an alternative list of milestones, provided it can demonstrate some advantage to EFL by way of lower Tender price or otherwise. However, the schedules below should be completed for Tender evaluation purposes.
- (j) An electronic version of the pricing schedules, in Excel format will be provided.

## Schedule of Prices – STAGE 1

Item No	Tower Number	Management	Establishment	All Bolts Re-torque	Fit Earth-plates	Fit New Anti-climb wires	Total {Currency}
1.	WAI-CUN-A002	\$	\$	\$	\$	\$	\$
2.	WAI-CUN-A003	\$	\$	\$	\$	\$	\$
3.	WAI-CUN-A003A	\$	\$	\$	\$	\$	\$
4.	WAI-CUN-A004	\$	\$	\$	\$	\$	\$
5.	WAI-CUN-A005	\$	\$	\$	\$	\$	\$
6.	WAI-CUN-A006	\$	\$	\$	\$	\$	\$
7.	WAI-CUN-A086	\$	\$	\$	\$	\$	\$
	Total {Currency}	\$	\$	\$	\$	\$	\$

NOTES:

- Price breakdown columns are provided as a minimum mandatory guideline for pricing. The bidders shall add columns as needed to provide additional price breakdown information wherever possible.
   Bidders shall consult Fiji Revenue and Customs Services (FRCS) for information relevant to taxation. Website: <u>https://www.frcs.org.fi</u>

TENDER NAME: Rust Treatment & Refurbishment on Part of 132kV Transmission Line Towers in Central Division Part 3: Tender & Supplementary Information

TENDER NO:

## TENDERER'S NAME.....

### Schedule of Prices – STAGE 2

ltem No	Tower Number	Full water Jetting (all areas)	WAB rust area	WAB Sweep area	Prime	Undercoat	Topcoat	Total {Currency}
1.	WAI-CUN-A002							
2.	WAI-CUN-A003							
3.	WAI-CUN-A003A							
4.	WAI-CUN-A004							
5.	WAI-CUN-A005							
6.	WAI-CUN-A006							
7.	WAI-CUN-A086							
	Total {Currency}	\$	\$	\$	\$	\$	\$	\$

#### NOTES:

1. Price breakdown columns are provided as a minimum mandatory guideline for pricing. The bidders shall add columns as needed to provide additional price breakdown information wherever possible.

## 2. For Companies Registered in Fiji

- Companies must comply with the Fiji Income Tax and the Value added tax regulation.
- Provision of valid Tax Compliance Certificate.
- Provision of valid FNPF Compliance Certificate.
- Provision of insurance policies Public Liability
- EFL will deduct **5%** from supplier payment and remit to FRCS as provisional Tax under new tax administration decree.

#### 3. For Companies Registered Offshore

- A Withholding Tax ("WHT") of 15% will be deducted by the EFL on the service component before making the payment to the contractor. The employer (EFL) will provide to the Contractor a WHT deduction certificate for any WHT deducted by the Employer, where applicable.
- Countries who have DTA will apply the Net off method.
- India, Australia, Japan, Malaysia, New Zealand and Singapore have Double Tax Agreement with Fiji.

Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division Tender No: MR 10/2023 Tender & Supplementary Information

TENDERER'S NAME.....

Tender No.: MR377/2019

Summary of Schedule of Prices – Stage 1

ER STRUCTURE RATES - STAGE 1				
ltem No	Tower Number	Total Cost per Tower {Currency}		
1.	WAI-CUN-A002	\$		
2.	WAI-CUN-A003	\$		
3.	WAI-CUN-A003A	\$		
4.	WAI-CUN-A004	\$		
5.	WAI-CUN-A005	\$		
6.	WAI-CUN-A006	\$		
7.	WAI-CUN-A086	\$		
	TOTAL			
	{Currency}			

Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division Tender No: MR 10/2023

Tender & Supplementary Information

### Schedule of Unit Rates (Painting)

No	Description of Unit Rates	Per	Rate(\$) {Currency}
1.	Provide Management level contract support including such activities as preparation of and reporting progress, attendance at meetings, preparation of claims, implementation and any other high level management function – used for variation only	Structure	\$
2.	Establish & dis-establish at tower site, including recording access condition and site preparation – used for variation only	Structure	\$
3.	Wash down surfaces to remove salts and other loose contamination – used for variation only	Structure	\$
4.	Carry out high pressure water jetting (primary preparation) – used for variation only	Per m <sup>2</sup>	\$
5.	Carry out abrasive blast to "NACE VIS 9/SSPC-VIS 5 WAB-10L or WAB-10M " finish – used for variation only	Per m²	\$
6.	"Sweep" abrasive blast to remove any zinc corrosion products, poorly adherent coatings (previously applied) and/or alloy stain – used for variation only	Per m²	\$
7.	Supply and apply zinc rich primer as per specification – used for variation only	Per m <sup>2</sup>	\$
8.	Supply and apply undercoat paint as per specification – used for variation only	Per m²	\$
9.	Supply and apply topcoat paint as per specification – used for variation only	Per m <sup>2</sup>	\$
10.	Supply and fix earth plate (in accordance with the specification) – used for variation only	Per plate	\$
11.	Supply, fit and torque to specified setting replacement tower bolts – include removal & disposal of R/C bolts	Per bolt	\$

## NOTES:

- 1. Any item listed in the Schedule of Prices shall be used to determine the Unit rate, if the description and type is not included in the above schedule of unit rates.
- 2. Bidder shall provide additional rate breakdown, which may be useful for calculating bidder's perceived variations, if any.
- 3. Rate used in item 11 shall be used as the cost for the identified number of bolts requiring replacement against the scope assessment.

TENDER NAME: Rust Treatment & Refurbishment on Part of 132kV Transmission Line Towers Part 3: Tender & Supplementary Information



## PART 4

## GENERAL CONDITIONS OF CONTRACT

## TENDER NAME:

Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division

## **TENDER No. MR 10/2023**

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Tenderers are assumed to have in their position a copy of New Zealand Standard NZS 3910:2013 "Conditions of Contract for Building and Civil Engineering Construction" on which this Tender is based.



## PART 5

## SPECIAL CONDITIONS OF CONTRACT (SCHEDULES TO GENERAL CONDITIONS OF CONTRACT)

## **TENDER NAME:** Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division

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## **SCHEDULE 1**

## SPECIAL CONDITIONS OF CONTRACT

(Clause numbers refer to General Conditions)

## PART A – SPECIFIC CONDITIONS OF CONTRACT

## 1.2

The Principal is The Energy Fiji Limited

of 2 Marlow Street Private Mail Bag Suva Fiji Islands

(b) There are no Separable Portions in this contract.

## 2.1.1

This contract is a:

(b) Measure and Value with an agreed set of rates against a schedule of structures, areas and quantities.

## 2.5.1

This contract is:

(c) Not a local authority contract.

## 2.6 Evidence of Contract

(a) As stated in 2.6.2

### 2.7 Documents prepared by the Engineer or Principal

## 2.7.1

Sets of Contract Documents shall be supplied free of charge to the Contractor upon the acceptance of tender in addition to tender, consent, and Contract Agreement sets. 02

## 2.8.2

Sets of Contract Documents shall be supplied free of charge to the Engineer upon the acceptance of tender in addition to tender, consent, and Contract Agreement sets.

## 3.1.1

A Contractor's bond: Is not required.

### 3.2.1

A Principal's Bond: Is not required

### 5.4.1

The Contractor shall be given possession of the Site on:

(a) 06/04/2020 or as agreed in the contract

### 5.6.6

Risks specifically excepted are: (a) - (h)

## 5.10.4

The programme shall be provided as indicated in Form 2 of Part 3

(b) There are no parts of the Contract Works to which Appendix D applies.

## 5.17

Safety Plan:

(a) Is required and details shall be submitted by ten working days prior to site start date.

## 5.18.

Quality Plan

(a) Is required and details shall be submitted by ten working days prior to site start date.

## 5.20.1

As-Built drawings are required to be prepared by the Contractor

## 5.20.1 (b)

(b) Operation and maintenance manuals are not required.

## 6.1.2

The Engineer is Transmission Engineer - Projects and Project Manager is Acting Manager Transmission of Energy Fiji Limited, or a representative explicitly designated by the aforementioned.

### 8.1

(a) The Contractor shall insure as provided in 8.1.1 (except for 8.6 – professional indemnity not required)

## 8.1.6

The Contractor shall insure for specific forces of nature - items (a) to (g)

## 8.3

The amount of the insurance to be effected in respect of the Contract Works and Materials shall be for not less than the sum of the following:

- (a) The Contract Price, after the acceptance of the tender or other offer, excluding any additions or deductions which may be required to be made during the contract;
- (b) For professional fees including the Cost of clerks of works and inspectors, the sum of:
  - (i) Not applicable;
- (c) The value of items incorporated, or to be incorporated, in the Contract Works, the Cost of which is not included in the Contract Price, the sum of \$25,000
- (d) For increased construction Costs not already provided for in the Contract Price during the period from the acceptance of the tender or other offer until the issue of the Defects Liability Certificate for the Contract Works, the sum of:
  - (ii) Not applicable;

8.4

Contractor's Plant insurance is required for each item of construction machinery on the Site owned by the Contractor that has a market value of more than:

\$5,000;

#### 8.5

### Comprehensive General Liability Insurance

Comprehensive general liability insurance, covering Contractor, its employees and Third Party for all of Contractor's operations hereunder, including all activities at the Work Site, including, but not limited to, bodily injury, property damage, premises operations, elevators, products, completed operations and blanket contractual coverage with limits of not less than FJD\$500,000.00 combined single limit.

#### 8.5.2

#### Automobile Liability

Coverage for claims for bodily injury, including death, and property damage by any person, arising from the use of any automobile while engaged in the performance of Work hereunder, will be purchased locally in accordance with local statutory requirements.

### 10.4.5

Prior to the issue of the certificate of Practical Completion:

(a) A producer statement in the form of the Sixth Schedule is required;

### 10.5.1

Liquidated damages shall be applied as follows:

(a) In respect of the Contract Works \$ 2000 per day; or as deemed by the signed contract

### 11.1

The Period of Defects Liability shall be:

In respect of the Contract Works Months; 24

### 12.3.1

The percentage to be retained from each progress payment and the limit of the total sums retained shall be:

(a) In respect of the Contract Works:

Total retention 10 % of the contract value

Defects liability retention 50 % of total retention

#### 12.8

Cost fluctuations

(a) Shall not be paid;

## 12.13

(a) Payment schedules shall not be in the form of a tax invoice.

### 15.1.2

For the purpose of service of payment claims or notices, the postal address of:

 (a) The Principal is: The Acting Manager Transmission Energy Fiji Limited Private Mail Bag, 2 Marlow Street Suva, For the attention of Acting Manager Transmission Email address: <u>VinaalP@efl.com.fj</u>

#### 16.1

Accident Compensation Insurance

It is understood that under the Accident Compensation Act 2017 it is a no fault based system and as such these are the maximum amounts payable by the Accident Compensation Commission of Fiji (ACCF) for personal injuries and death arising out from Motor Vehicle Accidents are as follows:-

Permanent Partial incapacity	FJ\$75,000;
Permanent Total Incapacity	FJ\$150,000;
Any other cases (other than the above)	FJ\$75,000;
Deaths	FJ\$75,000.

It would be prudent that the Contractor have in place safe working and driving mechanisms to equip their employees with survival skills so as to avoid Personal Injuries at work or Motor Vehicle Accidents for that matter.

#### 16.2

Professional Indemnity ('PI') Insurance Cover

For the contracts with the various monetary amounts listed below signed with EFL, the Contractor is required to obtain their PI covers (as applicable to them for the contract amount) which are as follows:-

For EFL Contracts up to FJD\$100K – \$250,000 PI Cover is required; For EFL Contracts > FJD\$100K up to \$500K – \$1.5M PI Cover is required;

For EFL Contracts > \$500K up to \$1M - \$2.5M PI Cover is required; and

For any EFL Contracts above \$1M and up to \$2M - \$5M PI Cover is required.

(b)	The Engineer is: Transmission Engineer - Project. Energy Fiji Limited Private Mail Bag, 2 Marlow Street Suva Suva, Fiji Islands
For th	ne attention of: Mr Kausheel
Chara	an
Email	address: kausheelc@efl.com.fj
(c)	The Contractor is
For th	ne Attention of
Email	:

#### CONTRACT AGREEMENT

Contract for

THIS AGREEMENT is made on

BETWEEN

("the Contractor")

AND ("the Principal").

#### IT IS AGREED as follows:

- **1. THE** Contractor shall carry out the obligations imposed on the Contractor by the Contract Documents.
- 2. THE Principal shall pay the Contractor the sum of \$ or such greater or less sum as shall become payable under the Contract Documents together with Goods and Services Tax at the times and in the manner provided in the Contract Documents.
- **3. EACH** party shall carry out and fulfil all other obligations imposed on that party by the Contract Documents.
- 4. **THE** Contract Documents are this Contract Agreement and the following which form part of this agreement:
  - (a) The Conditions of Tendering;
  - (b) Notices to Tenderers (give details with dates);
  - (c) The Contractor's tender; including duly completed Schedules 1-9
  - (d) The notification of acceptance of tender;
  - (e) The General Conditions of Contract, NZS 3910:2013;
  - (f) The Special Conditions of Contract;
  - (g) Specifications issued prior to the Date of Acceptance of Tender;
  - (h) Drawings issued prior to the Date of Acceptance of Tender;
  - (j) The following additional documents: (Identify any additional documents to be included for example agreed correspondence.)

**WITNESS** to the signature of the Contractor:

Contractor

**WITNESS** to the signature of the Principal:

	• • •			• •	• •			•		•		•••		•		•	•		•	•••	
Ρ	ri	n	С	ip	2	a	I														

#### PART B – OTHER CONDITIONS OF CONTRACT

(Include here other Special Conditions that modify the General Conditions)

#### FORM OF PRODUCER STATEMENT - CONSTRUCTION

ISSUED BY (Contractor)		
<b>TO</b> (Principal)		
IN RESPECT OF (Description of Contract Work	(S)	
(Address)		
(Contractor)	has contracted to (Principal)	
	ertain building works in accordance with a co ENDER NO: MR10/2023 ("The contract")	ontract titled Refurbishment of 132kV
I (Duly Authorized Agen	a duly authorized representative of t)	(Contractor)
believe on reasonable ground	ds that(Contractor)	has carried out
All Part only with the c	as specified in the attached particulars of th contract.	ne building works in accordance
(Signature of Authorized Age		
(Contractor)		
(Address)		

#### INFORMATION AS TO CONTRACT WORKS INSURANCE

#### To Whom It May Concern:

From:

We confirm having effected contract works insurance for:

(The Contractor)

#### (The Principal)

In respect of:

(Project title)

8.1.2	The	sums insured are:				
	(a)	Contract price		\$		(Plus GST/VAT)
	(b)	Costs of demolition		\$		(Plus GST/VAT)
	(c)	Professional fees		\$		(Plus GST/VAT)
	(d)	Value of items incorporated or to be incorpor	ated	\$		(Plus GST/VAT)
	(e)	Increased construction costs		\$		(Plus GST/VAT)
		TOTAL SUM INSURED		\$	0	(Plus GST/VAT)
	The	policy deductibles are:				
		Non earthquake	(GST/VA	T inclusive)	\$	
		Earthquake	(GST/VA	T inclusive)	\$	
		Other:	(GST/VA	T inclusive)	\$	

We advise the 'special' terms, copy attached, have been applied to this policy

#### 8.5.3, 8.8.4 Policy cover terms included are:

- (a) Automatic reinstatement
- (b) No cancellation for non-payment without prior notification
- (c) Severally insured
- (d) No settlement delay due to exercise of subrogation

Project specific policy

#### 8.1.3 Construction period Defects liability period (both subject to alteration under construction contract) Annual run-off policy

8.1.5 Annual cut-off policy Policy expiry date

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

Insurance (Or name of	e Company Stamp insurance broking company	y confirming cover)	Date
SIGNED	ВҮ		
SIGNATO	RYTITLE		
	(Claus	se numbers refer to NZS 3910:2003 and	are for information only)

## SCHEDULE 8 Information on Contractor arranged Plant Insurance

To whom	n it may concern:			
From			(Name of insu	ırance company)
				(Branch)
				(Address)
				, ,
we conin	m having effected Plant insurance for:			
				(The Contractor)
In respec	t of			(Project title)
Policy wo	rding title is			
We advis	e that special terms, copy attached, have been sp	ecifically applie	d to this project	Yes/No
The follow	ving provisions apply:			
	Annual policy			
	Project specific policy			
Policy ex	piry date			
8.4				
The sum	s insured are (GST/VAT exclusive):			
All	items of Plant	Sum insured	\$	
OR				
Val	ued schedule of construction Plant insured (copy	attached)		
The polic	y deductible (GST/VAT inclusive) is		\$	
Policy co	ver terms included are:			
8.2.2	Discretionary cancellation clause			Yes/No
8.2.3(a)	Reinstatement provision			Yes/No
8.2.4	Void ab initio for non-payment of premium without	ut prior notificat	ion	Yes/No
	No settlement delay due to exercise of subrogati	on		Yes/No

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

This insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2013.

Insurance Company Stamp		Date
(Or name of insurance broking compa	any confirming cover)	
SIGNED BY		
SIGNATORY TITLE		

(Clause numbers refer to NZS 3910:2013 and are for information only.)

### Information on Public Liability Insurance

To whom it may concern:

From(Name of insurance company)	
(Branch)	
(Address)	

We confirm having effected public liability insurance to indemnify the Principal and the Contractor against legal liability to third parties for damage, loss or injury caused by an act or omission of the Contractor arising out of the performance of the Contract Works.

	(The Contractor)
	(The Principal)
In respect of	
Policy wording title is	

We advise that special terms, copy attached, have been specifically applied to this project Yes/No

The following provisions apply:

Annual policy

Project specific policy

Policy expiry date .....

#### 8.5, 8.9

The limit of indemnity (GST/VAT exclusive)				
Sub-limit insured for (GST/VAT exclusive)				
Vibration, removal or weakening of support	\$			
Forest and Rural Fires Act 1977	\$			
Underground services	\$			
Deductible (GST/VAT inclusive) is				
Deductible for vibration, removal or weakening of support				
(GST/VAT inclusive)	\$			
Deductible for underground services (GST/VAT inclusive)				

The policy also covers liability arising out of:

The ownership/use of Plant not required to be registered for road use	Yes/No
The use of hired Plant	Yes/No
The ownership/use of watercraft over 8 m	Yes/No
The ownership/use of aircraft	Yes/No
The use of explosives	Yes/No

#### 8.2, 8.7

Policy cover terms included are:

Reinstatement provisions	Yes/No
Number of reinstatements	
Discretionary cancellation clause	Yes/No
Void for non-payment of premium without prior notification	Yes/No
Severally insured	Yes/No
No settlement delay due to exercise of subrogation	Yes/No

We undertake that this policy will not be cancelled or amended by us without written advice to the insured party which has arranged the insurances.

This insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2013.

Insurance Company Stamp		Date	
(Or name of insurance broking compa	any confirming cover)		
SIGNED BY			
SIGNATORY TITLE			
(Clause	numbers refer to NZC 2010/2002 and are fr	ar information and d	

(Clause numbers refer to NZS 3910:2003 and are for information only)

#### INFORMATION AS TO THE CONTRACTOR'S MOTOR VEHICLE INSURANCE

#### To Whom It May Concern:

#### From:

We confirm having effected motor fleet insurance for:

In respect of	of: (Project title)		
	Annual policy Policy expiry date:		
8.3.1	The sums insured are: Section 2 - liability	\$	(Plus, GST/VAT)
	The policy deductibles are: Section 2	(GST/VAT inclusive)	\$
	We advise that "special" terms, cop	by attached, have been applied to th	is policy
953	Policy cover terms included are:		

#### 8.5.3 Policy cover terms included are:

- (a) Automatic reinstatement
- (b) No cancellation for non-payment without prior notification
- (c) No settlement delay due to exercise of subrogation

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

Insurance Company Stamp	
(Or name of insurance broking company	/ confirming cover)

Date .....

SIGNED BY

## SCHEDULE 15 Practical Completion Certificate

Contract f	for	
This Pract	ical Cor	mpletion Certificate is issued under 10.4.3(a) or 10.4.4.
Contract f	or	
		(Contract name and number if applicable)
Principal.		(Insert name of Principal)
Contracto	or	(Insert name of Contractor)
This certifi	cate rel	lates to:
	(a)	The whole of the Contract Works referred to above;
	(b)	The following Separable Portion
Receipt of acknowled		ntractor's notice dated and issued in accordance with 10.4.2 is
Separable notwithsta	Portion nding tl	th $\Box$ 10.4.3(a) or $\Box$ 10.4.4 <i>(select one)</i> , the Engineer certifies that the Contract Works or n to which this certificate relates qualify for a Practical Completion Certificate under 10.4, hat there may be minor omissions and/or minor defects (as listed in the attached schedule) criteria in 10.4.1 (a), (b), and (c).
attached s	schedul	required to remedy all of the listed omissions or defects within the period stated in the e against the relevant omission or defect, or at the latest within
Practical C	Complet	tion was achieved
on		(insert date) at (insert time).
Signed by	the Eng	gineer
Name		
Date		
SCHEDUL	.E	
10.4.1(a),	(b), an	ssions and/or defects have been assessed as being of a minor nature satisfying the criteria in d (c) and were identified during an inspection carried out by the Engineer or Engineer's n(insert date)
		s and defects)

Final Completion Certificate
Contract for
This certificate is a Final Completion Certificate issued under 11.3.1.
Contract for
(Contract name and number if applicable)
Principal (Insert name of Principal)
Contractor (Insert name of Contractor)
This certificate relates to:
(a) The whole of the Contract Works referred to above;
(b) The following Separable Portion (specify)
In accordance with 11.3.1, the Engineer certifies that the Contract Works or Separable Portion to which this certificate relates qualify for a Final Completion Certificate issued under 11.3
on(insert date) at(insert time).
Signed by the Engineer
Name
Date



# PART 6

# TECHNICAL SPECIFICATION

## **TENDER NAME:** Rust Treatment and Refurbishment on Part of 132kV Transmission Line Towers in Central Division

## TENDER No.: MR 10/2023

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#### 1.0 PRELIMINARY AND GENERAL

#### 1.1 INTRODUCTION

An identified group of 7 towers on Energy Fiji Limited's Wailoa-Cunningham 132kV Transmission Line were found to require refurbishment, including surface preparation and painting.

All the towers have been inspected and assessment of the amount of secondary preparation, rust and zinc corrosion product removal has been carried out.

This work includes replacement of bolts, step bolts and steel members that have reached replacement criteria. Retorquing tower bolts, and fitting of earth plates as per the specifications. Once the mechanical elements have been completed the preparation and coatings application shall be carried out. Once the coating application has been completed, the installation of aerial and LSD signage, and anti-climb fence shall be carried out.

#### 1.2 SCOPE OF WORK - GENERAL

The scope of work for this contract includes the supply of all labour, plant, materials, power, equipment and tools required to complete the Works as described below or implied in any of the Contract Documents:

- (a) Preparation and submission of a project plan. The plan shall include detail of Health and safety, Quality Assurance and Project timeline schedule
- (b) Establish on site and disestablish from site once the Works are complete.
- (c) Requisition and collect any Principal supplied items from the Principal's store, including the checking of quality and quantity, loading, transport, documentation and storage and the return of surplus material supplied by the Principal to the Principal's store.
- (d) Preparing all sites as to afford all protection necessary for the continued wellbeing of personnel, and property.
- (e) Execution of the works, and preparation and painting as detailed elsewhere in this document (excluding tower steel replacement).
- (f) Removal of all construction debris and temporary works, tidy all work sites and reinstate any damage caused during the Works.
- (g) Return a set of "as-built" drawings to the Engineer, if applicable.

#### 1.3 ACCESS TRACKS

Where there is no access to the towers, contractor shall provide and implement its own solution of accessing these towers.

**NOTE:** EFL will not provide access track to any of these towers.

#### 1.4 ACCOMMODATION – FACILITIES

The contractor shall arrange for his or her own accommodation and messing at a suitable location, within easy driving distance from the work sites, where possible.

#### 1.5 COMMUNICATIONS

During the assessment survey, cell phone coverage was checked at all tower locations and was found to give a signal from marginal to strong in most cases.

#### 1.6 CIRCUIT OUTAGES

No circuit outages are envisaged

#### 1.7 AUTO RECLOSE BLOCK AGREEMENT

EFL rules stipulate that all work on the transmission towers will require a Reclose block (RCB) procedure to be in place regardless of the proximity to the live conductors. The contractor shall allow for the taking and handing back of RCB's in their work and safety plans.

#### 1.8 HEALTH AND SAFETY

The Contractor's safety programme submission [ref 1.2 (a)] shall also address:

- (a) The health and safety requirements for high-pressure water cleaning and wet abrasive entrained blast cleaning
- (b) The requirement for persons working aloft to be attached always.
- (c) Working in Tropical conditions
- (d) The health and safety information available from the paint manufacturer.
- (e) The requirements under Section 5.17 of the General Conditions of Contract

#### 1.9 QUALITY RECORDS

Quality Records to be submitted to the Engineer and/or retained by the Contractor includes the following:

ltem	Quality Record	Submit to Engineer	No of Copies
1	Individual tower profile drawings with replaced members marked up	Yes	1
2	Completed material schedule indicating numbers of bolts relaced	Yes	1
3	Paint material batch inspection records (including supplier laboratory QA records)	Yes	1
4	Wet abrasive blast cleaned areas	Yes	1
5	Daily work records (Environmental data)	Prior to ITO	1
6	Final inspection & paint thickness test records	Prior to ITO	1
7	Notifiable non-conformance records and corrective actions	Within 48 hours of event	2
8	Pre-and post-Works Photographs of site	Yes	1
9	sets of "as built" drawings showing replaced/repaired steel	Yes	2

[ITO = Issue of Taking Over Certificate]

**Note**:Additional documentation as indicated under the Contractor's Quality Plan shall be made available to the Engineer as requested.

#### 1.10 HOLD & WITNESS POINTS

- (a) A hold point is a completed stage of the work at which the Engineer or his representative will inspect before commencement of the next stage of work on that structure.
- (b) A witness point is a stage of the work at which the Engineer or his representative may observe or receive evidence of compliance with the contract without impeding the progress of the work.
- (c) Scheduled Hold and Witness points shall be required as follows, unless indicated otherwise by the Engineer.

Item	Event	Witness or Hold
		Point
1	Approval of Project Plan/ Procedures	Hold
2	Approval of Contract Programme	Hold
3	Verification of necessary procedures	Witness
4	Verification of replacement member calculations	Witness
4	and sign off by suitably qualified engineer	
5	Verification and agreement of secondary	Witness
5	preparation areas	
6	Pressure Washing	Witness
7	Surveillance of initial soluble salt test results	Witness
8	Completion and Secondary Preparation of	Hold
0	selective priming of a minimum of 20% of towers	
9	Completion of undercoat painting of a minimum	Hold
3	of 20% of towers.	
10	Completion of finish coat painting of each tower	Hold
11	Non-conformance's	Witness
12	Completion of defect liability remedial works	Hold

#### 1.11 ENVIRONMENTAL CONSIDERATIONS

- (a) The Contractor shall clear or trim any bush and obstructions around the transmission towers to expose any hidden steelwork.
- (b) The Contractor shall make good any damage caused during the execution of the work to the reasonable satisfaction of the Engineer.
- (c) The Contractor shall take photographs of each tower site both before the work starts and at the completion of the work, for the purposes of verifying remedial measures.
- (d) The water blast cleaning and painting procedures must prevent contaminants or paint from causing damage to Insulators, vehicles and other third-party assets or to cause a risk to public safety. The Contractor shall install shields or other protective devices where appropriate.

#### 1.12 MATERIALS

Principal Supplied Materials - Refer to Appendix II

Materials Supplied by the Contractor shall include, but is not limited to -

- (a) Paint
- (b) Abrasive media (garnet)
- (c) Solvents
- (d) Water
- (e) Tower Bolts
- (f) Barbed wire
- (g) Steel Members
- (h) Aerial identification and LSD signage

#### 1.13 RETURN OF MATERIALS

Any unused Principal supplied materials shall be returned to the place of storage from which delivery by the Principal was made, for which a receipt shall be issued. The Contractor shall hand a copy of the receipt together with the Contactors materials return schedule. The Contractor shall provide lifting and transport equipment/vehicles as required for moving and unloading the materials.

#### 1.14 REFERENCES

Except where they are modified by this Specification or the Drawings, the relevant requirements of the Standards and Codes of Practice contained in Appendix 1 and the Paint manufacturer's material safety data sheets (MSDS's) and product data sheets, shall form part of and be read in conjunction with this Specification.

## 2.0 SCOPE OF WORK - PAINTING

The Scope of Work shall include the supply of labour, plant, materials, equipment, tools etc. to complete the works as described below or implied in any of the Contract Document. The Scope of Work for this Contract shall comprise of:

- (a) Prepare and document work, safety, environmental and quality assurance programmes. (This shall include inspection, testing/monitoring and include verification of compatibility of cleaning materials with paint systems used.)
- (b) Removal of tower signage and anti-climbing wires.
- (c) Provision at each site of temporary Tower identification signs in compliance with EFL statutory and operating requirements.
- (d) Carry out replacement of all tower bolts that are deemed to have reached replacement criteria (badly rusted, "frozen" and not possible to fit a socket)
- (e) Carry out re-torqueing of all bolts in accordance with recognised transmission tower bolt torque settings
- (f) Carry out replacement of all steel members that are deemed to have reached replacement criteria
- (g) Supply and fit tower earth plates in accordance with the EFL prescribed procedure (attached) generally this will include a plate adjacent to each phase (x3), a single plate at ground level and one adjacent to the earth wire.
- (h) Complete pressure washing of all tower steel on structures (without a line outage).
- (i) Effect secondary preparation and priming of areas of rust, zinc corrosion products or alloy effect.
- (j) Complete undercoat and topcoat painting of all tower steel including anti-climb brackets and plates.
- (k) Removal of any paint contamination from insulators, to an acceptable standard or as specified by the Engineer or Engineer's Representative
- (I) Removal of all construction debris and temporary works
- (m) Reinstatement of all signage, replacement of anti-climbing frames and fitting of new heavy-duty barbed wire.
- (n) Maintenance of the works, touching up defects as required or as specified by the Engineer or Engineer's Representative (This includes defect liability inspections and defect repair where applicable)
- (o) The supply of quality records on the completion of milestones.

#### 2.1 RE-INSPECTION

Should witness or hold point inspection result in the Engineer requiring remedial work or repairs to be completed by the Contractor, and subsequent repeat inspection be required, then the costs of the repeated inspection shall be borne by the Contractor.

#### 2.2 DEFECT LIABILITY INSPECTION PROGRAMME

Where the Special Conditions of Contract stipulate a multi-year defect liability period, the commencement of that duration is calculated from the date of practical completion of the tower(s). The Engineer will have inspections carried out on a portion of the completed works after the 1st year's anniversary of the practical completion. The results of this inspection will determine the course of action for any defect work.

#### 2.3 TOWER IDENTIFICATION REMOVAL AND TEMPORARY DISPLAY

- (a) The structure Identification plates (ID Plates and aerial identification if fitted) shall be removed from the structures and correctly replaced with new signage immediately following the successful completion of the topcoat on each tower.
- (b) Temporary ID Plates shall be in place and clearly displayed on each site for the entire period that the permanent identification is absent.
- (c) The anti-climb wires (where fitted) shall be removed and disposed of in accordance with local Regulations. The Contractor shall replace with new heavy-duty grade barbed wire.

#### 2.4 PRIMARY SURFACE PREPARATION

- (a) The entire tower surface including any replaced steel members, frames and anti-climb door shall be Low Pressure Water Cleaned (LP-WC) to NACE No 5/SSPC 12, WJ-4, performed at pressures of 28-34 MPa (4000-5000 psi) and at a flow rate of 25-30 litres per minute.
- (b) The power washing equipment shall be such that it will produce a consistent finish on all surfaces that is free of all visible oil, grease, dirt, dust, all soluble salts, any loosely adherent (previously applied) coatings, loose rust and loose zinc corrosion products (ZCP). Where any ZCP remains, this shall be reduced by light wet abrasive (slurry) sweep blast cleaning.
- (c) The equipment shall incorporate suitable water jetting (fan jet type) nozzle. Use of the secondary preparation style of wide bore gun (with abrasive disconnected) shall not be used for primary preparation, unless the required pressure and volumes as indicated in 3.4 (a) are maintained. Alternatively, the secondary preparation can be carried out using the air assisted "vapour blast" type equipment.
- (d) Water used for power washing, wet abrasive blast cleaning and washing down shall be potable with a resistivity of not less than 1500 ohm-cm or equivalent maximum conductance of 667μS.

#### 2.5 SECONDARY PREPARATION

- (a) Where any rust is present, it shall be removed by wet abrasive blast cleaning. An environmentally acceptable abrasive shall be selected that will have the required attributes to minimize the removal of any intact galvanising and to achieve a surface preparation standard of NACE VIS 9/SSPC-VIS 5<sup>1</sup> WAB-10L or WAB-10M, with profile height in the optimum range of 25-50µm.
- (b) Where the pure zinc (Eta) layer is largely gone, but any underlying iron/zinc alloy (Zeta/Delta) layer remains, full abrasive blasting is not required. Those areas shall be "sweep blasted" using the abrasive entrained water blast cleaning system to obtain a profile height in the optimum range of 25-50µm.
- (c) Where bulky zinc corrosion product encrustations remain after primary preparation, they shall be "sweep blasted" using the abrasive entrained water blast cleaning system, such that the treated surface is free from visible residues, staining or loose zinc corrosion products with profile height in the optimum range of 25-50μm.
- (d) Where any previously applied coatings have not been fully removed by pressure wash cleaning alone, abrasive entrained water blast cleaning shall be used to ensure full removal.

#### 2.6 WASHING DOWN

- (a) After any abrasive entrained water blast cleaning, all surfaces shall be washed to ensure removal of spent abrasive and/or residual contamination.
- (b) If the tower steel surface remains unpainted, or the time delay between coats, exceeds 48 hours, the Contractor shall determine the existence of any contamination (i.e. soluble salts, foreign particles and flash rusting) and repeat preparation steps as necessary.
- (c) Any area subject to abrasive entrained water blast cleaning, and showing bare steel, shall be patch primed as soon as the surface area is dry, and in any case, this must occur within 4 hours. Reblasting shall be mandatory if this requirement is not met.

#### 2.7 SOLUBLE SALTS

Immediately prior to the application of any coatings, the surface shall contain less than  $10 \mu g/cm^2$  of chloride contaminants.<sup>2</sup> The Contractor shall test for traces of non-visible contaminants using an approved proprietary testing method and sampling technique to perform quantitative tests for the presence of salt contamination.

#### 2.8 CARE OF INSULATORS

The Contractor shall ensure water blast debris and paint droplets do not contaminate insulators. The Contractor shall fit a suitable shield as a form of protection against paint contamination. Any contaminated insulators shall be cleaned or, where paint cannot be removed by this means, insulators shall be replaced.

<sup>&</sup>lt;sup>1</sup> Guide and Reference Photographs for Steel Surfaces Prepared by Wet Abrasive Blast Cleaning (SSPC Publication 01-06, NACE Item 22018 ISBN 1-889060-57-7

<sup>&</sup>lt;sup>2</sup> Ref: NACE No.5/SSPC-SP 12, Table A1 NV-2 with chloride adjusted up from 7 to 10µg/cm<sup>2</sup>

#### 2.9 PAINTING

- (a) The Contractor shall, in accordance with the paint manufacturer's product data sheets, apply:
- (b) Primer a patch coat of an approved zinc rich primer to all abrasive entrained water blast cleaned areas (including sweep blast areas) to achieve a minimum dry film thickness of 75µm.
- (c) Undercoat a full coat of an approved MI0 pigmented paint, coloured green, to the entire surface to achieve a minimum dry film thickness of 60 μm.
- (d) Finish coat a full coat of an approved MIO pigmented paint, coloured to a light grey NZS/BS 5252 00-A-07, to the entire surfaces at a minimum dry film thickness of 50 μm.

Note 1: Where the moisture curing urethane-coating system is selected, please refer to the manufacture's data sheet for the more exacting dry film thickness requirements

- (e) Each of the structures within the scope of work shall be painted with one of the optional systems. The use of more than one system shall only be used following consideration and approval by the Engineer. A list of approved products and their manufacturers is attached in Appendix III.
- (f) All paint shall be received and stored by the Contractor in a well-ventilated building free from excessive heat and cold. The oldest paint shall be used first provided it is within the supplier's recommended shelf life.
- (g) The paint shall be thoroughly mixed in accordance with the supplier's specific instructions. The Contractor may reduce the coating, utilising only the thinners documented by the paint manufacturer on their product data sheet, to achieve the optimum application consistency, provided that wet film deposition is such that the required minimum dry film thickness is obtained. Refer to AS.3894.3. Appendix VII

#### 2.10 PAINT APPLICATION

Paint shall not be applied when any of the following environmental conditions apply, except in the case of moisture curing urethanes by reference to supplier's technical data sheets.

- (i) The surface is less than  $3.0^{\circ}$  above the dewpoint.
- (ii) The surface temperature of the steel is below 5°C.
- (iii) The relative humidity exceeds 85%
- (iv) There is moisture or ice visible on the surface of the steel (Note that certain approved products are tolerant of residual moisture).
- (a) Any condition stipulated by the paint manufacturer in their technical data, which is more restrictive than (i) to (iv) above.
- (b) Paint application in marginal conditions shall proceed only if the assessed conditions are stable or improving. The Engineer may order painting to cease if, despite all the above conditions being met, there is, in the Engineer's opinion, another valid reason for so doing. This includes but is not limited to high wind, and or adverse temperatures.
- (c) The painting shall be carried out in a logical sequence to avoid contact with freshly painted surfaces.
- (d) The curing times and re-coating intervals nominated by the paint manufacturer in their technical data sheets shall be strictly observed.

(e) The paint shall be applied to give a uniform coating to the dry film thickness specified over the complete tower structural steelwork from base plates upwards, excluding insulator set and conductor hardware, but including tower end swivels and hanger brackets. Each coat of paint shall be free from runs and sags. There shall be no holidays in any of the applied coats of paint. Care shall be taken to ensure the attainment of the specified paint thicknesses on the edges of angle steel members.

#### 2.11 PAINT INSPECTION AND THICKNESS TESTING

- (a) The wet film thickness of paint shall be measured by means of a suitable comb type wet film gauge on a regular basis, to ensure that the correct amount of paint is applied. Due to the existence of the weathered galvanising of variable thickness, non-destructive dry film thickness measurements cannot give an accurate reading of how much new paint has been applied. Therefore, attention must be paid to the frequent utilisation of the combs by each of the Contractor's applicators.
- (b) As part of the Contractor's Quality Control procedures, the total volume of each coat comprising a system applied to each structure shall be recorded, to allow for calculation of average film build.
- (c) Where there is reasonable cause to suspect deficient film build, and the Contractor is unable to offer acceptable evidence of compliance, then the Engineer may instruct the Contractor to carry out a dry film thickness sampling procedure and provide an assurance that the minimum dry film thickness has been achieved. The location of the sampling positions shall be determined by an approved random sampling technique. No one single measurement shall be more than 20 percent below the specified minimum. Immediately following the measurements, repair of the paint system shall be carried out in accordance with clause 3.12 below.
  Note: Accentable test methods are: -

Note: Acceptable test methods are: -

- Non-destructive for total dry film thickness only AS/NZ 3894.3
- Destructive for dry film thickness of each layer, including remnants of galvanising under the paint film – AS/NZS 1580.108.2

#### 2.12 REPAIR OF DAMAGED OR DEFECTIVE PAINTWORK

Areas of defective or damaged paint shall be prepared for remedial work by:

- (a) Where the deterioration of the surface is confined to chalking and erosion of the topcoat, the surface shall be lightly cleaned, washed and dried.
- (b) Where the coating is generally sound and adherent, but minor blistering and/or pinhead rusting has occurred, to the extent of not being worse than rust grade 6-G, 1% of SSPC-VIS 2 (03% to 1% of ASTM D610) or destructive testing has occurred, then the surface shall be scraped, wire brushed, washed and dried.
- (c) Where the coating has deteriorated appreciably and has lost adhesion and visible rusting and/or blistering has occurred, the surface shall be abrasive entrained water blast cleaned as detailed in sub-clause TS7 (b) (i), washed and dried. If the method of preparation of the defective or damaged surface is as set out in sub-clause TS8 (d) (i), apply one coat of MIO pigmented undercoat followed by one coat of MIO pigmented topcoat.
- (d) When the steel is to be scraped as per TS8 (d) (ii) It is important to ensure that the coating is fully removed prior to wire brushing and a standard of SP3/PWB or SP3/SD of SSPC –VIS 3 is achieved. Painting shall be in accordance with TS8 (a).
- (e) The primer and undercoat re-paint shall overlap 25mm and the topcoat 50mm around the boundary of the defective or damaged area.

## **APPENDIX I - STANDARDS**

#### NEW ZEALAND-AUSTRALIAN STANDARDS

BSEN 20273	Fasteners. Clearance holes for bolts and screws	
NZS/AS 1112	ISO metric hexagon nuts, including thin nuts, slotted nuts and castle nuts.	
NZS/AS 1161	Wrenches - Ring, double head	
NZS/AS 1559	Fasteners - Bolts, nuts and washers for Tower Construction	
NZS/AS 1580	Paints and related materials - methods of test for	
(Part 108.2.)	Dry film thickness, Paint inspection gauge	
(Part 481.0.)	Coatings - Guide to assessing paint systems exposed	
(Part 481.2.)	Assessment of blistering of paint films	
NZS/AS 1627	Metal finishing - Preparation and pre-treatment of surfaces.	
(Part 1)	Degreasing of Metal Surfaces Using Solvent of Alkaline Solutions.	
(Part 7)	Hand tool cleaning of metal surfaces	
NZS/AS 4680	Hot dipped galvanised coatings on ferrous articles	
NZS/AS 2312.1	Guide to the protection of iron and steel against exterior atmospheric corrosion.	
NZS/AS 4233.1 & 2	Australian/New Zealand Standard High-Pressure water (hydro) jetting Systems	
NZS 3404 (Part 1)	Steel Structures Standard	
BS 3481	Specification for flat lifting slings.	
(Part 2)	Flat woven webbing lifting slings made of man-made fibre for general service	
NZS/BS 5252	Colour Standards	
NZS 5811	Industrial safety belts and harnesses	
(Part 1)	Specification for industrial safety belts and harnesses	
(Part 2)	Code of Practice for the selection, use, and maintenance of safety belts and Harnesses	
NZS 5812	Industrial protective gloves	
NZS 5827	Industrial overalls	
AS/NZS 2210.1	Occupational protective footwear: Guide to selection, care and use.	
FJS AS/NZS-ISO 9002	Model for quality assurance in production, installation and servicing	
AS/NZS 2310:	Glossary of Paint and Painting Terms	

## OTHER STANDARDS

ASTM A90	Methods of test for weight of coating on zinc-coated (Galvanised)	
	iron and steel articles	
ASTM D610	Standard test method for evaluating Degree of rusting on	
ASTM D610 Painted Steel surfaces		
ASTM D714	Standard test method for evaluating the degree of blistering of	
	paints.	
ASTM A123	Zinc (Hot-galvanised) coatings on products fabricated from	
A01101 A123	rolled, pressed and forged steel shapes, plates, bars and strip	
	Recommended practice for safeguarding against embrittlement	
ASTM A143	of hot dipped galvanised structures, steel products and	
procedure for detecting embrittlement		
NACE No.5/SSPC-SP 12	Joint Surface Preparation Standard – Surface Preparation and	
NACE NO.3/33FC-3F 12	Cleaning of Steel and Other Hard Materials by High and Ultra	
High-Pressure water cleaning Prior to Recoating.		
AS 3894.3 Site Testing of Protective Coatings Method 3 Determination		
AS 3894.3 Dry Film Thickness		
Appendix C	Wet film thickness by comb gauge (informative)	
AS3894.4	Site Testing of Protective Coatings	
Method 4:	Assessment of Degree of Cure	
ISO8501-1	Preparation of Steel substrates before application of paints and	
1300301-1	related products – Visual assessment of surface cleanliness	
SSPC – VIS 3	Visual Standard For Power And Hand Tool Cleaned Steel	
SSPC-VIS 5/NACE VIS 9	9 Guide and Reference Photographs for Steel Surface Prepared	
	by Wet Abrasive Blast Cleaning	

## **APPENDIX II - PRINCIPAL SUPPLIED MATERIAL**

(Provisional)

No materials are envisaged to be provided by the Principal

## **APPENDIX III - PERMITTED PRODUCTS (COATINGS)**

The following paint systems have been used successfully in New Zealand and Australia

System No. 1	Primer	Undercoat	Topcoat
Product Supplier	1 Pack Zinc Rich	MIO Vinyl	MIO Vinyl
Decora Group (formerly Protec Creative Coatings) Ltd	Camovin ACZR1	Camovin HM MIO	Camovin TV MIO
Altex Coatings Ltd.	Zinkex 100	TP Vinyl Primer	TP Vinyl Topcoat

System No. 2	Primer	Undercoat	Topcoat
Product Supplier	2 Pack Epoxy Zinc Rich	MIO Vinyl	MIO Vinyl
Altex Coatings Ltd.	Ultra-Zinc 625	TP Vinyl Primer	TP Vinyl Topcoat

System No. 3	Primer	Undercoat	Topcoat
Product Supplier	1 Pack Moisture Cure Urethane Zinc Rich	MIO Moisture Cure Urethane	MIO Moisture Cure Urethane
PPG Protective & Marine			
Coatings	Wasser MC - Zinc	Wasser Ferrox B	Wasser Ferrox A
MCU Coatings – NZ	MCU – Zinc	MCU-Miomastic	MCU-Topcoat

Notes:

- System No. 2 may be an advantage at secondary preparation stage where the primer is tolerant of residual moisture on prepared surfaces.
- System No. 3 combines the advantage of System No. 2 and allows for product application at relative humidity up to 99% provided weather conditions are not deteriorating. Where painting is required to be carried out on a piecemeal basis to reduce the risk of early chloride contamination – MCU products are the suggested preference.

Suppliers' Technical Data and MSDS sheets must be referred to for all optional product systems.

## **APPENDIX IV – MATERIAL SCHEDULE**

(Provisional)

#### **TENDER CHECKLIST**

	be submitted as part of their tender Bid	
Tei	nder Number	
Tei	nder Name	
1.	Full Company / Business Name:	
	(Attach copy of Registration Certificate)	
2.	Director/Owner(s):	
3.	Postal Address:	
4.	Phone Contact:	
5.	Fax Number:	
6.	Email address:	
7.	Office Location:	
8.	TIN Number:	ıly (Mandatory)
9.	FNPF Employer Registration Number: (For Local Bidders only)	(Mandatory)
10.	Provide a copy of Valid FNPF Compliance Certificate (Mandatory- $Local$ )	Bidders only)
11.	Provide a copy of Valid FRCS (Tax) Compliance Certificate (Mandatory ${f L}$	ocal Bidders only)
12.	Provide a copy of Valid FNU Compliance Certificate (Mandatory Local Bi	dders only)
13.	Contact Person:	
	I declare that all the above information is correct. Name: Position: Sign: Date:	

## The Bidders must ensure that the details and documentation mention below must be submitted as part of their tender Bid

## **Tender submission**

Bidders are requested to upload electronic copies via Tender Link by registering their interest at: <u>https://www.tenderlink.com/efl</u>

EFL will not accept any hard copy submission to be dropped in the tender box at EFL Head Office in Suva.

This tender closes at 4.00pm (1600hrs) on Wednesday 25<sup>th</sup> January, 2023.

For further information or clarification please contact our Supply Chain Office on phone (+679) 3224360 or (+679) 9992400 or email us on <u>tenders@efl.com.fj</u>

## The bidders must ensure that their bid is inclusive of all Taxes payable under Fiji Income Tax Act. Bidders are to clearly state the percentage of VAT that is applicable to the bid prices.

The lowest bid will not necessarily be accepted as the successful bid.

The Tender Bids particularly the "Price" must be typed and not hand written.

Any request for the extension of the closing date must be addressed to EFL in writing three (3) working days prior to the tender closing date.

Tender Submission via email or fax will not be accepted.