



FIJI ELECTRICITY AUTHORITY

**TENDER DOCUMENTS FOR
Wailoa Mid-Life Refurbishment
Penstock Flow Measurement System
Contract No. MR_233/2017**

September 2017

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QUALITY STATEMENT

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REVISION SCHEDULE

| Rev No | Date | Description | Signature or Typed Name (documentation on file). | | | |
|--------|-----------|-------------|--|------------|-------------|-------------|
| | | | Prepared by | Checked by | Reviewed by | Approved by |
| 0 | 23/8/2017 | For Tender | | | | RDS |
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| | | | | | | |

Fiji Electricity Authority

Wailoa Mid-Life Refurbishment

MR 233/2017 Penstock Flow Measurement System

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1 Project Background

Wailoa Power Station is four unit station capable of generating 78.3MW, while the individual units operating on their own could originally produce up to 21.3MW at rated flow and maximum reservoir level. The station was finally commissioned in 1983.

There is an existing flow measurement system located in the Upper Tunnel on the Wailoa scheme. While the sensors are assumed to be functional, the instrumentation controller has failed and is no longer serviceable. A new flow measurement system is to be supplied, reusing the existing sensors and providing a second measurement point in the Lower Penstock.

This Contract is for the supply, delivery to site, installation and commissioning of a penstock flow measurement system.

Other contracts associated with the turbine generators will be proceeding in conjunction with this Contract. The Contractor is required to cooperate with the Employer and other contractors to help facilitate the smooth execution of the work.

The other contracts include:-

- Refurbishment of the four existing generators.
- Refurbishment of the four existing turbines and governors.
- Replacement of the excitation system.
- Replacement of the turbine inlet valves.
- Replacement of the tail race coolers and upgrade of the cooling water system.
- Provision of control system software.
- Provision of Control and Protection Systems.
- Numerous small works on the station.

A number of other refurbishment projects have already been undertaken at the station including:-

- Replacement of the main 11/132kV step up transformers (completed 2013).
- Replacement of the electronic governors (completed 2012).
- Provision of a single new turbine inlet valve and provision of new hydraulic system to enable refurbishment of the existing valves (contract let 2015);

2 Conditions of Tendering

2.1 Scope of Tender

The Fiji Electricity Authority (FEA) invites Tenders for the supply, delivery to site, installation and commissioning of a penstock flow metering system for the Wailoa hydro power facility.

The General Conditions of Contract pursuant to which the Contractor will provide the Works are based on FIDIC Conditions of Contract for Plant and Design Build for Electrical and Mechanical Plant and for Building and Engineering Works Designed by the Contractor, First Edition, 1999.

These Instructions comprise these instructions to tenderers together with all documents issued to tenderers in respect of the Works.

These Instructions do not constitute an offer, but are merely an invitation to the tenderer to submit a Tender.

All documents supplied by FEA remain the property of FEA. FEA reserves the right to request the immediate return of all documents supplied and any copies made of them at any time.

2.2 Tender Closing Time

Tenders shall be submitted to the **TENDER LINK** Electronic Tender Box <https://www.tenderlink.com/fea> no later than **4:00pm, on Wednesday 18th October, 2017**.

In addition hard copies of the tender, one original and one copy, must be deposited in the tender box located at the FEA Head Office, 2 Marlow Street, Suva, Fiji no later than 4:00pm, on Monday, 18 September, 2017. Addressed as”

Tender – MR 233/2017 – Supply, Delivery, Installation and Commissioning of Wailoa Penstock Flow Measurement System.

The Secretary Tender Committee

Fiji Electricity Authority

Head Office

Suva

Fiji

Evidence must be included demonstrating that the hard copy was dispatched from the Tenderers premises prior to the Tenderlink closing date and time.

For further information contact The Secretary Tender Committee, by e-mail TDelairewa@fea.com.fj

2.3 Tender Validity

All Tenders shall remain open and valid for acceptance for a period of 60 days after the Tender Closing Time.

A Tender, once submitted, may only be varied by the tenderer with the prior written consent of FEA.

2.4 Identification of Tenders

Tender documents are to be delivered packaged and clearly identified.

2.5 Form of Letter of Tender

The form of Letter of Tender shall be as set out in Schedule 1, Tender Form 1.

2.6 Tender Documents

The tender documents comprise the following:

- a) Part 1 – Background to the Contract
- b) Part 2 – Tender Conditions
- c) Part 3 - General Conditions of Contract
- d) Part 4 - Particular Conditions of Contract
- e) Parts 5, 6, 7, 8, 9 – Specification
- f) Tender Schedules

2.7 Information Required with Tender

Tenders shall include the name of the tenderer and a complete postal address for service of notices.

Tenders shall include the following minimum information for evaluation:

- Fixed, lump sum tender price. All prices must be quoted in a single currency, nominated by the contractor plus Fijian dollars if required. The prices should exclude Fiji VAT and Withholding Tax and shall be deemed to include all direct, indirect and ancillary charges and costs for the Works;
- Statement of compliance with all Tender and Contract requirements.
- Completed tender forms;
- Proposed programme for design, fabrication and delivery;
- Any supplementary information required by the documents issued to the tenderers;
- Any interpretation or other statements by the tenderer affecting the Tender;
- The Tender shall be signed by or on behalf of the tenderer by a person with the delegated authority to do so. Written proof of the delegated authority to sign the tender offer may be requested.

2.8 Site Visit

A site visit is not considered necessary for this Tender.

2.9 Evaluation of Tenders

Tenders received will be evaluated on the basis of such matters as FEA in its sole discretion determines are relevant, which may include the following:

- Quality of the solutions and plant offered and completeness of the offer.
- Tender sum and quoted rates and on-costs for possible approved variations.
- Proposed programme for the implementation and completion of the Works.
- Tenderer's experience, capability and commitment to achieving the project objectives.
- Tenderer's health and safety performance record and commitment.
- Compliance with the Contract conditions and specifications.

FEA may apply whatever weighting it considers in its sole discretion to be appropriate and the order set out above is not and shall not be taken to be the order of priority of the factors being considered by FEA.

2.10 Acceptance of Tender

FEA may, in its absolute discretion:

- Decline to consider any Tender;
- Reject all Tenders;
- Accept any Tender, notwithstanding that any other tender may propose a lower cost method of achieving FEA's objectives;
- Accept any Tender, even though it may not be in accordance with these Instructions.

FEA reserves the right to enter into negotiations with any unsuccessful tenderer or other party after the Tender Closing Time to complete the Contract.

2.11 Advice on Tender Outcome

All tenderers who submit a complying Tender will be notified of the outcome of the Tender. The advice will be limited to the name of the successful tenderer only if a Tender is accepted.

The successful tenderer will be invited by FEA to execute the Contract Agreement.

The original copies of all Tenders delivered to FEA will be the property of FEA and will not be returned to tenderers (unless FEA determines otherwise, in its absolute discretion).

2.12 Tender Enquiries

All enquiries relating to these Instructions shall be addressed to:

Tuvitu Delairewa
Fiji Electricity Authority

Phone: +679 999 2436

Email: TDelairewa@fea.com.fj

Any additional information, modifications or clarifications arising from enquiries from any tenderer will be confirmed in writing to all tenderers unless non-disclosure is necessary to protect tenderer confidentiality.

2.13 Communication

All communications regarding these Instructions may only be made to Tuvitu Delairewa. FEA will not be bound by any statement, written or verbal made by any person other than Tuvitu Delairewa, who is the only person authorised to make representations or explanations regarding these Instructions.

FEA may issue clarifications or changes to these Instructions by way of written Notice to Tenderers ("NTT") at any time prior to the Tender Closing Date. A copy of each NTT will be mailed or delivered to those who have received a copy of these Instructions. All NTTs issued will become part of this tender.

Where the Instructions are ambiguous or unclear to a tenderer, the tenderer may request the issue of an NTT for clarification. All such requests should be made in writing to Tuvitu Delairewa. A copy of each NTT issued will be mailed or delivered to those who have received a copy of these Instructions. All NTTs issued will become part of these Instructions.

In the absence of an NTT, Tenders may be submitted subject to any reasonable interpretation of any ambiguity or uncertainty in these Instructions, which shall be endorsed on the Tender.

2.14 Submission of Tenders

It is FEA's preference to contract on the basis set out in these Instructions. However, FEA may consider alternative Tenders. Any alternative Tender should clearly identify the commercial advantage and 'value added' offered.

By submitting a Tender, the tenderer confirms that FEA is authorised to:

- Verify with any third party any information included in the Tender or disclosed to FEA in connection with the tender;
- Discuss any matter relating to the tenderer or the tenderer's performance with any referee or other third party;
- Carry out a credit check on the tenderer and any proposed guarantor or other security provider.

The cost of preparing and submitting a Tender shall be borne by the tenderer

2.15 Tender Conditions

FEA reserves the right to:

- Suspend or cancel (in whole or in part) this tender process and/or overall process without assigning a reason;
- Terminate or exclude at any time participation by any tenderer in the tender process without assigning a reason;
- Call and/or re-advertise for tenders or revisit any tender process;
- Waive any irregularities or informalities in this tender process;
- Run the tender process as it sees fit, including by varying the process without assigning reason;
- Select suppliers based on their tender responses and/or invite them to participate in a further closed or open tender process;
- Issue Instructions with modified descriptions of goods/services requirements, including innovations identified and/or proposed FEA through this tender process;
- Enter into discussions and/or negotiations with one or more tenderers relating to matters dealt with in these Instructions;
- Deal separately with any of the divisible elements of any tender response, unless the relevant tender response specifically states that those elements must be taken collectively;
- Limit or extend the list of potential tenderers beyond those who respond to these Instructions;
- Seek clarification of any aspect or information provided in any tender response, and seek further information from any party;
- Consider, accept or reject any further Tenders (including any alternative or non-conforming Tenders) it may receive from any tenderer or other correspondent;
- Change any time, date or timeframe in, or any other aspect of, this tender process (including extending the closing date for the receipt of tender responses) by notice in writing to each tenderer;
- Liaise or treat with any prospective or actual tenderer at any time without necessarily liaising or treating with any other prospective or actual tenderer;
- Delete or change its requirements for any goods/services covered by this tender process;
- Conduct a financial check on any tenderer submitting a tender response; and
- Obtain similar goods/services from any third party and not deal exclusively with any tenderer under this tender process.

FEA will not be bound to give any reasons for decisions made as a result of the tender process or as an outcome of the Tender evaluations. Nothing contained or implied in these Instructions shall oblige FEA to discuss, justify or give reasons for any of its decisions or actions relating to these Instructions or any response.

Whilst FEA seeks to ensure that the supporting information contained in these Instructions and otherwise provided by or on behalf of FEA to the tenderer is accurate:

- FEA makes no representation or warranty, whether express or implied, as to the completeness, correctness or accuracy of such information; and
- Any drawings, reports or other material provided by or on behalf of FEA are provided for information purposes only and may not be relied upon as constituting accurate information.
- The tenderer is to make its own enquiries as it considers necessary before relying on any information provided by FEA and before submitting its Tender. FEA shall have no liability for any inaccuracies, errors, omissions or mistakes in such documentation.

Those submitting tender responses will be deemed to have:

- Examined these Instructions and all documents referenced (if any);
- Considered all the risks, contingencies and other circumstances that may have an effect on their tender responses;
- The Tenderer will be deemed to have visited the site and satisfied themselves that the offer is complete. On site conditions will not be accepted as a reason for variation at a later date.
- Taken into account all restrictions, procedures, costs, timings and potential difficulties which may affect the performance of the Works; and
- Satisfied themselves as to the correctness and sufficiency of their tender responses, including the pricing structure offered.

All tenderers submitting a Tender agree that:

- A contract is only formed between FEA and the successful tenderer when FEA executes the Contract Agreement, setting out in full the terms upon which FEA has engaged that tenderer to carry out the Works;
- These Instructions, and any provision contained herein, do not give rise to a separate contract between FEA and the tenderer; and
- Nothing in these Instructions, or in the relationship of FEA and the tenderer, imposes any duty of care on FEA, and any such duty of care is expressly excluded.
- All costs incurred by the tenderer in connection with its Tender, these Instructions or any related matters are the sole responsibility of the tenderer.

2.16 Tender Responses

Each tenderer must include the information as required by FEA in these Instructions. Information not specifically required by these Instructions, but believed by the tenderer to be of value in evaluating the responses, should be included as an addendum. Where there is reference to published manuals, only the relevant extracts should be placed in the addendum.

All tenderers warrant that:

- All information provided in their response is complete and accurate in all material respects;
- Provision of information to FEA, and the use of it by its employees, agents or contractors for the evaluation of responses and the possible subsequent negotiation and implementation of a contract, will not breach any third party's intellectual property rights; and
- FEA is under no obligation to check any tender response for errors. Acceptance of a tender response that contains errors will not invalidate any contract that may be negotiated on the basis of that tender response.

- Tenderers must not, without FEA's prior written consent, consult, communicate or agree with any other tenderer in connection with any Tender, and shall not make any attempt to influence any other tenderer to submit or not submit a Tender or to alter the proposed content of that tenderer's Tender.

2.17 Confidentiality

These Instructions, all information supplied by FEA (either itself or through its consultants or advisors) in connection with these Instructions and all discussions relating to these Instructions, are confidential. Tenderers must not release or disclose any of the information or discussions to any other person (other than the tenderer's employees or advisors on a need to know basis) without the prior written consent of FEA.

All drawings and documents of the existing works included in these tender documents are provided for the sole purpose of enabling Tenders to submit to the Employer proposals to rehabilitate the works. Unsuccessful Tenderers shall destroy all such drawings and documents following notification of award to another party. Any use of the drawings and documents by a Tenderer, other than for the purposes of assisting the Employer in rehabilitating the works, may breach the original manufacturer's copyright and the Tenderers shall indemnify the Employer and Engineer against the costs of any claim or defending any such claims that may arise from such breach of copyright by the Tenderer.

2.18 Preferred Tenderer

Should a tenderer be informed that they are a preferred tenderer, such advice does not:

- Constitute an acceptance by FEA nor create a contract;
- Constitute an award of the contract; nor
- Imply or create an obligation on FEA to enter into negotiations with or award the contract to the tenderer.

FEA reserves the right to discontinue negotiations at any time.

2.19 Acknowledgement by Tenderer

Each tenderer acknowledges that FEA has reserved to itself certain rights and discretions in these Instructions and agrees that it assumes, at its sole cost, the risk that FEA may at any time exercise any of these rights and discretions. Each tenderer agrees that it shall not have any rights, and further waives any rights it may have, against FEA or any other person arising from the exercise by FEA of its rights and discretions, and agrees not to make any claim, bring any action or otherwise seek to recover from FEA any costs incurred by that tenderer in respect of its Tender or any lost expectation of profits or other benefits which that tenderer may expect to accrue to it from acceptance of its Tender.

2.20 Governing Law

These Instructions shall be construed according to and governed by Republic of the Fiji Islands Law and the tenderers agree to submit to the non-exclusive jurisdiction of the Fijian Courts in any dispute or difference of any kind which may arise concerning the same.

3 General Conditions of Contract

3.1 Appendix to Tender

The General Conditions of Contract pursuant to which the Contractor shall provide the Works will be the "FIDIC - Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Plant, and for Building and Engineering Works, Designed by the Contractor", First Edition, 1999.

All capitalised terms in this section of the documents are as defined in The General Conditions of Contract unless the context requires otherwise or unless amended by the Particular Conditions of Contract.

References to Sub Clauses in this section are references to Sub Clauses in the General Conditions of Contract.

The Employer: Sub Clause 1.1.2.2

The Employer is: Fiji Electricity Authority
Private Mail Bag
2 Marlow St
Suva
FIJI ISLANDS

The Employer's Representative is: Eparama Tawake
General Manager - Generation

The Contractor: Sub Clause 1.1.2.3

The Contractor is:

Telephone:

Facsimile:

Email:

The Engineer: Sub Clause 1.1.2.4

The Engineer is: Robin Spittle
Stantec New Zealand Ltd
265 Princes Street, Dunedin 9016
Postal Address:
PO Box 13052
Christchurch 8141
NEW ZEALAND

Telephone: +64 021 649402
Facsimile: +64 4 477 0616
Email: robin.spittle@stantec.com

The Engineer's Representative: Sub Clause 3.2

The Engineer's Representative is: Tim Lusk
Stantec New Zealand Ltd
265 Princes Street, Dunedin 9016
Postal Address:
PO Box 13052
Christchurch 8141
NEW ZEALAND

Telephone: +64 27 455 0139
Facsimile: +64 4 477 0616
Email: timothy.lusk@stantec.com

Time for Completion: Sub Clause 1.1.3.3

Section 1: 148 days

Defects Notification Period: Sub Clause 1.1.3.7

Section 1: 365 days from Taking Over.

Contract Sections: Sub Clause 1.1.5.6

There is one Section.

Section 1: Supply, transport, delivery, site installation, commissioning and testing of:-

- Lower penstock flow sensors
- Lower penstock flow measurement cabinet
- Lower penstock internal cabling and cable ducting system, including pipe penetrations
- Lower penstock external cabling, cable ducting and trenching as required, between penstock penetration and cabinet
- Upper tunnel flow measurement cabinet (re-use existing Accusonic sensors and cabling in upper tunnel)

Electronic Transmissions: Sub Clause 1.3

Electronic transmissions shall be by email. Drawings shall be transmitted as AutoCAD drawing files and PDF files. Spreadsheets shall be transmitted as Microsoft Excel files or PDF files. Typed documents shall be transmitted as Microsoft Word files or PDF files. The PDF files shall be created using Adobe software.

Governing Law: Sub Clause 1.4

The Contract shall be governed and take effect in accordance with the laws of the Republic of Fiji and any arbitration shall be governed by such laws. The parties hereto submit to the non-exclusive jurisdiction of the Fiji Courts.

Ruling Language: Sub Clause 1.4
English

Language for Communications: Sub Clause 1.4
The language for all communications is English.

Time for Access to the Site: Sub Clause 2.1

The Employer shall give the Contractor right of access to, and non-exclusive possession of, each part of the Site on or before the possession dates shown in the latest approved programme. Refer to clause 3.3 of Preliminary and General Section of this Contract for the preliminary programme

Engineer's Duties and Authority Sub Clause 3.1

The Engineer must obtain approval from the Employer for any Variation that increases the Contract Price.

Performance Security Sub Clause 4.2

10% of the Accepted Contract Amount for all Sections of the Contract up to Taking Over of the final Section covered under the contract. This shall reduce to 5% during the Defects Notification Period for the final Section.

Employer's Equipment: Sub Clause 4.20

None to be provided.

Period for Notifying Unforeseeable Errors, Faults and Defects in the Specification: Sub Clause 5.1

14 days after Commencement Date.

Working Hours Sub Clause 6.5

Working hours shall be between 7am and 10pm unless otherwise approved by the Employer.

Commencement of Work Sub Clause 8.1

The Commencement dates for each all Sections of the works is the date of the Letter of Acceptance.

Delay Damages Sub Clause 8.7

2% of the value of the Contract per week, up to a maximum of 10% of the Contract value

Adjustments for Changes in Cost Sub Clause 13.8

Not applicable.

Advance Payment Sub Clause 14.2

Not applicable.

Percentage of Retentions: Sub Clause 14.3

Not applicable.

Delayed Payment: Sub Clause 14.8

The interest rate for delayed payment shall be at the Westpac Banking Corporation of Fiji base commercial overdraft rate applicable at the time of the delayed payment plus 1.8% per annum.

Currencies of Payment: Sub Clause 14.15

Payments can be claimed in Fiji dollars plus a single nominated currency. Australian, New Zealand, Euro and US currency are permitted. Other international currencies will be considered. The maximum amount owing in each currency must be nominated at time of tender

The rate of exchange between currencies shall be the sell rate quoted by the Westpac Banking Corporation of Fiji at the Base Date.

Period for Submission of Insurance: Sub Clause 18.1

- (a) evidence of insurance: within 28 days of the acceptance of contract.
- (b) relevant policies: Within 28 days of the acceptance of contract.

Insuring Party: Sub Clause 18.2

The Contractor is responsible for the insurance of the Works during manufacture, transit from the place of manufacture to the Site at Wailoa Power Station. The Employer shall be the insurer for project works on site. The Contractor's insurance must include the risks of loading and offloading at all locations including on arrival at the Site or nominated place of storage.

The Employer is responsible to take out and maintain Construction/Erection All Risk insurance.

Maximum Amount of Deductibles For Insurance of Employer's Risks: Sub Clause 18.2(d)

NZ\$50,000

Minimum Amount of Public Liability Insurance: Sub Clause 18.3

NZ\$10,000,000

Minimum Amount of Professional Indemnity Insurance: Sub Clause 18.5

Value of the Works plus 20%

Motor Vehicle Third Party Insurance: Sub Clause 18.6

NZ\$1,000,000

The DAB shall be: Sub Clauses 20.2

There is no DAB. Refer to the Particular Conditions Clauses 20.2 to 20.4

4 Particular Conditions of Contract

The following Particular Conditions of Contract amend or modify or are in addition to the General Conditions of Contract.

4.1 Definitions

References to Sub Clauses in this section are references to Sub Clauses in the General Conditions of Contract.

1.1.1.1 *second line, replace "Employer's Requirements" with "Specification".*

1.1.1.5 *delete and substitute: "Employer's Requirements" means the purpose, scope, design requirements and technical data contained in the Specification.*

1.1.2.2 *delete and substitute: "Employer" means Fiji Electricity Authority, its assignees and any legal successors in title to Fiji Electricity Authority.*

1.1.2.8 *delete and substitute: "Engineer" means Stantec New Zealand Ltd, its assignees and any legal successors in title to MWH New Zealand Ltd.
add "and includes a Nominated Subcontractor" after "Works" on line 3*

1.1.3.3 *delete. There is no Dispute Adjudication Board*

Add new Sub Clause:

1.1.3.10 "Acceptance Certificate" means the certificate to be issued by the Engineer to the Contractor pursuant to clause 12.5."

Add new Sub Clauses:

1.1.6.10 "Specification" means Parts 5, 6, 7, 8 and 9 of the Contract and the Common Requirements section provided in Appendix B of the Contract.

4.2 Changes and Additions to the General Conditions of Contract

References to Sub Clauses in this section are references to Sub Clauses in the General Conditions of Contract.

1 The Contract

1.5 Priority of Documents

Delete and substitute:

The documents forming the Contract shall be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of documents from highest to lowest shall be in accordance with the following sequence:

- (a) Contract Agreement;
- (b) Letter of Acceptance;
- (d) Appendix to Tender;
- (e) Completed Tender Schedules;
- (f) Notice to Tenderers (NTT);
- (g) Particular Conditions;
- (h) General Conditions;
- (i) Specification;
- (j) Letter of Tender;
- (k) Contractor's Proposal;
- (l) Instructions to Tenderers.

1.7 Assignment

Delete and substitute:

"The Contractor shall not assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, the Contractor may:

- (a) Assign the whole or any part of the Contract with the prior agreement of the Employer, at the sole discretion of the Employer, and
- (b) As security in favour of a bank or financial institution, assign its right to any moneys due, or to become due, under the Contract.

The Employer shall be free to assign the whole or any part of the Contract or any benefit or interest in or under the Contract."

1.8 Care and Supply of Documents

First paragraph, replace "six" with "three".

Second paragraph, replace "Employer's Requirements" with "Specification".

1.12 Confidential Details

Add the following:

"The Contractor shall treat the details of the Contract and the Works as private and confidential except to the extent necessary to carry out obligations under the Contract or to comply with applicable Laws. The Contractor shall not publish, permit to be published or disclose any particulars of the Works in any trade or technical paper or elsewhere without the prior agreement of the Employer."

"The Contractor is required to disclose to the Engineer or the Employer confidential information to allow:

- (a) The Plant and the Works to be fully integrated with existing systems and operated and maintained in the correct manner; and
- (b) The Employer or the Engineer to confirm the full compliance with the Specification.

2 The Employer

2.1 Right of Access to the Site

Insert the words "Subject to Sub-Clause 4.15 (Access Route)" at the beginning of the first paragraph.

3 The Engineer

3.1 Engineer's Duties and Authority

Third paragraph, second sentence, delete "Particular Conditions" and substitute "Appendix to Tender".

4 The Contractor

4.1 Contractor's General Obligations

In line 4 of the last paragraph delete the words "to the Engineer" and insert "and approved by the Engineer. No refusal by the Engineer to such alterations shall give rise to a claim for a Variation, extension of time, cost or profit."

Add the following at the end of the Sub Clause:

The Contractor agrees that if at any time during the performance of the Works the Contractor is of the opinion that a change in the design or execution of the Works:

- (a) is necessary to eliminate a potential defect in the Works or a specific hazard to any person in the performance or operation of the Works; or
- (b) would otherwise be beneficial to the Employer (whether by maximising the efficiency or cost effectiveness of the construction, operation and maintenance of the Works or otherwise);

then the Contractor shall bring the matter to the attention of the Engineer in writing and the Engineer shall determine whether Clause 13 [Variations and Adjustments] shall be applied and shall notify the Contractor accordingly.

4.2 Performance Security

Delete the first paragraph and substitute:

The Contractor shall provide the Employer with Performance Security in the form of an unconditional on demand bond to secure performance of the Contractor's obligations under the Contract Agreement. The Performance Security shall be for the amount stated in the Appendix to Tender. The Performance Security shall be provided as an irrevocable bond provided by a

surety which shall be a registered bank in Fiji, New Zealand or Australia or such other jurisdiction as approved by the Employer.

Add the following to the end of the Sub Clause:

If the Performance Security is not delivered to the Employer within the required time or at any time ceases to be valid and enforceable (except in the circumstances expressly permitted in the contract), or the surety providing the Performance Security becomes, in the reasonable opinion of the Employer, no longer acceptable credit support then the Employer shall be entitled to:

- (a) suspend the contract until the Performance Security (or an acceptable replacement, as the case may be) is delivered to the Employer. Such suspension shall not be treated as a Variation and the Contractor shall not be entitled to any extensions of time or any compensation as a result of such suspension;
- (b) withhold any payments due to the Contractor until the Performance Security (or an acceptable replacement, as the case may be) is delivered to the Employer. The Contractor shall not be entitled to make any claims against the Employer by reason of any such withholding of payments; and/or
- (c) without limiting the foregoing, treat such failure as a default by the Contractor under Sub Clause 15.2.

Following consultation with the Contractor, where the Employer gives reasons for its view, the Employer shall be entitled to require the Performance Security to be replaced by another form of security acceptable to the Employer if it reasonably forms the view at any time that the validity or enforceability of the Performance Security or credit-worthiness of the surety providing the Performance Security may be in question. The Contractor shall, within 14 days after receipt of the Employer's request for the Performance Security to be replaced, procure the replacement Performance Security and deliver the same to the Employer within the 14 day period. The Employer shall release a replaced Performance Security within 14 days of receiving the replacement Performance Security from the Contractor, provided that should there be any unpaid claims on such replaced Performance Security, the Employer shall not be required to release it until such claims have been paid in full.

4.5 Nominated Subcontractors

Add the following as a second paragraph:

“Where such notice of objection is given to the Engineer and the matter is not resolved within a reasonable time the Employer or the Engineer shall make a fresh nomination of a Subcontractor. Alternatively the Engineer and the Contractor may agree to the work being carried out by the Contractor or by another Subcontractor or by some other contractor under a separate contract with the Employer.”

4.16 Transport of Goods

Add the following:

“Any packing used shall prevent mechanical damage to the contents. It shall also prevent the ingress of water. Desiccants shall be included in each waterproof package. Each package shall be clearly labelled with its contents, drawing reference, destination, handling requirements and weight.

Packing of any Plant or Materials shipped from overseas shall comply with The Fiji Islands import regulations. The Contractor shall certify, with the notice provided under (a) above that no prohibited materials have been used for packing. The Contractor shall be responsible for any fumigation costs or other costs resulting from packing that does not comply with The Fiji Islands import regulations.

All Goods when incorporated into the Works shall be free from all charges, encumbrances or liens.

4.18 Protection of the Environment

Delete the second paragraph and substitute:

“The Contractor shall ensure that all activities and operations under the Contract comply with all applicable Laws, and all applicable the environmental requirements for the Works”

Add the following at the end of the Sub Clause:

In carrying out the Works, the Contractor shall not do anything or omit to do anything, or use materials, substances or processes which:

- (a) might discharge a contaminant into the environment, cause the emission of noise to exceed such levels, or cause any adverse effect on the environment, which would constitute a breach of the environmental approvals applicable to the Works or the Site;
- (b) is a breach of any duty or obligation of the Employer; or
- (c) is a breach of any of the environmental approvals applicable to the Works or the Site or causes the Employer to breach any such approvals for Works on the site; or

5 Design

5.1 General Design Obligations

Add at the end of the Sub Clause:

Without limiting the foregoing, the Contractor must ensure that the Plant, Materials and the Works are professionally designed to be appropriate and fit for the purposes for which the Works are intended as defined in the Contract and which meet the technical specifications, design life and the performance requirements set out in the Specifications and the Contractor's Tender.

5.9 Design Responsibility Scope

Add New Clause 5.9

"The Contractor agrees to accept all responsibility and meet all costs for developing all aspects of the design required by the Specifications and to produce detailed plans and specifications.

The Specifications include preliminary plans and specifications that describe the scope, requirements and expectations of the Employer in respect of the Works and their operation. The Contractor acknowledges in this regard that:

- (a) The Specifications are a guide only and do not cover all items of work required to provide the Works; and
- (b) The Employer accepts no responsibility for the completeness or accuracy of the design, plans, drawings and specifications described in the Specifications.

The Contractor shall develop the design described in the Specifications into a concept design and a detailed design (which

for the purposes of this Sub Clause 5.9 are the *designs*). The content of the designs shall be as described in the Specifications.

The Contractor shall certify to the Employer that the designs comply with at least the minimum requirements and expectations of the Employer in respect of the undertaking and performance of the Works as described in the Specifications.

The Contractor shall submit the designs to the Engineer for review on the dates specified in the Specifications, and shall undertake any factory or Site testing as required by the Specifications and supply the test results to the Engineer.

Except where the Contract otherwise provides:

- (a) The Engineer shall not be required to check the designs for errors, omissions, inconsistencies, ambiguities, discrepancies or compliance with the Contract.
- (b) Any acknowledgement, comment, or approval of the designs by the Engineer shall not prejudice or affect the Contractor's obligations to complete the Works in strict compliance with the Contract
- (c) If errors, omissions, inconsistencies, inadequacies or other defects are found in the designs, the designs and the Works shall be corrected at the Contractor's cost, notwithstanding any consent or approval given by the Engineer.

5.10 Technical Standards and Regulations

Add New Clause 5.10

Wherever reference is made in the Contract to specific standards and codes to be met by the Materials, Plant, and other Goods to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards and codes in effect shall apply, unless otherwise expressly stated in the Contract. Where such standards and codes are national, or relate to a particular country or region, other authoritative standards that ensure substantial equivalence to the standards and codes specified will be accepted subject to the Engineer's prior review and written approval. Differences between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Engineer at least 28 days prior to the date when the Contractor desires the Engineer's approval. In the event the Engineer determines that such proposed deviations do not ensure substantially equal performance, the Contractor shall comply with the standards specified in the documents.

Notwithstanding the above, the Fiji National Building Code shall be applied to any building works. The Fiji Electricity Regulations Cap 180 Regulations 45, 46 and 47 shall apply to all elements the Works.

6 Staff and Labour

6.5 Working Hours

Add the following:

"The normal working hours in respect of those parts of the Site owned by the Employer are restricted (if at all) to the extent specified in the Appendix to Tender. The Contractor acknowledges that where any part of the Works is to be carried out on parts of the Site not owned by the Employer, the

Contractor will be required to comply with any restrictions on working hours put in place by the owner of the Site.”

Insert the following at the end of the Sub Clause:

"Any works undertaken pursuant to the above shall not entitle the Contractor to additional costs, unless such work is undertaken pursuant to a Variation.

Delete and substitute:

6.7 Health and Safety

“The Contractor, in its capacity as an employer and a person in control of a place of work, shall ensure that its employees, any other persons in the workplace and people in the vicinity of the workplace, are not harmed by any workplace hazard. The Contractor shall comply with health & safety requirements for Site, the Contractor’s health and safety plans and its obligations under the Fiji Health and Safety at Work Act 1996 including subsequent amendments (including all regulations and, where appropriate, Codes of Practice made under the Act), and the Electricity Regulations and any other legal and statutory safety obligations in relation to ensuring the safety of its employees, hazard management, information for employees and training and supervision of employees, and any other statutory safety obligations.

The Contractor, in its capacity as an Employer and a person in control of a place of work, shall ensure that its employees, Subcontractors, and any other persons on the Site and in the vicinity of the Site for whom it is responsible, are informed of existing Site specific hazards, emergency and other requirements and the Employer’s expectations and requirements as regards health and safety, all as set out in the Specification or advised from time to time by the Engineer. The Engineer shall notify the Contractor of all of the Employer’s key personnel at the workplace and their contact details for accident and other reporting purposes.

The Contractor shall immediately notify the Engineer in writing of any hazard the Contractor identifies on the Site, the date the hazard was identified, and the steps taken to eliminate, isolate, minimise and monitor the hazard.

The Contractor shall have and comply with its own appropriate Site specific safety and health plan which shall ensure all relevant places of work are safe, that hazards are controlled and that compliance with all health and safety laws is achieved. The Contractor shall submit its project specific safety and health plan to the Engineer at least 14 days prior to commencing any work on the Site. The Contractor shall review the plan regularly and shall ensure that it is maintained so as to be up to date and fully compliant with all Laws.

The Contractor shall comply with any health and safety plans currently implemented on the Site. Failure to comply with existing health and safety plans may result in the Engineer instructing the Contractor to cease or not commence furnishing the Works or part of the Works until the Contractor complies with its health and safety obligations required pursuant to this Contract. Any such instruction shall not constitute a Variation and the Contractor shall not be entitled to any extensions of time or any compensation as a result of such instruction.

The Engineer may audit the Contractor from time to time on any aspect of its activities or procedures as they relate to safety and

health. If the Engineer is of the opinion that the Contractor has failed to comply with any part of this Sub Clause the Engineer may advise the Contractor and may instruct the Contractor to cease or not commence furnishing the Works or part of the Works until the Contractor complies with its health and safety obligations required pursuant to this Contract. Any such instruction shall not constitute a Variation and the Contractor shall not be entitled to any extensions of time or any compensation as a result of such instruction.

If any employee of the Contractor or any Subcontractor suffers an injury while furnishing the Works which results in the employee's death or inability to work for any part of the next day or shift scheduled for work, the Contractor shall inform the Engineer forthwith and as soon as practicable shall provide details on the Employer's standard "Event Report" form.

For statistical purposes, the Contractor shall provide in writing, with each monthly progress report, the total hours worked during the previous month on the Site by its staff and also separately by its Subcontractors. Staff shall include supervisory and administrative staff. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.

The Contractor shall also comply with any safety provisions included in the Specification."

6.9 Contractor's Personnel

Add the following:

"The Contractor shall employ the key personnel named in the Tender to fill the positions stated in the Tender, or, where it is unable to do so, shall employ others approved by the Engineer pursuant to this Sub Clause 6.9".

The Contractor shall not without the prior consent of the Engineer replace any of the approved key personnel.

The Engineer shall not be required to approve a proposed replacement key person unless such person's relevant qualifications and experience are at least as good as those of the person who is to be replaced. Otherwise, the Employer's approval to any proposed replacement key person shall not be unreasonably withheld".

7 Plant, Materials and Workmanship

7.1 Manner of Execution

Add to the end of Sub-Clause 7.1

Unless otherwise specified in the Contract, all Materials used shall be new.

The Contractor expressly acknowledges that the Employer entered into the Contract in reliance upon:

- (a) the skill and judgement of the Contractor as a designer, manufacturer and fabricator of facilities of the size, nature and standard of the Works; and
- (b) the ability of the Contractor to design, manufacture, construct, fabricate, supply, install and deliver the Works with the highest regard to the environment and to the safety

of workers and all other persons at or in the vicinity of the site, the Works and the property of third parties.

Add new Sub-Clause 7.1(d)

The Contractor shall also provide the raw materials, utilities, lubricants, chemicals, catalysts, Works, services and other matters required for testing and commissioning. The Contractor must provide all operating staff prior to Taking Over for testing and commissioning.

7.7 Ownership of Plant and Materials

The Contractor warrants that the Plant and Materials are or will at the point that ownership transfers to the Employer pursuant to this Sub Clause 7.7 and until the date of issue of the Taking-Over Certificate, be free of any lien, pledge, mortgage, charge, or encumbrance whatsoever (save in respect of any rights acquired by the Employer) and in the case of any Security Interest existing over any of the Plant or Materials (or part thereof), the Contractor shall register or procure the registration of a financing change statement wholly releasing each such Security Interest prior to transfer of ownership to the Employer pursuant to this Sub Clause 7.7.

8 Commencement, Delays and Suspension

8.1 Commencement of Work

First paragraph, second sentence, delete "Particular Conditions" and substitute: "Appendix to Tender".

8.3 Programme

Delete the first two sentences of the first paragraph and substitute:

"The Contractor shall prepare a revised programme when required to do so by the Specification, or when instructed to do so by the Engineer. The period within which the Contractor shall submit a revised programme for approval, either having been asked to do so by the Engineer or following disapproval of a previous submission, is 7 days. Each revised programme shall show the effect of Variations, extensions of Time for Completion granted and how any delays are to be dealt with. The form of the programme shall be as set out in the Specification."

Add the following after (d)(ii):

"(e) Any other requirements set out or required by the Specification."

9 Tests on Completion

9.4 Failure to Pass Tests on Completion

Add to the end of Sub Clause 9.4 (a):

"The Contractor shall at no cost to the Employer rectify, modify or replace the Plant and repeat the Tests as often as may be determined by the Engineer acting reasonably until the said Tests have been passed."

Add the following to Sub-Clause 9.4

If the Contractor does not attend the Tests on Completion, the tests shall be deemed to have been conducted with the consent of the Contractor and the results of the tests shall be accepted as accurate.

- 9.5 Tests after Completion** *Add new sub-clause*
- Should the Engineer approve Tests on Completion or Functional Guarantee Tests taking place after Taking Over, the requirements of Clause 12 as modified by the Particular Conditions shall apply.
- 10.3 Interference with Tests On Completion** *Add new paragraph to before the final paragraph of this Clause*
- Nothing in this clause shall prevent the Engineer from instructed that the Tests on Completion be carried out as Tests after Completion
- 11 Defects Liability**
- 11.9 Performance Certificate** *Delete the second paragraph and substitute:*
- "The Engineer shall issue the Performance Certificate within 28 days after the latest of the expiry dates of the Defects Notification Periods, or as soon as practicable thereafter, provided that the Contractor has supplied all the Contractor's Documents, completed and tested all the Works, including remedying any defects, and received an Acceptance Certificate pursuant to Sub Clause 12.5. For the avoidance of doubt, the Engineer shall not be obliged to issue the Performance Certificate until all of the above conditions have been satisfied."
- Add the following at the end of the Sub Clause:*
- "The issue of the Performance Certificate shall not relieve the Contractor from any liability in respect of:
- (a) fraud or dishonesty relating to the Works or any part thereof or to any matter dealt with in the Performance Certificate;
 - (b) any incidental or erroneous inclusion or exclusion in the Performance Certificate;
 - (c) any unresolved issues the subject of a notice of dispute pursuant to Sub Clause 20.2, served before the seventh day after the issue of the Performance Certificate
 - (d) any other deed or agreement entered into between the Employer and the Contractor (whether or not with any other parties) relating to all or any part of the Works."

11A Supplier Warranties *Add a new Clause:*

"The Contractor shall obtain from any supplier of Plant for the Works warranties for defective product and workmanship ("the Supplier Warranties") on the relevant suppliers' usual commercial terms and for a period agreed upon between the Employer and the Contractor (acting reasonably) which period shall in any event not be less than, nor expire prior to expiry of, the Defects Notification Period. To the extent permissible the Supplier Warranties shall be assigned by the Contractor to the Employer to the intent that the Employer shall be entitled to the full benefit of such warranty. To the extent that the Supplier Warranties are not assignable, they shall be held on trust by the Contractor for and on behalf of the Employer to the intent that as between the Employer and the Contractor, the Employer shall be entitled to the full benefit of the Supplier Warranties. The Supplier Warranties shall not limit the obligations placed on the Contractor under this Contract. The Contractor shall take all necessary and

reasonable steps to assist the Employer in the enforcement of any Supplier Warranties.

12 Tests After Completion

12.1 Procedure for Tests after Completion

Delete the first sentence of Sub Clause 12.1 and replace with the following:

"If Tests after Completion are specified in the Contract, or if the Engineer agrees to Tests on Completion being delayed until after Taking Over in accordance with Clause 9.5 of the Particular Conditions, this Clause shall apply:"

12.5 Acceptance Certificate

Add the following new Sub Clause to Clause 12:

"The Engineer will issue an Acceptance Certificate when the Works have met all requirements for Taking Over, and the Commissioning Tests detailed in Part 8.15 for each Section have been completed either as part of the Tests on Completion or have been completed after Taking Over as Tests After Completion and fully meet all of the obligations under this Contract. The issue of an Acceptance Certificate does not affect the Defects Notification Period.

The Contractor may apply by notice to the Engineer for an Acceptance Certificate in respect of the Works or, if the Works are divided into Sections, in respect of each Section, at any time after completion of the Tests after Completion.

The Engineer shall, within 28 days after receiving the Contractor's application:

- (a) issue the Acceptance Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and/or defects which will not affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and/or these defects are remedied); or
- (b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Acceptance Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub Clause."

13 Variations and Adjustments

13.5 Provisional Sums

Delete the second sentence in (b)(ii)

14 Contract Price and Payment

14.1 The Contract Price

(Add the following to sub-paragraph (e) as follows)

However, the Contractor shall be responsible for the payment of any redeemable bond posted by the relevant authorities in the Country in relation to the importation of the Contractor's Equipment.

**14.5 Plant and Materials
Intended for the
Works**

Delete the Sub Clause and insert:

"Milestone payments during manufacture of the Plant and Materials off Site in Fiji will be made subject to:

- (a) The Contractor certifying to the Employer the items of Plant covered by the payment are at a location within The Fiji Islands and that the ownership of completed or identified items of Plant and Materials has passed to the Employer.
- (b) The Contractor marking the certified Plant and Materials as being the property of the Employer and separately storing such Plant and Materials.
- (c) The certified Plant and Materials being made available for inspection by the Engineer or by an inspector appointed by the Engineer.

Milestone payments during manufacture of the Plant and Materials off Site outside Fiji will be allowed subject to the Contractor certifying to the Employer that the ownership of completed or identified items of Plant and Materials has passed to the Employer and the Contractor has provided the Employer with an unconditional bank guarantee to the value of the milestone payment claimed.

No milestone payments for off-Site manufacture of Plant and Materials will be made by the Employer unless all of the above conditions have been met.

**14.6 Issue of Interim
Payment
Certificates**

Replace the first paragraph of this Sub Clause with the following;

"No amount will be certified or paid until the Engineer has received and approved the Performance Security and the certificates of insurance required from the Contractor in accordance with Clause 18 [Insurance]. Thereafter, the Engineer shall after receiving a Statement and supporting documents, issue to the Employer an Interim Payment Certificate which shall state the amount which the Engineer fairly determines to be due, with supporting particulars."

14.7 Payment

Add the following Sub Clause

**14.7.1 Interim Payment
Procedure**

The procedures and timing for interim progress payments shall be as follows:

- (a) Each Statement shall be in writing and comply with the requirements of the Contract.
- (b) The Contractor shall submit each Statement to the Engineer by the seventh day of the month following the month in respect of which the Statement is calculated.
- (c) Within seven days of receipt of each Statement the Engineer shall issue a Payment Certificate in respect of the Statement and provide a copy to the Contractor.
- (d) Each Payment Certificate shall identify the Payment Claim to which it responds, indicate the amount that the Engineer fairly determines to be due and show the manner in which the amount due has been calculated.

- (e) If the amount indicated on a Payment Certificate differs from the amount claimed in a Statement, the Payment Certificate will provide reasons for the difference.
- (f) The Contractor shall submit a tax invoice to the Employer for the amount to be paid as shown on a Payment Certificate within five days of receipt of the Payment Certificate.
- (g) Subject to compliance by the Contractor with the provisions of this Sub Clause, the Employer will pay the invoiced amount within 56 days following receipt of the Contractor's tax invoice.
- (h) For the purposes of interpreting the requirements of the Contract:
- (i) The Employer acknowledges that all Payment Certificates issued by the Engineer shall be regarded as payment schedules and that the Engineer has the full authority and support of the Employer in issuing such payment schedules or certificates in the Employer's name; and
- (j) The Contractor acknowledges that the Engineer has the full authority and support of the Employer in issuing the payment schedules or certificates and the Contractor acknowledges that the Employer can only make payment against correct tax invoices prepared by the Contractor for the amount specified in the payment schedules or certificates."

14 Delayed Payment

Delete the second paragraph and substitute:

"Financing charges shall be calculated using the annual interest rate as set out in the Appendix to Tender."

14.11 Application for Final Payment certificate

Delete the last sentence and substitute:

"Thereafter, if the dispute is finally resolved under Clause 20, the Contractor shall then prepare and submit to the Employer (with a copy to the Engineer) a Final Statement.

14.13 Issue of Final Payment Certificate

Add at the end of the Sub Clause:

"The Contractor shall submit a tax invoice to the Employer for the amount to be paid as shown on the Final Payment Certificate within five days of receipt of the Payment Certificate.

Subject to compliance by the Contractor with the provisions of this Sub Clause, the Employer will pay the invoiced amount within 56 days following receipt of the Contractor's tax invoice."

14.15 Currencies of Payment

Add at the end of the Sub Clause:

"No adjustment of the Contract Price shall be made for any fluctuations in the rate of exchange between the currency of the Contractor's country of origin and any other currency."

14.16 Fiji Islands Taxation

Add new sub-clause 14.16 to Clause 14

14.16.1 Fiji Value Added Tax, Withholding Tax and Contract Price

(Add a new sub-clause 14.16.1 stating :)

The offshore and onshore contract prices shall exclude Fiji Value Added Tax (VAT) and Fiji Withholding Tax.

The Contractor will be able to recover any applicable Fiji Value Added Tax through adjustments to any claims for payment, if required. Refer to Clause 14.16.5.

The Contractor will be able to recover any applicable Fiji Withholding Tax through adjustments to any claims for payment, if required. Refer to Clause 14.16.7.

The Contractor will be instructed how to present invoices which will include instructions concerning the inclusion of Withholding Tax and Value added Tax at the relevant rate at the time.

**14.16.2 Offshore Country
Withholding
Taxes, Goods and
Services Taxes,
Duties and other
Taxes**

(Add a new sub-clause 14.16.2 stating:)

The offshore and onshore contract prices shall include all offshore country withholding taxes, goods and services taxes, duties and all other taxes, levies or charges.

**14.16.3 Contractor to
inform itself concerning Fiji
tax obligations**

(Add a new sub-clause 14.16.3 stating:)

The Contractor is required to obtain all necessary advice and to inform themselves independently over all matters concerning tax obligations in Fiji and other countries

**14.16.4 Tax Residency in
Fiji**

(Add a new sub-clause 14.16.4 stating:)

Where a Contractor is operating in Fiji for more than 6 months in a single tax year, Fiji Revenue and Customs Authority (FRCA) will, for tax purposes, consider the Contractor to be a Permanent Establishment and the Contractor will be subject to Fiji taxation as if the Contractor was operating as a registered identity.

The Commissioner of FRCA in Fiji has advised that a company may apply for an exemption to this rule if they expect to be operating in Fiji for no more than three years.

**14.16.5 Value Added tax
(VAT)**

(Add new Sub-Clause 14.16.5 as follows)

Where any supply occurs under or in connection with the Contract or Works for which VAT is not otherwise provided, the Contractor shall be entitled to increase the amount payable for the supply by the amount of any applicable VAT. The Rate at the Commencement Date is 9%.

The Employer will not be obliged to pay any amount in respect of VAT to the Contractor unless and until a tax invoice that complies with the VAT legislation has been issued in respect of that VAT.

Off - Shore Work

All invoices issued for off-shore work pursuant to this Contract shall be expressed in the foreign currency stated in Appendix to Tender, and will be issued using Contractor's overseas office letterhead. No GST or VAT shall be included in the invoice. Payment of the foreign currency shall be paid at the prevailing exchange rate as at the date of payment.

The Employer shall pay the invoice amount in foreign currency to each overseas bank account nominated by Contractor within 56 days of receipt of the invoice.

On - Shore Work – Fiji Registered Entities

All invoices issued for on-shore work pursuant to this Contract from Fiji registered entities shall state the foreign currency amount and the VAT amount in Fiji dollars. The Value Added Tax due is calculated by converting any foreign currency amounts to Fiji dollars using the corresponding foreign exchange rate prevailing on the date of the invoice. Any Value added Tax (VAT) amount component at the prevailing VAT rate shall be added to indicate the VAT inclusive price (VIP). The invoice shall be issued using Contractor's Fijian registered entity letterhead. The current VAT rate at the Commencement Date is 9%.

The Employer shall pay the amount agreed to be in foreign currency to a Fiji based foreign currency bank account nominated by the Contractor. The Employer shall pay the amount agreed to be in Fiji dollars including the VAT amount to a local bank account nominated by the Contractor.

The Employer shall pay the invoiced amounts within 56 days of receipt of the invoice.

The Contractor shall advise the Employer the details of its Fijian registered entity including the Tax Identification Number given by FRCA as soon as possible after the execution of this Agreement.

The Employer shall not be responsible to pay invoices issued by the Contractor or its Fijian registered entity if such invoices are not in conformance with the above stated requirements.

On - Shore Work –Entities not registered in Fiji

Invoices from entities not registered in Fiji can be expressed in foreign currency. No Value Added Tax is due and no amount is required to be added... Payment procedures shall be agreed with the Employer at the time.

The Employer shall pay the invoiced amounts within 56 days of receipt of the invoice.

14.16.6 Provisional Taxation

(Add new Sub-Clause 14.16.6 as follows)

(Add new paragraph to Particular Conditions clause 14.16 stating):

The Employer will deduct provisional tax at the specified rate of 5% at the Commencement Date of the gross invoiced amount of each invoice submitted by the Contractor for services carried out in Fiji.

Explanatory note:

Provisional Tax is domestic income tax deducted at source at a rate of 5 percent on the VAT exclusive price of services and paid to the FRCA by the Employer. Provisional tax applies to on-shore services provided by the Contractor located in Fiji.

This provisional tax is claimable by the Contractor when end-of-year tax returns are submitted to FRCA, provided that the Contractor is registered as a tax payer in Fiji

Provisional Tax is not deducted if Withholding Tax is deducted.

14.16.7 Withholding Tax

(Add a new sub-clause 14.16.7 stating :)

The Contract price shall exclude Fiji Non-Resident Withholding Tax. The Contractor will be able to recover any applicable Fiji Withholding Tax through adjustments to any claims for payment, if required. The Contractor will be instructed how to present invoices

which will include instructions concerning the inclusion of Withholding Tax and Value Added Tax at the relevant rate at the time.

Notwithstanding any other provision of this Contract to the contrary, the Contractor shall not be required to allow for any Withholding Tax (“WHT”) whatsoever. The Employer shall be responsible for the payment of any WHT to FRCA. The rate of Withholding Tax at the Commencement Date is 15%.

In general withholding tax will be deducted at the current rate from invoices for onshore work where the Contractor invoice is not in the name of a company registered in Fiji. The withholding tax will not be deducted from invoices from companies that are registered in Fiji.

Withholding tax may be deducted at the appropriate rate from invoices for offshore work depending on the type of work and the country of origin.

Note that the invoice from the Contractor shall include the value of any applicable Withholding Tax. The Withholding tax portion of the invoice is paid by the Employer directly to FRCA and the balance is paid to the Contractor.

The Contractor shall obtain clearance from FRCA, that for the purposes of this contract, it fulfils the requirements for a Permanent Establishment for tax purposes in Fiji. If the FRCA confirms that the Contractor, under the Fiji Income Tax Act qualifies as a Permanent Establishment, the Contractor shall register a branch in Fiji, pay the mandatory Fiji provisional tax at the applicable rate and lodge its Company tax return in Fiji. The non-resident withholding tax will not apply.

Should the FRCA agree that this contract does not fulfil the requirements for the Contractor to be Permanently Established in Fiji, then any services component of the Contract, as defined for tax purposes in Fiji, will be subject to the Non Resident Withholding Tax at the applicable rate. In this case, the Contractor will be required to submit a letter from the Tax Authority in the Contractor’s home country explaining whether any tax credit against withholding tax is available in the home country.—The Non-Resident Withholding Tax will be deducted by the Employer from all of the Contractor’s invoices ~~on a net basis~~ for the services component of the Contract, as defined for tax purposes in Fiji.

Explanatory note:

WHT may be applicable on specified payments to non-residents, as defined in Fiji’s Income Tax Act (Budget Amendment) Decree 2001 and subsequent amendments or relevant double tax agreements

WHT is usually payable at the applicable rate on onshore work where a Contractor is non-resident in Fiji. WHT can also be payable at the applicable rate on the services component of offshore portions of contracts.

WHT may be available as a credit against income tax in the home country of the non-resident Contractor.

**14.16.8 Contractor Home
Country Tax Credits**

(Add a new sub-clause 14.16.8 stating)

The Contractor may receive tax benefits in the home country owing to:

- Tax credits received in the home country against non-resident withholding tax payments in Fiji;
- Tax credits received in the Contractor's home country as a result of the operation of a permanent establishment in Fiji.

The Contractor is required to provide a written undertaking as part of this Contract Agreement stating that they will exercise their best endeavour to both maximise any tax credits as a result of working in Fiji in the Contractor's home country and to refund these tax credits in the home country to the Employer.

14.16.9 Company Tax

(Add a new sub-clause 14.16.9 stating)

The Contractor is responsible for paying all income tax due on profits earned in Fiji. The Employer will not compensate the Contractor for this taxation.

14.16.10 Personal Tax

(Add a new sub-clause 14.16.10 stating)

The staff of the Contractor are responsible for paying all income tax due on income earned in Fiji. Similarly any superannuation related issues such as FPNP liabilities (where applicable) shall be the responsibility of the Contractor and its Fijian registered entity. The Employer will not compensate the Contractor, or its staff, for this taxation, regardless of whether the staff are Fijian nationals or residents of another country.

14.17 Direct Payment

(Add new Sub-Clause 14.17 as follows)

Before issue of the Final Payment Certificate, the Employer may pay unpaid moneys owed by the Contractor to a worker or a subcontractor directly to that worker or subcontractor, where:

- a) permitted by law;
- b) given a court order in favour of the worker or subcontractor; or
- c) Requested in writing by the Contractor.

Such payment made to a worker or subcontractor in compliance with a legislative requirement shall be deemed to be part-satisfaction of the Employer's obligation to pay pursuant to Sub-Clause 14.7 [Payment].

15 Termination by Employer

15.2 Termination by Employer

Add the following sub-paragraph (g):

"(g) commits any other material breach of the Contract which is not remedied within 14 days of receiving notice of the breach from the Employer,"

Add the following at the end of the last paragraph of Sub Clause 15.2:

"Without limiting the foregoing provisions, upon termination of the Contractor's employment under the Contract, the following shall apply:

- (a) the Contractor shall, when and if required by the Employer, assign to the Employer all of its rights under all or any of the subcontracts;
- (b) the Contractor shall co-operate with the Engineer in the transfer of information and disposition of work in progress so as to mitigate the cost to the Employer of the termination of the Contractor's employment;
- (c) the Contractor shall comply with all other reasonable requests from the Engineer and co-operate with and provide all reasonable assistance to the successor contractor (if any) and/or the Employer following the termination of the Contractor's employment to ensure that there is a smooth and efficient handover of the Works to any successor contractor and/or the Employer as the case may be;
- (d) if requested to do so by the Employer, the Contractor shall assign to the Employer any or all of the Contractor's rights under the Contractor's shipping documentation (if any) for items of Plant and/or Materials to be supplied for incorporation into the Works and execute all documentation and do all things reasonably required by the Employer to effect such assignment, within 14 days of being requested to do the same;
- (e) the Employer may pay any Subcontractor for any Materials or Goods delivered or works executed for the purpose of the Contract (whether before or after date of termination) insofar as the price thereof has not already been paid by the Contractor. Payments made under this Sub Clause may be deducted from any sums due or to become due to the Contractor. It is a condition of this contract that the Contractor is entitled to be paid any such sum as, in the event of termination and the making of any direct payments pursuant to this Clause 15 [Termination by Employer], may remain after the amount equivalent to such direct payment has, in addition to any other amounts certified by the Engineer under this Sub Clause, been debited against the Contractor;
- (f) the Contractor shall provide to the Employer upon request and as a precondition to receiving any payment under this Clause 15 [Termination by Employer], such evidence as the Employer shall reasonably require to satisfy the Employer that property in all Plant and Materials which have been supplied by the Contractor to the Employer has vested (or will upon such payment vest) in the Employer."

17 Risk and Responsibility

17.1 Indemnities

Replace Sub-Clause 17.1 with the following

The Contractor shall indemnify and hold harmless the Employer, the Employer's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:-

- (a) Bodily injury, sickness, disease or death, of any person whatsoever arising out of or in the course of or by reason of the design, execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, wilful act, omission or breach of the Contract

or any Laws by the Employer, the Employer's Personnel, any of the Employer's other contractors (or any of their contractors or personnel), or any of their respective agents, or any other person for whom, as between the Employer and the Contractor, the Employer is responsible for, and

- (b) Damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss:
 - i. Arises out of or in the course of or by reason of the design, execution and completion of the Works and the remedying of any defects, and
 - ii. Is attributable to any negligence, wilful act, omission or breach of the Contract or any Laws by the Contractor, the Contractors Personnel, any Sub-Contractor of the Contractor (or any of their contractors), their respective agents, or anyone directly or indirectly employed by any of them.

The Employer shall indemnify and hold harmless the Contractor, the Contractors Personnel, any sub-contractor of the Contractor (or any of their contractors) and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death of any person, which is attributable to any negligence, wilful act, omission or breach of the Contract or any Laws by the Employer, the Employers Personnel, any other contractor of the Employer or any of their respective agents or any other person for whom, as between the Employer and the Contractor, the Employer is responsible for, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d) (ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property].

17.2 Contractors Care of the Works

Add the following paragraph 5:

"While the Contractor may complete any repairs, it shall not be liable under Sub-Clause 17.2 for any costs or risk, unless the loss or damage is attributable to the negligence, wilful act, omission or breach of the Contract (including a breach of Sub-Clause 4.1 [Contractor's General Obligations] and Sub-Clause 7.1 [Manner of Execution]), by the Contractor, the Contractor's Personnel, any Sub-Contractor (or any of its contractors), their respective agents, or anyone directly or indirectly employed by them.

17.3 Employers Risks

Add Sub-Clause (i)

"(j) Omissions, errors, faults or other defects in the Employer's Requirements or any other information, data or instruction communicated to the Contractor by the Employer or Engineer in accordance with Sub-Clause 1.3, where any experienced contractor engaged in work similar to the Works, and exercising due care, would not have discovered such error, omission, fault or defect

First paragraph, delete the word "Goods" in the second line.

17.4 Consequences of Employer's Risks

17.6 Limitation of Liability

Add the words:

"Sub Clause 8.7 [Delay Damages]" after the word "under" on line 3.

18 Insurance

18.1 General Requirements for Insurances

Fourth paragraph; replace the first sentence with the following:

"Where the Contract requires insurance to be effected in joint names:

1. The cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured.
2. The policy or policies shall provide for waiver of subrogation with respect to each of the insured."

Sixth paragraph; replace "the respective periods stated in the Appendix to Tender" with "14 days".

18.2 Insurance for Works and Contractor's Equipment

The Employer shall insure the Works, Plant, Materials, Goods and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. The insurance cover shall apply to the Site at Wailoa Power Station and also any storage area provided by the Employer for storage of Plant and Materials in Fiji before it is sent to Site. The insurance shall be in the joint names of the Employer and all Contractors working on the Wailoa Mid Life Refurbishment Project

Fourth paragraph, sub-paragraph (d), replace

"the amount stated in the Appendix to Tender" with "\$NZD50,000.00 or as may otherwise be agreed by the Employer".

To be added at the end of Sub-clause 18.2

"The Employer shall coordinate the insurance policy with the Contractor and shall provide a copy of the insurance policy 28 days from the commencement of the risk period."

The Employer shall maintain separately a material damage and all risks policy covering the existing Wailoa power station and all of existing buildings and existing plant and equipment.

The Contractor is responsible for the insurance of the Plant Materials and Contractor's Equipment in transit from the place of manufacture to the Site at Wailoa Power Station or to a place of storage nominated by the Employer in Fiji, and from the place of storage to the Site, according to Institute Cargo Clause "A". The Contractor's insurance must include the risks of loading and offloading at all locations including on arrival at the Site.

18.3 Insurance against Injury to Persons and Damage to Property

Third paragraph, delete sub-paragraph (d)(i)

Delete the words "except to the extent that cover is available at commercially reasonable terms" at sub-paragraph (d)(iii) of the third paragraph.

18.5 Professional Indemnity Insurance

Add the following new Sub Clauses to Clause 18:

"The Contractor shall effect and maintain professional indemnity insurance, which shall cover the risk of professional negligence in the design of the Works, for an amount not less than that specified in the Appendix to Tender for any one claim or series of claims arising out of the same occurrence.

18.6 Motor Vehicle Third Party Liability Insurance

"The Contractor shall effect and maintain, until expiry of the Defects Notification Period, motor vehicle third party liability insurance for an amount not less than that specified in the Appendix to Tender for any of the Contractor's vehicles used and operated in Fiji."

20 Claims, Disputes and Arbitration

Delete Sub Clauses 20.2 to 20.8 inclusive and substitute the following Sub Clauses:

20.2 Disputes

"If either party is dissatisfied with a decision or instruction of the Engineer, or if no decision is given by the Engineer within a prescribed time frame under this Contract or there is some other dispute between the Contractor and the Employer in relation to this Contract, then the dissatisfied party may refer the matter to mediation or arbitration pursuant to Sub Clauses 20.3 or 20.4 respectively.

Unless the dissatisfied party has notified the other party and the Engineer within 28 days of such decision or instruction of its intention to refer the matter to mediation or arbitration it shall be deemed to have accepted the decision or instruction as final."

Sub-Clause 20.3 Amicable Settlement

"Where notice of dissatisfaction has been given under Sub clause 20.2, both Parties shall attempt to settle the dispute amicably before the commencement of mediation or arbitration.

- (a) the Contractor's Representative and the Employer's Representative shall use their reasonable endeavours to settle the dispute finally within 30 days after the dispute being raised by either party;
- (b) in the event that the dispute cannot be settled by the Contractor's Representative and the Employer's Representative, the Chief Executive Officers (or nominees) from both parties shall use their reasonable endeavours to settle the dispute within the 20 days of the dispute being referred to them;
- (c) in the event that the Chief Executive Officers cannot settle the dispute within that 20 day period, then either party may refer the matter to mediation or arbitration pursuant to Sub-Clause 20.4 or 20.5".

20.4 Mediation

"Where a request for mediation is made the parties shall endeavour to agree on a mediator and shall submit the dispute to him/her. The mediator shall discuss the matter with the parties and seek to resolve the dispute by agreement. All discussions in mediation shall be without prejudice and shall not be referred to in any later proceedings. The parties shall bear their own costs in the mediation and shall each pay half the costs of the mediator.

The parties may at any stage agree to invite the mediator to give a decision to determine the matter. The mediator's decision shall in such case be binding on both parties unless within 14 days either party notifies the other in writing that it rejects the mediator's determination.

If:

- (a) Mediation has been requested but has not been agreed upon within 14 days of the request, or
- (b) Within 14 days of mediation being requested the parties have been unable to agree upon a mediator, or
- (c) No agreement has been reached in mediation and no determination has been issued by the mediator within 56 days of the request for mediation, or
- (d) either party has, within the prescribed time rejected the mediator's determination,

then the matter may be referred to arbitration."

20.5 Arbitration

The first sentence shall be amended as follows: "Unless settled amicably or by mediation, any dispute shall be finally settled by international arbitration."

After sub-paragraph (c), add sub-paragraph (e):

"The arbitral award shall be substantiated in writing and include a decision by the arbitral tribunal on the matter of costs of the arbitration."

Insert at the end of Sub-Clause 20.6:

"With regard to any dispute subject to this section the IBA Rules on the Taking of Evidence in International Commercial Arbitration of June 1, 1999 shall apply. The work product of an (outside or in-house) attorney and communication between an (outside or in-house) attorney and a client shall be subject to the privilege provided for in Article 9 section 2 of said IBA Rules and shall not be disclosed.

If the value of the total matter in dispute, including the value of any counterclaims, is less than NZD \$500,000, the tribunal shall consist of one arbitrator, and if the value of the total matter in dispute is NZD \$500,000 or more the tribunal shall consist of three arbitrators. If the parties cannot agree whether or not the value is less than NZD \$500,000, the appointing authority shall decide on the number of arbitrators on written request by one of the parties.

If the tribunal consists of one arbitrator, the appointment shall be effected as set forth in Article 8.3 of the ICC Rules of Arbitration. If the tribunal consists of three arbitrators, each party shall nominate one arbitrator for confirmation by the ICC. Both arbitrators shall agree on the third arbitrator within thirty (30) days after their appointment. Each arbitrator nominated by a party shall use reasonable efforts to consult with such party with respect to the third arbitrator before agreeing on his/her nomination. Should the two arbitrators fail to reach an agreement on the third arbitrator within the thirty-day period, the ICC shall select and appoint the third arbitrator. The seat of arbitration shall be Sydney, Australia.

The procedural law of such seat of arbitration as applicable to international arbitration proceedings shall apply where the ICC Rules of Arbitration are silent. The language to be used in the ADR and the arbitration proceedings shall be English.

The arbitrator shall have full power to open up, review and revise any decision, opinion, instruction, direction certificate or valuation of the Engineer and to award on all questions referred to him/her. Neither party to the arbitration shall be limited to the evidence or arguments put before the Engineer or put before a mediator.

No decision given by the Engineer in accordance with his/her duties under the Contract shall disentitle him/her from being called as a witness and giving evidence before any hearing on any matter relevant to the dispute.

Where the matter has been referred to mediation the mediator shall not be called by either party as a witness, and no reference shall be made to the determination, if any, issued by the mediator in respect of the matter in dispute."

20.5 Works to Continue

"Performance of the Contract shall continue during mediation or arbitration proceedings unless the Employer shall order suspension. If any such suspension is ordered the documented costs incurred by the Contractor and occasioned thereby shall be added to the Contract Price.

No payments due or payable by the Employer shall be withheld on account of pending reference to mediation or arbitration."

Appendix and Annex

delete

5 Specification – Preliminary and General

5.1 General

5.1.1 Location

The Site of the proposed Works is the Wailoa powerstation on Viti Levu in the Republic of the Fiji Islands. The site is normally accessed by road from the Capital, Suva.



Figure 1 – Viti Levu Island, Fiji. Approximate site location shown in red box

5.1.2 Access

Only construction vehicles will be allowed in the construction zone. All other vehicles shall be parked in the designated contractor staff car parking areas.

5.1.3 Site

The Contractor and his/her staff shall comply with the Employer's requirements for external contractors when working on the Site.

5.1.4 Construction Activities to be provided by the Employer

The Employer will provide the following services and construction work as part of this project;

- a) Provide accommodation, free of charge for the Contractor's team at Wailoa Camp which is approximately one kilometre from the power station. The contractor will need to arrange their own food but the Employer can assist in arranging a cook and cleaner to be available;
- b) The Contractor must provide its own accommodation at other locations in Fiji;

- c) The Contractor is required to co-operate with the Employer in all respects in the provision of these services.

5.2 Payments

Payment will be made on completion of milestones as set out below:-

| Milestone | Milestone Payment Basis | Maximum Milestone Payment | Cumulative Payments |
|---|--|---------------------------|------------------------|
| The following applies to Section 1 | | | |
| Submittal of detailed design information and drawings, including design of sensor mounts and cabling, and installation procedure. | Lump Sum on acceptance of manual and drawings by Engineer | 20% of Contract price. | 20% of Contract price |
| Manufacture and ex works delivery of Section 1 for shipment to Fiji. | Lump Sum on successful completion of the factory acceptance tests and presentation of shipping bill of lading and insurance documents. | 40% of Contract Price. | 60% of Contract price |
| Completion of Installation and Commissioning | Lump Sum on successful completion of installation. | 30% of Contract Price. | 90% of Contract price |
| On Taking Over and acceptance of the Operation and Maintenance manual | 95% of the contract price. | 5% of Contract Price. | 95% of Contract price |
| On granting Acceptance Certificate | Balance of monies due. | 5% of Contract Price. | 100% of Contract price |
| Defects Notification Period | Covered by a 10% Performance Bond, reducing by 5% at the end of the Defects Liability period for each Section. | | |

5.3 Programme

The following programme shall apply for the Contract. Please note one week equals seven days as defined in the General Conditions of Contract.

| Activity | Section 1 Preliminary Dates | Section 1 Duration |
|-------------------|-----------------------------|--------------------|
| Tenders Close | 15 September 2017 | |
| Commencement date | 16 October 2017 | |

| Activity | Section 1 Preliminary Dates | Section 1 Duration |
|--|------------------------------------|---------------------------|
| Ex Works Shipment of equipment | 5 February 2018 | 16 weeks |
| Delivery of Section 1 equipment to Site | 5 March 2018 | 4 weeks |
| Installation of flow measurement cabinets and external cabling and trenching | 26 March 2018 | 3 days |
| Dewater of the penstock and installation of the flow metering sensors and internal cabling | 29 March 2018 | 3 days |
| Commissioning | 2 April 2018 | 2 days |
| Tests on Completion Completed (Taking Over/Acceptance) | 4 April 2018 | 1 day |
| Defects Notification Period Ends | 4 April 2019 | 52 weeks |
| Total Duration (Days) | | 513 |

All installation work shall be completed in accordance with a detailed installation schedule that has been submitted to and meets with the Engineer's approval prior to the start of installation work.

5.4 Tests on Completion

5.4.1 Tests on Completion

The Tests on Completion for each Section are detailed in Part 8.4 of the Specification.

5.4.2 Tests after Completion

It is expected that all Tests on Completion of the flow measurement system will be completed before Taking Over is granted. However, the Employer may require some or all of the Tests on Completion to be carried out as Tests after Completion owing to station operating requirements.

5.4.3 Acceptance Certificate

When the above tests are successfully completed the Engineer will issue an Acceptance Certificate confirming the tests have been carried out and the test criteria has been met.

5.4.4 Performance Shortfall during Defects Notification Period

Should any performance shortfall be identified during the Defects Notification Period, the Contractor shall be responsible for taking immediate steps to determine and effectively correct the fault. The performance test shall be repeated by the Contractor after any resulting plant modifications.

5.5 Delivery Procedures

In the event of plant or sections thereof being supplied from outside The Fiji Islands, such plant shall be delivered to a port in the country of manufacture for direct shipment to the specified port in Fiji. Plant must not be shipped on deck unless in containers.

The Contractor shall:

- Arrange for a mutually approved authority to inspect the manufacture, witness testing of the plant and certify that materials, tests and specifications meet the Employer's requirements and comply with the requirements of those codes specified by the Employer;
- Arrange an independent survey certificate verifying that the packing is adequate and sufficient for the required land, ocean and/or air transit to the final destination determined by the Employer certifying in particular that the packing complies with Fiji Government Regulations;
- the wooden packing cases or timber used in packing machinery for shipment are free of bark and/or obvious insect damage, are certified and cleared by the overseas shippers and that all packing is clean and new;
- Supply to the Employer copies of both of these certificates with the shipping documents; and
- Indemnify the Employer against all liabilities, claims, costs and expenses that may result from failure of the Contractor to comply with the above mentioned conditions;

All wooden packing cases or timber used in packing machinery from overseas shall be fumigated prior to delivery to Site and following equipment unpacking it shall be delivered to a nominated Site area for incineration. This material shall not be used on Site for construction activities.

5.6 Site Services

5.6.1 Electricity

A 400 VAC, 4 wire plus earth, 3 phase 50 Hz and a 230 VAC, two wire plus earth, single phase 50 Hz power supply adequate for the Contractor's nominated requirements will be made available. Supply will be available by arrangement at all hours but liability will not be accepted by the Employer for any loss, damage or inconvenience created resulting from the total or partial interruption of the supply.

5.6.2 Water Supply

A potable water supply is not available at the Site for construction use. The Contractor will be required to make his own arrangements for the provision of bottled water and beverages for staff. .

5.6.3 Fire Protection

The Contractor shall provide fire extinguishers of an appropriate capacity and type at all locations where work is carried out.

5.7 Health and Safety

5.7.1 Health and Safety Procedures

The Contractor's and Sub-contractor's employees on Site shall adhere to the safety procedures established for the Site including: any lawful instruction given to them by an authorised person; emergency and evacuation procedures; the use of fire-fighting appliances; the observance of all industrial regulations relating to the Works; the observance of the shutdown of plant procedures and compliance with Site plant isolation procedures.

All Contractor employees including any Sub-contractor's employed on Site shall attend Site Induction Courses as required prior to the start of work on Site. All work on site shall be subject to and comply with the Site Health and Safety Policy, which is available to the Contractor upon request.

5.7.2 Health and Safety Regulations

The Contractor is required to ensure that the requirements of The Health and Safety in Employment Act 1992 along with the Health and Safety in Employment Regulations and various Codes of Practice are observed by its own employees and those of his Sub-contractors and shall submit, prior to commencing the Works, a Site record sheet to the Engineer that confirms that all employee have been given the current information covering health and safety. The Contractor shall submit an updated Site record sheet weekly.

5.7.3 Accidents

The Contractor shall promptly report within 24 hours in writing to the Engineer all accidents and incidents that caused injury, illness and those that might have caused injury. In addition, if death, serious injury, or serious damages are caused, the accident shall be reported immediately by telephone or messenger to the Engineer and The Occupational Safety and Health Department. If any claim is made by anyone against the Contractor as a result of any accident, the Contractor shall promptly give a complete report of the facts in writing to the Engineer giving full details of the claim, including witnesses, statements, sketches and the like.

5.7.4 Barricades

Barricades, fences or guard-rails must be provided around all excavations or openings where there is a risk of persons falling into them. Such barricades shall be erected after the completion of the day's work and/or when the Site is left unattended and shall be brightly coloured and clearly visible at night. Such barricades shall not be removed without written permission by the Contractor's Safety Supervisor.

5.7.5 Safety Supervisors

The Contractor's Safety Supervisor nominated for the Site shall have their name displayed on all facilities and the person's name is to be known by all employees and in accordance with The Occupational Health and Safety in Employment Act 1992. The Contractors Safety Supervisor shall be responsible for all safety matters and shall liaise with the Engineer.

5.7.6 Security Fencing

The Contractor is not required to provide security fencing around the perimeter of or within the Site. However, the Contractor shall be responsible for the provision of all temporary fences, barriers and signage as appropriate to effectively isolate hazards associated with the works.

5.7.7 Protective Helmets and High Visibility Jackets

The Employer will designate protective helmet areas. All Contractors' employees, sub-contractors employees, visitors and delivery personnel shall wear a hard hat at all times within such designated areas. Contractors must advise all appropriate people. Hard hats are to be replaced every three (3) years and are not to be painted. Only the company logo may be attached.

High visibility jackets shall be worn at all times and in all areas designated by the Employer.

5.7.8 Lighting

The Contractor shall provide artificial lighting when natural lighting becomes inadequate at any walking access-way and construction space. The artificial lighting may be by either the permanent lighting installation or by a temporary installation which is later removed once the permanent installation is complete.

5.7.9 Radios

No broadcast frequency radios, Walkman's, radio cassettes CD players, MP3 players, or other similar devices shall be permitted on the construction work areas.

5.7.10 Safety Signs

The Contractor's employees shall observe and comply with all safety signs displayed about the Site. These signs inform personnel both of safety equipment that is required and the hazards that personnel may encounter in special areas.

5.7.11 Alcohol & Illegal Drugs and Substances

Illegal drugs and substances are not permitted on Site. Alcohol must not be brought on Site or be consumed on Site unless approved by the Site Manager. Personnel reporting for duty or seen on Site under the influence of drugs, substances or alcohol will not be allowed to commence work and will be asked to leave the Site.

5.7.12 Animals

Animals are not permitted on Site.

5.7.13 Children

Children under the age of 15 are not permitted on Site.

5.7.14 Contractor's Responsibilities for Health and Safety

The Employer requires the Contractor to comply with safety regulations detailed herein. Compliance with these safety regulations shall not relieve the Contractor of his obligations under the Contract, The Health and Safety in Employment Act 1992, and any amendments thereto.

The Contractor shall:

- Ensure that Contractor and Sub-contractor employees have the necessary skills, qualifications and are supervised by trained personnel to perform the contracted Works safely;
- Audit the performance of Contractor and Sub-contractor employees to ensure compliance to Health and Safety at Work Act 1996 and Site requirements and report each month in the prescribed form to the Engineer. In addition, the Contractor shall report weekly to the Engineer as to the total number of personnel (including Sub-contractors) employed on Site over the last week;
- Inform the Engineer of Health and Safety hazards presented by the Contractor's or Sub-contractor's Works;
- Inform the Engineer of Health and Safety hazards found by Contractor or Sub-contractor whilst undertaking Works;

- Ensure that Health and Safety equipment and clothing is supplied to protect Contractor and sub-contractor employees from the hazards their work creates and that all steps have been taken to prevent harm to other people in the area from the hazard created; and
- The Contractor has the responsibility for informing each Sub-contractor of Health and Safety hazards they may be exposed to and the controls in place to protect them including hazards that may be created by other contractors.
- The Contractor shall run minuted toolbox meetings involving all staff working on site.

5.7.15 Fire Regulations

The Contractor shall provide and maintain adequate fire prevention equipment facilities in areas of potential fire hazard, including, but not limited to, portable fire extinguishers, fire protection mats and fire watchers. In the event of any fire, the Contractor shall take all steps necessary to extinguish the fire and contain its effects and shall report promptly in writing to the Engineer the cause and extent of damage resulting there from.

5.7.16 Housekeeping

The Contractor is responsible for keeping all work areas free from accumulated rubbish at all times and shall deposit rubbish in the central rubbish skips.

5.7.17 Responsibility - Employer

The Employer will:

- Document procedures for Contractor and Sub-contractor personnel movements in and out of the Site or nominated work areas;
- Advise the designated Site Health and Safety Officer;
- Facilitate regular Health and Safety meetings with Contractor's Occupational Health and Safety representatives; and
- Undertake Health and Safety Audits.

5.8 Contractor's Administration

5.8.1 Contractor's Supervisor

The Contractor shall appoint a properly qualified and experienced supervisor to control and direct his staff at Site and the appointed supervisor or replacement approved by the Engineer shall be on Site whenever members of the Contractor's staff are working. The supervisor shall not be replaced except by agreement with the Engineer.

The Contractor's supervisor shall be entirely responsible for the direction of employees of the Contractor and shall be given authority to negotiate and agree points arising out of the erection in order to minimise delays. All instructions from the Engineer will be issued to the appointed supervisor.

5.8.2 Meetings

Meetings will be convened by the Engineer at regular intervals which will not be less frequent than monthly and may be weekly at critical periods. The Contractor shall ensure that a senior person conversant with the project and with decision making authority attends each meeting.

5.9 Co-operation

The Contractor shall co-operate with Site staff, and other contractors on the Site as applicable, to ensure an orderly programme.

5.10 Site Operations

5.10.1 General

At all times the Contractor and his work force shall observe the Employer's requirements in regard to safety and power scheme operating conditions and shall carry out no acts which would, or have the potential to, cause damage or down-time of any Site operations.

5.10.2 Site Specific Entry Conditions

The Contractor is required to ensure that he and all employees and sub-contractors comply with all Site specific entry conditions as may be issued by the Employer from time to time.

5.11 Manuals and As-Built Drawings

The Contractor shall provide three securely bound sets of Operating and Maintenance Manuals together with three copies of as built drawings including full process and instrumentation diagrams. A full draft manual shall be provided prior to the issue of a Taking-Over Certificate with three copies of the final revision provided, at least one copy to be on CD-ROM.

The information provided with each manual shall include but not necessarily be limited to:

- All manufacturers' components design specifications, model numbers, manuals and information;
- Panel layout drawings;
- Flow sensor and cabling layout and installation drawings
- Shop test reports.
- List of critical and recommended spares.

The final format of all such manuals and drawings shall be agreed with the Engineer prior to their preparation.

Drawings shall also be supplied as hard copies and also in electronic form.

5.12 Documentation and Approvals

The Contractor shall allow 14 days for the approval by the Engineer of all drawings, schedules and documents as required under this Contract unless such lesser time is agreed in writing by the Engineer. The Contractor shall allow for up to four copies of each and every drawing and document necessary for the approval of the proposed plant and for the subsequent operation and maintenance of the plant. Electronic copies of CAD drawings shall also be provided in AutoCAD format.

5.13 Substitutions

All components and engineering specifications shall comply with the technical specification unless agreed to in writing by the Engineer.

Substitutions of alternative equipment or brands of component types shall be approved by the Engineer in writing prior to commitment and installation.

5.14 Quality Systems and Standard Compliance

The Contractor shall implement full Quality Management System procedures on all aspects of the Work from and including initial design to final documentation.

The Engineer reserves the right to arrange an independent assessment of the Contractor's or Plant Suppliers Quality Management System if quality systems procedures in use on the Contract are considered by the Engineer to be deficient.

5.15 Construction Photographs

Before commencing and during the progress on any part of the Works, the Contractor shall permit and if required, shall render assistance in the taking of such photographs as the Engineer may require.

5.16 Goods and Contractor's Plant

All Goods and mechanical plant used by the Contractor in the execution of the Works shall be of such type, size and shall be utilised in such a manner as the Engineer shall approve. The Engineer's approval to use mechanical plant will not be unreasonably withheld, but if in the Engineer's opinion, circumstances arise which make it desirable that the use of plant be suspended either temporarily or permanently, the Contractor shall change the method of performing the work affected and shall have no cause for claim against the Employer on this account nor shall there be cause for claim if any order by the Engineer results in the mechanical plant having to stand idle for a period of any duration whatsoever or having to be removed.

The Contractor shall use every possible means to prevent noise and annoyance to the inhabitants of the area in which the Works are situated, and all machinery must be of such design and so arranged as to be reasonably free from noise in operation. The Contractor shall have no claim for any charges involved in complying with the requirements of this clause.

5.17 Existing Services

The Contractor is to leave all existing services in place unless otherwise directed by the Engineer.

5.18 Protection of Works

Where required, the Contractor shall cover and protect the Works and all plant and equipment from inclement weather and damage as the Works proceeds. Any work, materials, plant or equipment suffering damage shall be made good at the Contractor's expense.

6 Specification - Introduction

6.1 Scope of Supply

The Contractor shall furnish all labour, materials and equipment required to design, manufacture, factory test, deliver to the Site, install, commission and test a complete, fully operational, acoustic type penstock flow measurement and failure detection system as follows:-

- One (1) wall mounted cabinet, housing instrumentation controller for flow measurement and monitoring of lower penstock flow sensors.
- One (1) set of water velocity sensors, for internal mounting in lower penstock, providing 8 acoustical paths.
- Site-specific design of internal sensor mounts, cabling and conduit, including penstock wall penetrations and cable glands, for all of the lower penstock velocity sensors listed above.
- All signal cabling, conduit, cable glands and mounting materials required to connect the lower penstock sensors and instrumentation controller.
- One (1) wall mounted cabinet, housing instrumentation controller for flow measurement and monitoring of existing upper tunnel flow sensors (existing sensors and cabling are to be reused)
- Transport of all equipment to Site.
- Site installation of all equipment listed above, including penstock penetrations where required.
- Excavation of cable trench between lower penstock access chamber and powerhouse to provide access for cables
- Site Commissioning and Testing of complete system.

Equipment used shall be a type having an established reputation of two years or more of satisfactory and reliable service and installed in hydroelectric facilities, internally mounted within large diameter, high pressure penstocks.

Equipment and accessories shall be, to the greatest extent practicable, of a type which is readily available in the domestic market or which can be readily imported from Australia or New Zealand. The names of manufacturers of mechanical and electrical auxiliary equipment to be incorporated into the Work, together with performance characteristics, and other significant information, including specification sheets, equipment data, shall be submitted to the Employer for review and acceptance. Equipment shall not be incorporated into the Work without prior review and acceptance by the Employer.

6.2 Design Conditions

The following Site parameters will have impact on the equipment design and selection;

| | |
|---|------------------------|
| Lower Penstock Elevation | 122 mASL |
| Upper Tunnel Elevation | 720 mASL |
| Ambient Air Temperature Range | 0°C – 40°C |
| Lower Penstock Internal Diameter | 1.8 m |
| Lower Penstock Shell Material | Steel |
| Lower Penstock Shell Thickness | 80 mm – 100 mm |
| Lower Penstock Internal Design Pressure | 7.5 MPa |
| Penstock Maximum Design Flow | 16.0 m ³ /s |

7 General Requirements

The basic materials and methods shall be in accordance with the Common Requirements Specification.

7.1 Submittals

Submittals shall be provided in accordance with the requirements of Part 1.3 of the Common Requirements Specification.

7.1.1 Design

The Contractor shall provide drawings and documentation to represent the selected equipment and custom designed system including:

- a) Full documentation, such as product manuals for selected equipment making up the complete system, including sensors, cabling, cable glands for penstock penetration, terminal boxes, control and monitoring panels, communication modules, power supplies, etc.
- b) Detail Drawings:
 - Instrumentation cabinet front, rear and side views along with wall mounting details.
 - Inside view of cabinet arrangements, including electrical components, terminal blocks and cable entrance details for external cables.
 - Custom, Site specific, detailed drawings showing sensor mounting locations, cable conduit routing internal to the penstock, fixing details, penstock penetration details and materials for both the lower penstock and upper tunnel sensor locations.
 - Custom schematic drawing showing cable interconnections between all sensors, communications modules and the main instrumentation controller. Schematic should indicate the type, media and communications protocol of each instrument and communications cable.
- c) Cable schedules with estimated lengths required
- d) Site specific installation and commissioning manual covering the installation and commissioning and test procedures in detail

7.1.2 Records and Instructions

The following records and instructions shall be provided:

- a) Shop Test Reports and certificates.
- b) Operating and Maintenance Instructions for all sub-components supplied by the Contractor.
- c) As Installed drawings
- d) Site Test Reports

7.2 References, Specifications, Codes and Standards

The Contractor shall comply with requirements of the Common Requirements Specification and the latest revisions of applicable industry standards, specifically including the following:

| | |
|-----------------------|--|
| AS/NZS 3000 | Electrical Installations |
| AS/NZS 3100 | Approval and Test Specification – General Requirements for Electrical Equipment |
| ISO 11631 | Measurement of fluid flow - Methods of specifying flowmeter performance |
| ISO 12242 | Measurement of fluid flow in closed conduits - Ultrasonic transit-time meters for liquid |
| ASME VIII, Division 1 | ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 |
| NZS 4404:2010 | Land Development and subdivision engineering |
| NZS 4431:1989 | Code of practice for earth fill for residential development |
| TNZ F/1:1997 | Specification for Earthworks Construction |

8 Specification - Description of Works

8.1 Flow Measurement and Penstock Failure Detection System

8.1.1 General

One complete flow measurement and penstock failure detection system shall be furnished for the scheme. The system shall perform flow measurement, display, totalization, recording, over velocity protection, and remote indication during unit operation or while conducting a turbine efficiency or index test on the turbines. The system shall operate based on the propagation of time difference of the ultrasonic waves which cross a sloped path with respect to the center line of the water conduit in relation to the velocity of the water in such conduit.

The system shall be a Multiple Path Acoustic Flowmeter System. The instruments and other components of the system shall be designed for successful and highly-reliable operation in a wet environment, with temperatures between 0°C and 40°C. The system shall be capable of measuring flows, from 5 % up to 110% of the rated penstock flow, with an accuracy not less than 1.0% regardless of water friction coefficient in the conduit, water temperature and composition, and of any other factor affecting the speed of sound in the water. The system shall also be capable of measuring the flow velocity up to 110% of the theoretical maximum penstock discharge under a worst case rupture event.

The calibration of the system shall be verified and adjusted by the representative of the flowmeter supplier. All data shall be displayed in metric units. The display shall be a minimum 7.5" colour touchscreen type, with sufficient contrast to be legible in an illuminated environment. The electric power available for the system shall be 110-V DC. A complete system shall be furnished, including cables, conduits, piping, connectors, penstock penetration glands, all mounting hardware, splicing boxes, cubicles and cabinets, instruments, and other accessories and materials required.

8.1.2 Water Velocity Sensors

One set of water velocity sensors shall be furnished for the Lower Penstock measurement site. The acoustical sensors shall be the internally mounted type welded or bolted to the penstock shell. The lower site shall include 8 acoustical paths for high accuracy of measurement.

There are existing sensors internally mounted in the Upper Tunnel, creating 2 measurement paths. These shall be reused. The upper and lower flow measurement sites will be used for flow comparison to enable penstock failure detection.

8.1.2.1 Lower Penstock Measurement Site

The lower penstock measurement site shall include a set of water velocity sensors providing 8 acoustical paths at two cross planes of 45° from the centre line of the penstock, 4 acoustical paths for each plane. The measurement site shall be located in the main penstock, upstream of the bifurcations to each unit, so that the full penstock flow is measured. The Contractor shall determine the optimum distance upstream from the first bifurcation for optimum flow stability at the measurement site. It is expected that this would be around 5 diameters upstream. Cabling from each sensor shall be run to a common gland assembly located adjacent to the lower penstock access chamber.

8.1.2.2 Upper Tunnel Measurement Site

The upper tunnel measurement site has existing water velocity sensors installed. Existing cabling from each sensor extends to the intake control room. The intent is that the existing Accusonic sensors and cabling shall be tested and reused.

8.1.3 Computing, Display, and Control Components.

8.1.3.1 General

Two flow metering cabinets will be supplied under this Contract. One will be installed in the powerhouse, on the upstream wall and connected to the lower penstock flow sensors. The other will be installed in the intake gate control room and connect to the existing upper tunnel flow sensors and cabling. This flow meter cabinet will replace the existing one, which has previously failed and is no longer serviceable. The following paragraphs outline the requirements for each flowmeter cabinet.

The system shall include all main components specified below, with interfaces and other accessories. The flowmeter cabinets shall be wall mounted at a suitable location inside the powerhouse / intake building. The locations shall be agreed with the Engineer prior to installation. The installation of the flowmeter cabinet shall be performed by the Contractor.

8.1.3.2 Flowmeters

The flowmeter shall be located in a separate NEMA Type 4 enclosure. One electronic digital processor shall be furnished which shall receive, verify, average, process, or reject the signals received from both upper and lower measurement sites and shall integrate the input data in order to determine the turbine flow. The processor shall evaluate each incoming acoustical signal and reject signals distorted by reflection of reverberating signals or whose amplitudes are below the minimum acceptable value. Each input signal shall also be checked to ensure that the travel time of the ultrasonic wave and the corresponding calculated velocity, flow, and flow change are within the limits of the system. The system limits shall be selected at the site by the Contractor after consultation with the Engineer.

The meter shall be provided with a keypad for access to the system at the site and for adjustment of conduit parameters and test constants, in order to use the diagnostic procedure or to display the transient test values, including individual velocities of each acoustical path connected to the meter.

The system shall be capable of "self diagnosing" in order to have a continuous check-up of input data, computation accuracy, and meter output data. Rejected data shall not be used in flow determination, and if the fault continues beyond the user preset time limit, the output data shall reset to zero, and the meter shall indicate the position and cause of the fault. In case of failure of one of the transducers, the system shall be capable of operating without receiving signals from 1 of the 8 acoustical paths, using the historical data stored in the processor to simulate the inactive path, and displaying such incomplete operation. The meter shall be capable of diagnosing a total or partial failure in the flow measuring system and of delivering an output signal indicating the failure into the plant control system.

The meter shall show a 4-digit display of the penstock flow, in cubic meters per second, and at least 6 digits for total accumulated volume in cubic meters $\times 10^{10}$. A DC current signal proportional to the penstock flow shall be provided. The signal shall have a rating of 4 to 20-mA full scale and shall be suitable for termination in a load resistance up to 750 Ω . Two 'clean' relay outputs rated at 5A, 110V DC shall be provided. These contacts shall operate when the penstock flow exceeds a predetermined value for a predetermined time, for connection into the turbine generator protection system to trip the intake gate and turbine in the event of penstock rupture. A separate relay output shall be provided to signal flowmeter system "healthy" condition to the plant control system. All of the control outputs listed above shall be provided as terminals in the flow meter cabinet. Connections to these terminal shall be done by others.

8.2 Site Installation

The Contractor shall furnish all labour, tools, supplies, bracing, lifting equipment, supports, and all other items or materials necessary to install the equipment in a thorough, neat, and skilful manner.

A limited outage will be available while the penstock is dewatered, as indicated in the Programme in this Specification. All work internal to the penstock must be completed during this outage.

8.2.1 Water Velocity Sensors and Internal Cabling

Installation of the lower penstock transducers shall be performed by the Contractor. It should be noted that while the penstock is isolated by head gate closure and dewatered, a leakage flow remains and water depth up to 300mm may be encountered. This will need to be considered with the layout of the transducers and installation methodology. The layout of the lower penstock, and location of the access chamber is shown on drawing 34-C21-016.

Access to the lower penstock is via an access manhole as depicted in Photo 8.2.1.



Photo 8.2.1 Penstock Access

The acoustical sensors shall preferably be internally mounted type welded or bolted to the penstock liner. If a bolted assembly is used, then all hardware shall be class 316 stainless steel, with nylock type locking nuts used. The flowmeter supplier shall be responsible for obtaining all necessary information for drilling any mounting holes in the penstock and shall submit this to the Engineer for approval prior to the installation of the transducers.

The Employer would consider through penstock type transducers if the flowmeter supplier can demonstrate that these would provide suitable accuracy and, more importantly, repeatability, given the physical constraints. Figure 8.2.1 provides dimensions of the penstock access chamber, and any through type transducers would need to be installed within this area. Note that the penstock internal diameter is understood to be 1.8m.

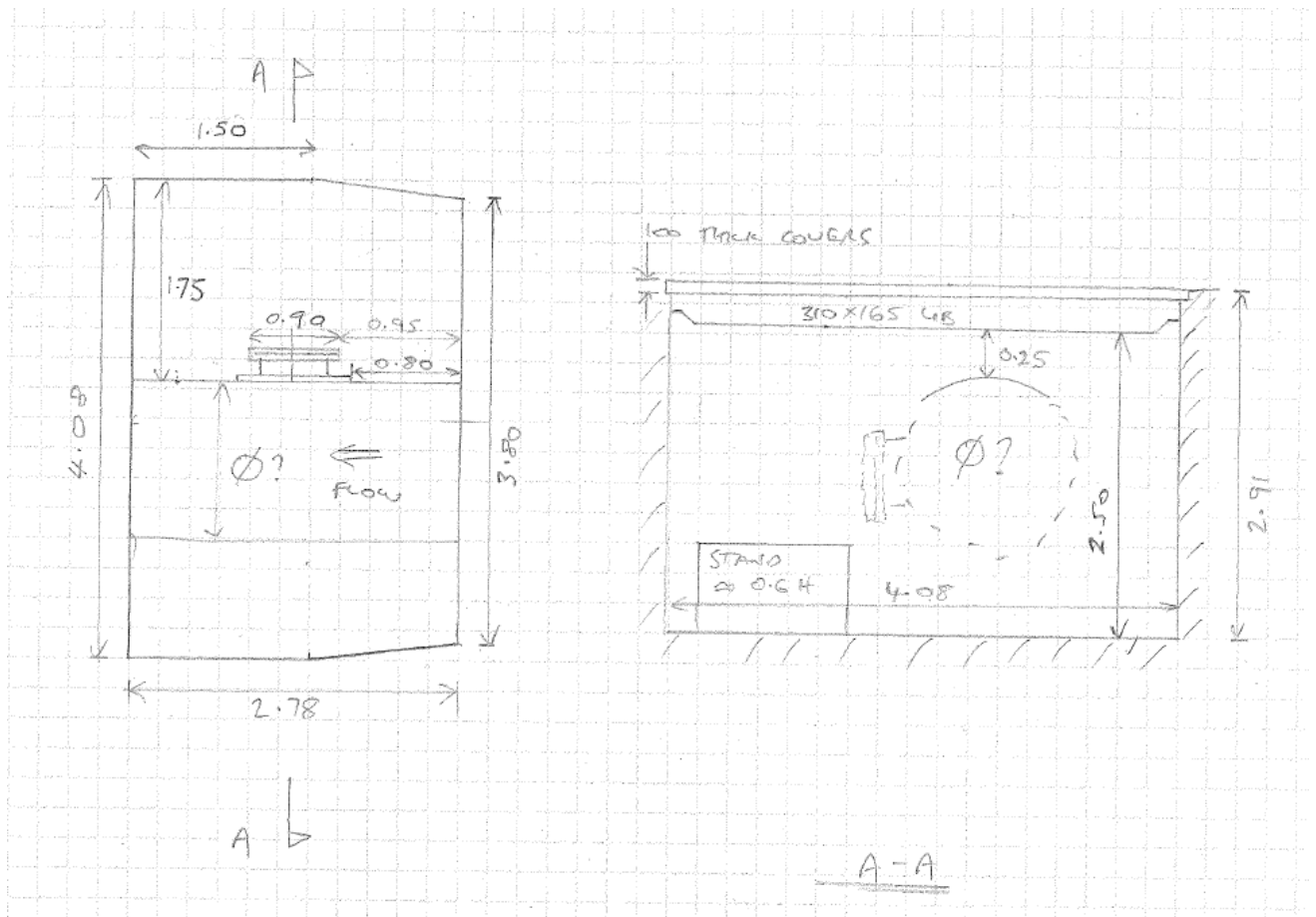


Figure 8.2.1 Penstock Access Chamber Dimensions

The velocity sensors shall be positioned with great care and accuracy and shall be correctly aligned to provide the tolerances required by the manufacturer for optimum performance of the equipment. Contractor shall establish and maintain suitable control for the proper elevations and centrelines to which equipment is to be set.

Each transducer shall be provided with cable and connector, both suitable for use in water. All cabling within the penstock shall be housed in class 316 stainless steel conduit, which shall be secured to the steel liner. The conduit and its mountings shall be designed to withstand the theoretical maximum penstock flow velocity during a worst case rupture event.

The penstock penetration cable gland shall be designed to provide water tight sealing and withstand the maximum penstock design pressure at the elevation where installed.

All bolting, adjusting, and sealing material for the transducer assemblies, gland assembly and their bases shall be furnished.

Any welding required to the steel penstock wall must have developed welding specifications and procedure qualifications. The welding will be by the Contractor and by operators fully qualified for the specified welds. All welding shall be in accordance with ASME VIII, Division 1, Boiler and Pressure Vessel Code. Welding specifications and completed procedure qualifications shall be submitted to the Engineer for approval before welding is commenced.

All welds will be subjected to 100% ultrasonic testing (UT), where possible, and 100% Magnetic Particle (MT) or Liquid Penetrant (PT) testing. Non destructive testing will be performed by the Contractor, by qualified technicians with calibrated equipment. Finished welds shall be thoroughly cleaned and painted with a coating system to match the surrounding surfaces.

8.2.2 External Cabling and Trench to Powerhouse

Cabling external to the penstock will be required to bring the cables from the penstock penetration gland into the powerhouse building to the flow meter cabinet. A cable trench shall be dug between the existing lower penstock access chamber (where the penstock penetration shall be made) and the powerhouse. The trench shall be routed under the access track behind the power house and brought into the powerhouse via suitable existing opening in the powerhouse wall. The exact routing of the trench and cable duct shall be agreed upon with the Employer.

Cable in the trench shall be buried to a sufficient depth and protected by a suitable conduit in compliance with the local electrical code and civil works codes referenced in this Specification.

8.2.3 Flow Metering Cabinets

Flow metering cabinets shall be securely mounted to the wall of the building using suitable anchor bolts and *Unistrut* mounting system or similar. The existing (inoperable) flow metering cabinet in the intake building shall be removed before installation of the replacement cabinet, to be mounted in the same location.

Cabling shall be routed into the cabinets, resulting in a tidy and professional appearance.

8.3 Commissioning and Testing

The Contractor will be responsible for calibration and testing of the installed flow measuring systems. Testing shall be carried out according to the submitted testing plan and schedule to ensure the flow meter meets the manufacturers' guaranteed performance and the required accuracy across the flow range specified in this Specification.

A smooth and continuous flow measurement and reading across the full flow range shall be demonstrated as far as possible by ramping the generating units up, one by one, and then down again. Operation of the generating units shall be done in coordination with the Owner.

The output of the 4-20mA signal and pre-set relay outputs shall be tested using a meter at the flow meter cabinet terminals. A smooth and repeatable signal and switching points shall be demonstrated.

Schedule 1 – Tender Forms

Tender Form 1 – Letter of Tender

Name of Contract: Wailoa Mid Life Refurbishment Project,
Penstock Flow Measurement System Supply Contract No. MR69/2017

Tender To: Fiji Electricity Authority
2 Marlow St
Private Mail Bag
Suva
Republic of the Fiji Islands

1. This tender is made by _____
[insert full name and registered address of tenderer].
2. Capitalised terms used in this letter have the meaning given to them in the Instructions to tenderers dated *[insert date]* (“**Instructions**”) unless otherwise defined.
3. Having examined and understood the Tender Documents relating to the Works (including the Instructions and all documents attached thereto, including but not limited to the Particular Conditions of Contract, the General Conditions of Contract, the Specification and the Employer’s Drawings) we, the undersigned, hereby offer to design, execute, complete and remedy defects in the whole of the Works in conformity with the said documents for the sum of:
.....
....., (\$.....),
Exclusive of VAT, WHT or such other sum as may be ascertained in accordance with the Contract.
4. This offer is made on the terms and conditions set out in this Tender and the Instructions.
5. We attach the following documents which form part of this tender:
 - (a) Completed tender forms;
 - (b) Technical description of the plant offered;
 - (c) Proposed programme;
 - (d) Any supplementary information;
6. We agree to abide by this Tender for a period of 60 days after the Tender Closing Date and that this Tender it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.
7. We confirm that you may rely upon all statements made by us in response to the Instructions or in subsequent correspondence, discussions or negotiations with you.
8. We certify that:
 - (a) The entry into, and performance of the obligations under, the Contract by us will not violate any laws provided that you obtain all consents and authorisations you are required to obtain under the Contract;
 - (b) We have corporate power to enter into and perform our obligations under the Contract and we have taken all necessary corporate action to authorise the entry into, and execution of, this offer and (if required) entry into, and execution of, the Contract;
 - (c) The rates and prices in our offer have been arrived at independently, without consultation or agreement with any other tenderer; and
 - (d) No attempt has been made, nor will be made, by us to influence any other tenderer to submit or not submit a tender or to alter the proposed content of that tenderer's tender.
9. We acknowledge that this tender, and any contract arising upon its acceptance, shall be governed by and construed in accordance with the laws of The Fiji Islands.
10. Unless and until a formal agreement is prepared and executed, this Letter of Tender, together with your written acceptance thereof, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this _____ day of _____ 2016

Signature _____ in the capacity of _____

duly authorised to sign Tenders for and on behalf of: _____

Witness _____

Address _____
Occupation _____

Tender Form 2 – Tender Price and Price Breakdown

| Item | Amount Fijian Dollars (FJD) excluding VAT | Amount Foreign Currency (Nominated by Tenderer) |
|---|---|--|
| Lower Penstock flow metering cabinet | | |
| Set of flow velocity sensors for 8 path measurement, internal mounting | | |
| Conduit, glands and mounting equipment for cabling internal to Lower Penstock | | |
| Design of Lower Penstock sensor and conduit placement and penstock penetration | | |
| Signal cabling for all Lower Penstock sensors | | |
| Upper Tunnel flow metering cabinet | | |
| Transport of all equipment to site | | |
| Site installation of all Lower Penstock equipment | | |
| Site installation of Upper Tunnel flow metering cabinet | | |
| Trench excavation and buried conduit installation between penstock and powerhouse | | |
| Site Commissioning and Testing of complete system (Upper and Lower flow meters) | | |
| Design documentation and O&M manuals | | |
| | | |
| Total Tendered Price | | |

Signature

Name

Position

Company

Address

Date

Tender Form 3 – Proposed Key Personnel

Contract Manager:

Lead Design Engineer:

Site Works Manager:

Site Works Supervisor:

Site Works Safety Supervisor:

Commissioning Engineer:

Signature

Name

Position

Company

Address

Date

Tender Form 4 – Proposed Suppliers and Sub-Contractors

.....

.....

.....

.....

Signature

Name

Position

Company

Address

Date

Tender Form 5 – Schedule of Hourly Rates

| Personnel | Basic Hourly Rate On Site (State Currency) (\$/h excluding GST and WHT) |
|-------------------------------|---|
| Contractor Manager: | |
| Lead Design Engineer: | |
| Design Engineer: | |
| Site Works Manager: | |
| Site Works Supervisor: | |
| Site Works Safety Supervisor: | |
| Fitter Welder: | |
| Fitter Trades Assistant: | |
| Electrician: | |
| Electrical Trades Assistant: | |
| Software Engineer/Programmer: | |
| Labourer: | |

Basic hourly rates apply for the first hours worked in any one day.

Overtime rates apply thereafter as follows:

Next hours at times basic rates.

Next hours at times basic rates.

Tender shall specify any special factors applicable to adjust the basic hourly rates for work on weekends and public holidays.

Weekend factor

Public holiday factor

Explanatory Notes

- (a) The Tenderer shall complete the Schedule of Hourly Rates tender form to show the basic hourly rates applicable for any authorised extra work on the site.
- (b) The Schedule will be used as a basis for evaluating tenders and as a basis for agreeing cost for any extra authorised work.
- (c) The basic hourly rate shall include all overheads, profit, hand tools and allowances and shall represent the total cost to the Employer for personnel employed during normal working hours. The rates shall be exclusive of GST.
- (d) The scheduled hourly rates shall be applicable throughout the course of the works.
- (e) Time sheet records shall be supplied by the Contractor as a basis for agreeing costs for any extra work.

Signature

Name

Position

Company

Address

Date

Tender Form 6 – Percentage On-Costs

| Item | Description | Percentage on Cost |
|------|--|--------------------|
| 1. | Equipment and materials supplied on cost plus basis (including transport). | |
| 2. | Sub-contractors employed on cost plus basis. | |
| 3. | Equipment hire. | |
| 4. | Contractor's profit. | |

Explanatory Notes

- (a) The Tenderer shall complete the Percentage on Costs form to show the percentage on cost applicable for supplying extra equipment and materials, employing extra Sub-contractors on a cost plus basis and for arranging extra equipment hire.
- (b) The percentage on costs shall allow for all costs incurred by and profits for the Contractor in arranging for the supply of any extra equipment and materials or hire of any extra equipment.
- (c) The percentage on costs shall allow for all costs incurred by and profits for the Contractor in arranging and managing any extra Sub-contractors employed on the job.
- (d) Invoices shall be supplied by the Contractor to substantiate any claim for costs associated with work performed on a cost plus basis.
- (e) The percentage on costs and invoices will be used as a basis for agreeing costs associated with any variations to the contract.

Signature
 Name
 Position
 Company
 Address
 Date

Tender Form 7 – Statement of Conformance

We have read and understood the Tender documentation for the generator rehabilitation contract, and confirm that:

Tick 1 Box as
Applicable

Our Tender is in full compliance with the requirements and we have no exceptions to note.

Our Tender does not fully comply with the requirements. The following exceptions apply:

.....
.....
.....
.....
.....
.....
.....
.....

Signature
Name
Position
Company
Address
Date

Binding signature on behalf of the Contractor Title:
..... Dated:

Appendix A Employers Drawings

The following drawings and documents are attached:

| Drawing / Document Number | Title | Revision |
|---------------------------|--|----------|
| 34C21016 C188/T/328 | Wailoa Power Station - Manifold Drain Pipe - Location of Drain Pipe Valves | - |
| C188/PS/SURV/163A | Wailoa Power Station As Built Civil Works | |
| | Recent photos of Lower Penstock Access Chamber | |
| | | |