ENERGY FIJI LIMITED

BIDDING DOCUMENT

Vuda Power Station Electrical Grid Extension Project

Design & Construct, Civil Works for Transformer Foundation pad, Fire Wall and Oil Separator Pit.

TENDER NO: MR 200/2018

INVITATION FOR BIDS

Date: **16TH MAY, 2018**
Tender No: **MR 200/2018**

The ENERGY FIJI LIMITED ("The Employer") invites sealed bids from reputable and suitable Bidders for the Design & Construct, Civil Works for Transformer Foundation Pad, Fire Wall and Oil Separator Pit for the new Vuda Power Station Electrical Grid Extension Project.

All bids for the contract shall be submitted on the appropriate forms provided and shall include the completed price schedule, technical schedule and schedules of experience etc. The bid shall be on the basis of a lump sum contract based on firm prices.

Bidders may obtain further information from, and inspect and acquire the bidding documents, at

Design & Construct, Civil Works for the Transformer Foundation Pad, Fire Wall and Oil Separator Pit, for Vuda Power Station Electrical Grid Extension Project, Lautoka.

ENERGY FIJI LIMITED
The Secretary Tender Committee
2 Marlow Street, Suva, FIJI.
Suva

The deadline for submission of bids shall be **1600hrs (local time) on Wednesday, 06th June, 2018.**

During evaluation of bids the Authority may invite a bidder or bidders for discussions, presentations and any necessary clarification before awarding the contract price proposal.

Section 1 - Instructions to Bidders

1. Scope of Bid

The ENERGY FIJI LIMITED (hereinafter referred to as "the Employer"), wishes to receive bids for the Design & Construct, Civil Works for Transformer Foundation Pad, Fire Wall and Oil Separator Pit for the new Vuda Power Station Electrical Grid Extension Project***, as defined in these bidding documents (hereinafter referred to as "the Works").***

The successful bidder will be expected to complete the Works within 4 months from the date of commencement of the Works.

2. Eligible Bidders

This Invitation to Bid is open to bidders who have sound financial background and have previous experience in handling such civil projects.

Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer as the Employer shall reasonably request.

Bidders shall not be under a declaration of ineligibility for corrupt or fraudulent.

2. Eligible Materials, Equipment and Services

The materials, equipment, and services to be supplied under the Contract shall have their origin from reputable companies from various countries and all expenditures made under the Contract will be limited to such materials, equipment, and services. At the Employer's request, bidders may be required to provide evidence of the origin of materials, equipment, and services.

3. Qualification of the Bidder

To be qualified for award of Contract, bidders shall submit proposals regarding work methods, scheduling and resourcing which shall be, provided in sufficient detail to confirm the bidder's capability to complete the works in accordance with the specifications and the time for completion.

4. Cost of Bidding

The bidder shall bear all costs associated with the preparation and submission of its bid and the Employer will in no case be responsible or liable for those costs.

5. Site Visit

The bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for the design-build and completion of the Works. The costs of visiting the Site shall be at the bidder's own expense. The pre-bid meeting is scheduled on Thursday 24TH May, 2018 at 10.00am at EFL's Vuda Power Station Site.

6. Sealing and Marking of Bids

The bidder shall seal the original copy of the technical proposal, the original copy of the price proposal and each copy of the technical proposal and each copy of the price proposal in separate envelopes clearly marking each one as: "ORIGINAL-PROPOSAL", and "COPY PROPOSAL", etc. as appropriate.

The bidder shall seal the original bids and each copy of the bids in an inner and an outer envelope, duly marking the envelopes as "ORIGINAL" and "COPY".

The inner and outer envelopes shall be addressed to the Employer at the following address: Tuvitu Delairewa

General Manager Corporate Services
Energy Fiji Limited,
2 Marlow Street, Suva, FIJI.
Phone: 679 3224 185
Facsimile: 679 331 1882
Email: TuvituD@efl.com.fj
And
bear the following identification:

- Bid for: Design & Construct, Civil Works for Transformer Foundation Pad, Fire Wall and Oil Separator Pit for the new Vuda Power Station Electrical Grid Extension Project.
- Bid Tender Number: MR200/2018
- DO NOT OPEN BEFORE Wednesday, 06th June, 2018

7. Deadline for Submission of Bids

Bids must be received by the Employer at the address specified above no later than 1600 hours (Fiji Time) Wednesday, 06th June, 2018.

The Employer may, at its discretion, extend the deadline for submission of bids by issuing an addendum, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will thereafter be subject to the deadlines extended.

8. Late Bids

Any bid received by the Employer after the deadline for submission of bids prescribed in Clause 23 will be rejected and returned unopened to the bidder.

9. Modification and Withdrawal of Bids

The bidder may modify or withdraw its bid after bid submission, provided that written notice of the modification or withdrawal is received by the Employer prior to the deadline for submission of bids.

The bidder's modification or withdrawal notice shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause 22, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate. A withdrawal notice may also be sent by fax but must be followed by a signed confirmation copy.

No bid may be modified by the bidder after the deadline for submission of bids.

10. Employer's Right to Accept any Bid and to Reject any or all Bids

Notwithstanding Clause 34, the Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the Employer's action.

11. Notification of Award

Prior to expiration of the period of bid validity prescribed by the Employer, the Employer will notify the successful bidder by fax, confirmed by registered letter, that its bid has been accepted. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") shall name the sum which the

Employer will pay the Contractor in consideration of the execution, completion and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called "the Contract Price").

The notification of award will constitute the formation of the Contract. Upon the furnishing by the successful bidder of a performance security, the Employer will promptly notify the other bidders that their bids have been unsuccessful

12. Signing of Contract Agreement

At the same time that he notifies the successful bidder that its bid has been accepted, the Employer will send the bidder the Form of Contract Agreement provided in the bidding documents, incorporating all agreements between the parties.

Within 7 days of receipt of the Form of Agreement, the successful bidder shall sign the Form and return it to the Employer.

13. Corruptor Fraudulent Practices

The Employer requires that the Contractor observe the highest standard of ethics during the procurement and execution of such contracts. In Pursuance of this policy, the Employer:

(a) defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and

(ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition;

(b) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

Furthermore, bidders shall be aware of the provision stated in Sub-Clause 1.16 and Sub-Clause 15.5 of the Conditions of Contract, Part II - Conditions of Particular Application.

Section 2

Employer's Requirements
Scope of Works
Vuda Power Station Electrical Grid Extension.

Design & Construct, Civil Works for Transformer Foundation pad, Fire Wall and Oil Separator Pit.

1. Scope of Works

The scope of works for this contract for the **Design & Construct, Civil Works for Transformer Foundation Pad, Fire Wall and Oil Separator Pit for the new Vuda Power Station Electrical Grid Extension Project.**

Transformer Specifications (2x15MVA)	
Rating	15MVA ea
	11/33kV
Approx Total Transformer Mass (kg)	41,300 ea
Approx Oil Volume (L)	11,670 ea

2. GENERAL DESCRIPTION

This section covers the civil scope of work required to be carried for preparation of the transformer bay prior to installation of the new 2 x 15MVA 11/33kV Transformer at the Fiji Electricity Authority's Vuda RCC Substation.

1. Roll and compact the subject area to 98% compaction and carry out relevant test.
2. Design and Construct 2 X transformer pads suited for 50 Tonne of Load each.
3. Design and Construct 2 x 5000x3000x400mm transformer plinth with minimum floor foundation of 300mm thick.
4. Design and Construct transformer bund bases and wall 800mm high x 200mm thick wall.
5. Design and Construct fire walls – 6,000mm high and 200mm thick as per drawings. The firewall will be on three sides and the front side with have aluminium gothic mesh with entrance door.
6. Design and Installation of oil/water drainage system and oil separator pits as per NFA, USA standards. The pit should be able to contain minimum of 13000L of oil in case of any spill.
7. Installation of high voltage cable conduits for 11kV and 33kV cables, each circuit shall be 150mm X 6 conduits from Pad to the 11kV control room cable trench and 33kV switchyards respectively.
8. Design and install Earth GRID 185mm^2 bare copper, 1000m in length with 40 T-connection joints using CADWELD and 40 X-connection joints using CADWELD. The cable trenches to have copper flat bars 50mm X 5mm. The new grid to be connected to the existing 33kVswitchyard earth grid in minimum of 4 places via exothermic connection CADWELD.
9. Installation of 12x100W Philips brand LED floodlights, 4 inside each transformer room and 4 on the outside walls. The LED lights to be operated via daylight/sunset switch wired to a contactor complete with all wiring upto the 415VAC board.
10. Laying of HD orange conduits as per drawings provided and as directed by EFL representative on site.
11. Remove old generator parts from the worksite and transport to EFL Navutu stores before commencing work.
12. The bidder to transport 1 x 15MVA approx. 42Ton transformer from Lautoka Wharf and deliver to Vuda RCC Substation upon completion of the transformer Bund works and upon arrival of the transformer at the port. This also includes installation of the transformer onto the new pad. Bidder to ensure enough space during design and construction for this.
13. To lay weed control mat 4m all around the transformer bund and lay 40-60mm screened and washed crushed metal minimum 200mm depth.

2.1 ELECTRICITY, WATER, GAS AND OTHER SERVICES

The Contractor shall at his expense, provide all electricity, water, gas and other services necessary to execute and complete the Works on site. Prevailing tariff and service connection procedure shall be applicable.

2.2 STANDARDS

All civil works shall be carried out in conformity with Fiji Building Code or the British Standard Institution. All electrical works shall be carried out in conformity to the IEC Standards in general. British or Australian standards may be applied where necessary. Any national or international standard may be used if such standards are not less exacting than corresponding standards IEC, BSI or Fiji Building Code. In all instances, a copy of the relevant standard adopted shall be forwarded to the Engineer.

2.3 PRELIMINARY WORKS:

Site Survey

Geotechnical Study - as per Section 2 Technical Specifications.

2.4 EXCAVATION:

Cutting and filling earth

- Formation levels shall be as approved by the Employer's Representative.

Surface chipping

- Area covered by earth mat.

2.5 CABLE CONDUITS LAYING:

As per drawings. 33kV conduits from the transformer pads to the 33kV switchyard. 11kV conduits from the transformer pads to the 11kV switch room trench.

2.6 FOUNDATIONS:

Concrete Bund base and wall together with fire walls for transformers complete with excavation, backfilling, form works, concrete works and reinforcement bars.

2 Nos. 33kV /11 kV Power Transformers (15MVA)

1 No. Oil/Water containment and drainage system. Outlet to be as per Environmental Management Plan. Pit to be able to contain minimum of 13000L of oil in case of a spill.

2.7 WATER DRAINAGE SYSTEM:

Surface water drainage system

Internal surface water drainage system shall be directed as per the Environmental Management Plan.

2.8 CABLE TERMINATIONS

Dig, lay and install new 33kV 300mm XLPE from Nexun NZ cable from Transformer to cable structure and terminate both ends with BB/NKT Cable terminations.
Dig, lay and Install new 11kV 300mm XLPE from Nexun NZ cable from Transformer to 11kV circuit breaker at the switch room and terminate both ends with ABB/NKT Cable terminations

3. TECHNICAL SPECIFICATIONS

3.1 **GEOTECHNICAL STUDY -** A detailed geotechnical study is to be conducted on the identified site to determine feasibility for the construction of two transformer pads, their respective bund walls, fire walls, casting of HV cable trenches, laying of earth mat and laying of multicore HV/LV cable conduits as shown on layout drawing.

3.1.1 The study shall be undertaken by a qualified geotechnical engineer. The said engineer will be tasked with the responsibility of undertaking the geotechnical investigations and providing the necessary geotechnical design parameters that will be used for foundation design and construction.

3.1.2 Samples shall be taken from a minimum of four (4) borings to determine soil bearing capacities. These shall be tested to determine the physical and chemical characteristics of various strata and of the ground water. A safe bearing capacity shall be determined for the purpose of foundation design.

3.1.3 A report of the investigation and study carried out shall be submitted. This will serve to clearly inform of the current suitability of the on-site materials for construction of the new transformer yard accounting for a total designed load of 80 Tons per transformer. The study will clearly advise on the sites ability to hold up without fail the combined installation load on the green patch and issue recommendations on type of foundation design.

3.1.4 The report must also serve to clearly inform the employer of any remedial works that will need to be undertaken so as to ensure the suitability of the site to hold up the transformer yard extension for the new transformers without fail for its projected 60 years' of service life. Detailed excavation work specifications and drawings for all remedial works shall be submitted together with the report.

3.1.5 The employer's written approval is to be given prior to commencing of any remedial earth works.

3.1.6 The safe bearing capacity of the sub-strata may be modified at the final design stage when the full site survey and investigation have been completed and the final layout, structural details etc. agreed. No variation in contract price will be made due to any variation in the bearing capacity leading to modification of foundation design at the final design stage. Special attention shall be paid to the ground water table and chemical composition of the ground water and soil in the substation area.

3.1.7 The following shall be considered as a minimum requirement, assuming uniform conditions over the Site. This shall be extended if significant inconsistencies arise.

a) Depth of boreholes shall be continued up to bedrock if it does not meet the hard stratum of N- value more than 50.

b) Borehole records shall describe and indicate level of all soils encountered and indicate the natural water table level. Rock core records shall specify total core recovery, solid core recovery and quality of the rock cored.

c) Where applicable, samples of soil shall be obtained from all soil strata or at 2 meters intervals in a single stratum and tested to determine physical and chemical properties, particularly with respect to

substances, which would react with concrete or other materials to be used for the foundation works.

d) Where applicable, in situ soil tests shall be completed for all soil strata or at 2 meter intervals in a single stratum. Standard Penetration test in non-cohesive soils, field vane tests in sensitive cohesive soils.

e) Ground water samples shall be obtained from each bore-hole and tested in accordance with approved practice.

f) Electrical resistivity of the soil shall be verified on four samples, in accordance with approved practice (IEEE 80-2004: IEEE Guide for Safety in AC Substation Grounding).

3.2 **REMOVING OF EXISTING MASONRY/CONCRETE AND GENERATOR PART -** Unwanted foundations shall be demolished or up-rooted. The Contractor shall clear all areas required for the work. All unwanted materials, debris, etc. shall be removed from the employer's premises.

3.3 **EXCAVATION OF CABLE TRENCH -** The exact location of each trench shall be agreed at the site with the Employer's Representative before the installation work begins. Permits for excavation shall be obtained from the Employer's Representative.

3.3.1 Trenches shall be kept as straight and shall be excavated to approved formations and dimensions. Trenches shall have vertical sides and shall be close timbered and strutted where necessary to prevent subsidence.

3.3.2 The depth of excavated trenches for the installation of HV cables and MV cables shall be according to the Employer's Standards of 1500mm and 1500mmm wide. The Employer's Representative shall make these standards available to the Contractor upon his request.

3.3.3 The Contractor shall use no power excavation tools for excavation within outdoor transformer yard. The contractor shall take all precautions to avoid damaging any other power cables along the cable route.

3.3.4 All excavation, cable laying and back filling shall be carried out only under the direct supervision of a responsible officer and only in the presence of a representative of the Employer's

3.4 DE-WATERING - All excavation works are to be kept dry and clean to ensure work is not affected or interfered with by water entering the excavations. The Bidder is to allow in his Tender for the costs of pumping, de-watering or other methods of dealing with the water during and after excavation. No concrete, masonry, brickwork or other materials shall be placed or built until the surfaces are properly drained.

3.5 CONTROL & POWER CABLE CONDUIT and CABLE LADDERS - The Contractor is responsible for all civil works required for building in cable conduits and Trench with covers. Cable entries into buildings shall be through conduits.

3.5.1 Power cable which passes under roads, hard standing areas or where they would otherwise be at risk shall be laid in approved ducts. 6 sets for each circuit shall be installed and the whole surrounded in a minimum of 150 mm C10 concrete.

3.5.2 33kV, 11kV and control cable conduits shall be encased in concrete casings with minimum thickness of 150mm and at depths of 1200mm and 600mm respectively on entry to the substation.

3.5.3 Dig and lay 33kV cable from transformer to 33kV circuit breaker. Reinstate trench and crush metal with weed control mat.

3.5.4 Dig and lay 11kV cable from transformer to 11kV Circuit breaker in control room. Reinstate trench and crush metal with weed control mat.

3.5.5 4 x earthing conduits for the transformer shall be encased in concrete casings with minimum thickness of 100mm.

3.5.6 Fibre conduits shall be encased in concrete casings with minimum thickness of 50mm.

3.5.7 AC and DC conduits shall be encased in concrete casings with minimum thickness of 50mm separately.

3.5.8 Cable entries into buildings shall be sealed with approved using suitable materials ROXREC to prevent entry of any water, dust, vermin, etc. Cable entry to the control building shall be provided for future requirements.

3.5.9 All cable ducts shall be laid in straight lines and regular gradients between cable pits, as directed. All ducts shall be kept clear from earth, debris and other obstructions during and after being laid.

3.5.10 Conduit stubs protruding from transformer pads shall extend upwards by 50mm from the top of bund wall so as to inhibit ingress of oil/water should oil/water held in the bund fill up to maximum holding capacity.

3.5.11 Cable ducts shall be of Polyvinyl Chloride (PVC) type material approved by the Employer's Representative and obtained from an approved manufacturer.

3.5.12 Each cable conduit shall be housed with galvanized draw wires of sufficient strength and size to pull cables that shall run within the conduits. The galvanized draw wires shall run the full length of the conduits.i

3.5.13 Bidder to construct 1.5x1.5x1..5m power cable inspection chamber in the 33kV switchyard in the transformer bay. The chamber to be covered with appropriate chequer plates and be water proof.

3.6 OIL CONTAINMENT/DRAINAGE SYSTEM – The bund shall be equipped with an approved oil/water sump and an approved oil/water drainage system. These shall be designed to address three (3) main risks: 1) Catastrophic failure causing prolonged fire. 2) Catastrophic failure causing large amounts of oil spreading off site. 3) Minimise oil pollution during normal operation. This is as stipulated in the Ausgrid NS189 standard for Oil Containment for Major Substations.

The bund base of each transformer shall be designed to have a 1% slope directing all oil/water towards the designated oil/water sump. The sumps shall have an approved non-slip surface applied onto the inside walls and base.

The Ausgrid NS189 standard details two (2) drainage systems that can be installed for transformer bunds. These are the Closed Drainage PPS System and the Gravity Drainage System with Oil Containment Tank. The selection of the oil containment system that is most feasible for the transformer bunds shall be made by the Contractor as according to Ausgrid NS189 standard. The design of which shall be submitted for employer's approval prior to any construction and installation works. As detailed in Ausgrid NS189, the selection criteria for the oil containment system shall be based on a Life Cycle Cost (LCC) analysis together with an assessment of site constraints, site risks, environmental aspects and impacts upon project schedule.

The Contractor shall ensure that the breakout of any fire will be contained within the bund and not transferrable under any circumstance to the oil/water separators or oil tanks to be installed as per the design to be submitted for approval.

The oil containment system shall allow for effective discharging of storm water in the event of heavy rainfall or spraying down of the transformers in the event of a fire.

The oil containment shall be approx. 13000L transformer oil.

3.7 **TRANSFORMER PADS -** transformer pads shall be designed to accept a total transformer weight of 50 ton. This is to account for future upgrades to higher rated and larger transformers.

The pads shall be constructed to dimensions 5000 x 3000 mm (LxW). The transformer pad shall extend upwards from the bund base by a maximum 400mm. The Contractor shall ensure that the pad dimensions are sufficient to cover the transformer base footprint and all cable conduit stub-ups

The Contractor shall ensure that the transformer pad surface is levelled to a maximum deviation of ±2mm. The Contractor's engineer shall satisfy himself with the levelling of the two transformer pads.

3.8 **TRANSFORMER FOUNDATION -** The transformer foundations are to be designed to accept all normal applied dead and imposed loadings without causing any significant settlement. In addition, foundations shall be designed to accommodate any additional imposed loadings during installation and removal of the transformer. This shall be constructed with a minimum 300mm base thickness and an approved steel reinforcement layout.

3.9 **FILLING & REINSTATEMENT -** If it is required to fill the land, the Contractor shall get approval for the filling material and method of construction before the commencement of work.

Filling for trenches, excavations and levelling of the site shall be deposited in layers not exceeding 300 mm of uncompacted thickness, each layer watered when necessary and well rammed or otherwise compacted to within 98% of the maximum dry density obtained by the use of a Proctor Standard Compaction Test.

Any fill material used within 500 mm of concrete structures cement bound materials shall have a soluble sulphate content not exceeding 2.5g per litre when tested in accordance with BS 1377, special precautions shall be taken to protect the concrete or cement bound materials to the approval of the Employer's Representative.

Where excavations whether in rock or other material, are made to a greater depth than detailed, the Intervening space shall be brought up to the proper level in plain concrete at the Contractor's expense.

Any formation encountered in the excavations which is not sufficiently strong to carry the loads which will be imposed on it, shall be excavated to an adequate load bearing stratum and replaced with mass concrete.

Unless otherwise described, directed or permitted, imported filling shall consist of pervious naturally occurring material, free from mud, silt, clay, peat, vegetable or injurious matter and water soluble salts harmful to copper and other metals. Filling shall be imported only from approved areas.

4.0 **STABILITY OF FILL AND EMBANKMENT -** The Contractor shall be responsible for the stability of embankments, which formed either by cutting or filling, and precautions taken to protect the earthworks from deterioration under adverse weather conditions. Wherever applicable the recommendations contained in the following codes of practice shall be followed in calculations, detailing and performance of the earthworks and drainage. **Earthworks - British Standard Code of Practice BS 6031-1981**.

Should any slips occur in the excavations, banks or filling during the execution of the Works or during the period of maintenance from any cause whatsoever, the Contractor shall execute the necessary remedial work in such manner, and with such materials as approved by the employer's representative, at the Contractor's expense.

4.1 **READY MIXED CONCRETE –** 30MPA Ready-mixed concrete shall be provided as defined in BS 5328, which batched off the Site, may be used only with the agreement of the Employer's Representative and comply with all requirements of the Contract.

The concrete shall be carried in purpose made agitators operating continuously, or truck mixers. The concrete shall be compacted and in its final position within 2 hours of the introduction of cement to the aggregates,

unless a longer time is agreed by the Employer's Representative. The time of such introduction shall be recorded on the delivery note together with the weight of the constituents of each mix. When truck-mixed concrete is used, water shall be added under supervision, either at the Site or at the central batching plant, as agreed by the Employer's Representative but in no circumstances shall water be added in transit. Unless otherwise agreed by the Employer's Representative, truck mixer units and their mixing and discharge performance shall comply with the requirements of BS 5328 part 3.

4.2 BUND WALL - Commencement of wall construction shall be done following the installation of the transformers. Each transformer bund base shall be surrounded by a low enclosing bund wall designed to a maximum 800mm height which shall account for 130% of the total oil storage capacity of each transformer. An approved non-slip surface shall be applied to the inside bund walls and bases by the Contractor. The Contractor shall ensure that all bunds are designed as according to AS 1940-2004. The bund walls shall be designed for all expected imposed loadings with provision for vertical extension of EI 240 (4 hours) rated fire resistance fire wall.

4.3 STONE CHIPPING AND ACCESS ROAD - Stone chipping used for substation surfacing are to be clean hard crushed stone graded to 40mm (minimum depth 300mm). The formation in areas where stone chipping are to be used shall be well compacted to the approval of the Employer's Representative, and treated with an approved total weed killer, used in accordance with the manufacturer's instructions.

The layout drawing shows the area to be compacted with stone chipping for the transformer yard access road. The said area shall be compacted to allow for all expected imposed loadings.

4.4 CRUSH METAL – The contractor must reinstate all crush metal that are to be removed for construction works or have been contaminated with soil and other material due to construction activity. 200mm of depth crushed metal (screened 40mm – 3000ohmm) to be applied on weed control mats. All materials to be supplied by contractor and to be approved by FEA Engineer before application. Attached drawings shows area of crush metal works required.

4.5 MISCELLANEOUS WORK - Shall be carried out according to the relevant clause of this specification.

5. EARTHING SYSTEMS

5.1 G E N E R A L

The earthing of all equipment and the provision of earthing systems, electrodes and connections shall be in accordance with the recommendations in the "Guide for safety in Substation Grounding" IEEE No. 80 and the requirements of this Chapter.

Steelworks and supporting structures shall be bonded and earthed to the substation earthing system. Earth connections shall be made approximately 250 mm above the top of the finished foundation level. Connections shall be made also to the earth terminals of each transformer.

Trench earthing – inside 11kV power cable trench, copper 50mm X 6mm flat bar route length – 20m and 20 insulator holders.

Earthing conductors will be of soft annealed high conductivity copper stranded in accordance with Table 4 in BS.6346. Earthing conductors will normally be buried directly in the ground but where necessary they may be cleated to walls, fixed to cable racks or laid in the cable trenches as convenient.

5.2 **EARTHING EQUIPMENT**

5.2.1 Earthing of new 33kV/11 kV transformer yard shall be properly performed with copper strip 50mmX6mm and 185mm^2 bare copper, which enable connection to the equipment installed in and linked to main grid with more than two wires. The bidder to allow for 40-X connections and 40-T connection joints using CADWELD methods.

5.3 **JOINTING AND BONDING**

5.3.1 Connections to plant and equipment shall be made using the earthing terminals specified in the Contract. Where a strip has to be drilled to fit an earth terminal the hole shall not be greater than half the width of the strip.

5.3.2 Joints in earthing strip shall employ chemical welding or high compression joints.

5.3.3 The main FEA Grid and the Transformer Grid shall be connected in at least 4 points.

6. INSPECTION AND TESTS

6.1 The Authority's Engineer representative shall have the right to inspect the works and to confirm conformity to the contract specifications.

6.2 Should any inspected works fail to conform to the specifications, the Authority may reject them and the Contractor shall make all alterations necessary to meet the specification requirements.

6.3 Nothing in this clause shall in any way release the Contractor from any other obligations under this contract.

7. SITE CONDITIONS

7.1 The site is located at the 33kV/11 Vuda RCC Substation in Lautoka. The Contractor shall be deemed to have visited the site of the works to satisfy him/her as to the accuracy of all information supplied to the Tenderers and to the feasibility of construction of the works.

7.2 The proposed location is in a Substation equipped with therefore all necessary Safety Gear must be worn by the Contractor's Staff at all times.

7.3 The Contractor may only enter the site upon provision of access by an Authorized FEA representative. The Contractor is not to execute any work without direct supervision from the FEA representative. The times for work are 8am to 4.30pm Monday to Thursday, and 8am to 4pm on Fridays.

8 SETTING OUT

8.1 All tenderers shall inspect and examine the site, its surroundings, and shall satisfy himself before submitting his tender, as to the form and nature of the site, the nature and type of existing work, the quantities and natures of the work and materials necessary for the completion of the Works and the means of access to the site, the accommodation he may require, the availability, conditions and rates of pay of labour and in general shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect his tender.

8.2 The Contractor shall be responsible for the correct detailed setting out of the Works as indicated in the Tender Documents and shall, at his own cost, amend any errors during the progress of the Works arising from inaccurate setting out.

8.3 If a tenderer has any doubt as to the meaning of any portion of the Works, he shall when submitting his tender, include a statement of the interpretation upon which he replies and upon which his tender has been prepared and submitted.

9. MATERIALS, WORKMANSHIP AND PLANT

9.1 Materials in all trades shall be new and the best of their kinds specified and necessary complying with relevant standards (Fiji, Australia, New Zealand or USA) where applicable and subject to approval or rejection by the Engineer.

9.2 The Contractor shall at all times ensure that adequate protection is provided to finished work and materials to be used in the construction of the work. Where necessary, make good any damage to property.

9.3 The Contractor shall provide all workmen, both skilled and unskilled, plant, equipment and materials necessary for the expeditious completion of the work.

10. OCCUPATIONAL HEALTH AND SAFETY

10.1 The Contractor shall comply with the Health and Safety at Work Act, 1996 and regulations and Amendments thereto and the Fiji Electricity Authority HSE Policy.

11. GENERAL FOREMAN

11.1 The Contractor shall appoint a competent General Foreman who shall be constantly on the works during the progress of the same, to whom instructions may be given by the Engineer.

11.2 The Engineer may require the Contractor to dismiss the General Foreman or other person shall he be incompetent or shall misconduct himself or for any other good reason to be assigned by the Engineer to the Contractor.

12. MAINTENANCE AND DEFECTS

12.1 Period of maintenance shall be 1 year (12) calendar months after practical completion of works. All defects during this period shall be made good by the Contractor, at his cost.

13. CLEANING UP

13.1 On completion, remove all surplus materials from site and leave site in a clean and tidy condition.

13.2 The Contractor shall remove and cart away all rubbish and trade debris as it accumulates during the progress of the works.

14. PROGRAM

14.1 Within seven (7) days of acceptance of his tender, the Contractor shall submit to the Authority, for approval a Program showing the order in which he proposes to carry out the works. The contractor shall ensure all civil and earth grid works shall be complete by the October, 2018. Construction and installation of the bund walls and other miscellaneous work as specified by the employer's representative shall take place following installation and commissioning of the two new transformers.

15. INSURANCE

The Contractor is to effect the following insurance policies:

15.1 Contractor's All Risk Insurance - $500,000

15.2 Public Liability Insurance - $500,000

15.3 Workmen's Compensation - $250,000

Section 3
Form of Proposals and Appendices

SECTION 3

The Schedules are intended to provide the Employer with essential supplementary information in an organized format. Examples of more commonly used Schedules are given herein. Others may be devised and added in accordance with the requirements of the Instructions to Bidders.

All the Schedules are essential for bid evaluation and some in contract execution; they should all be incorporated in the Contract, and appropriate changes introduced with the approval of the Employer or its representative.

The schedules are to be completed and submitted as part of the Technical Proposal and Price Proposal in accordance with the Instructions to Bidders Clause 13, Documents Comprising the Bid. **Bidders whose Bids do not contact the data in the required format will be treated as non-responsive.**

1 SCHEDULE OF PRICES & CONDITIONS OF PAYMENT

1.1 *CONTRACT PRICE*

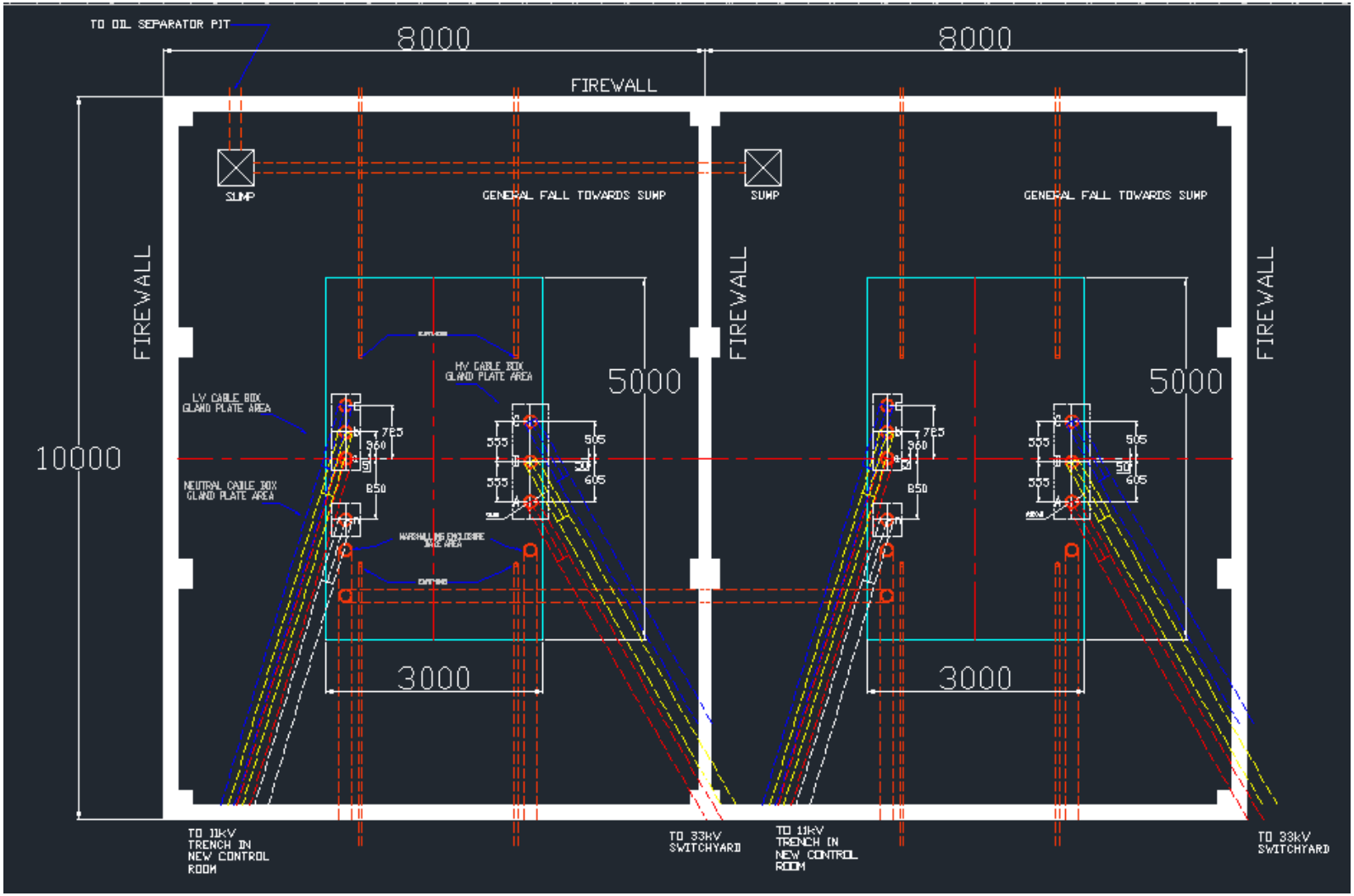
The Contract Price is comprehensive in that, in consideration of the Contractor meeting all obligations, conditions and liabilities under the Contract, including the Contractor's allowance for the cost of supply of all labor, materials, plant, supervision required to complete the Contract Works, overheads and profit, subject only such adjustment as is provided for the Contract.

The contractor shall fill in the table below for the pricing of the below scope of work.

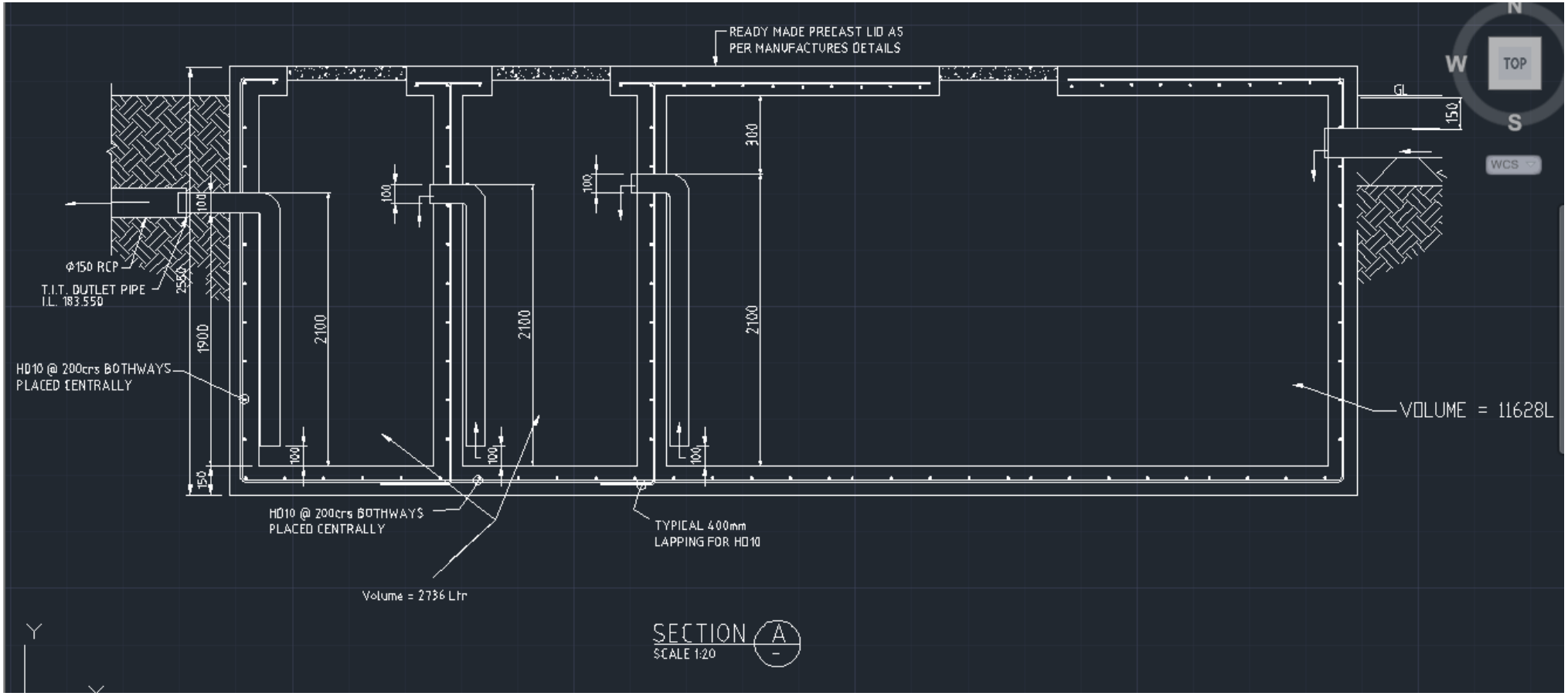
No.	Scope of Work	Overseas Currency DDU CIF, DAF (Vuda RCC PowerStation, Fiji)	Price in VIP FJD
1	Design and construct 2xTransformer Foundation Pad, Firewall, Suitable for 50Ton Loading each.	$	$
2	Design and Construct Oil separator Pit suitable for 2 x 15MVA transformers.	$	$
3	Load and Transport 15MVa Transformer approx. 42Ton from Lautoka Wharf and deliver to Vuda RCC. Install transformer onto new Transformer Pad.	$	$
	Total Cost of the Project – LUMP SUM	**$**	**$**

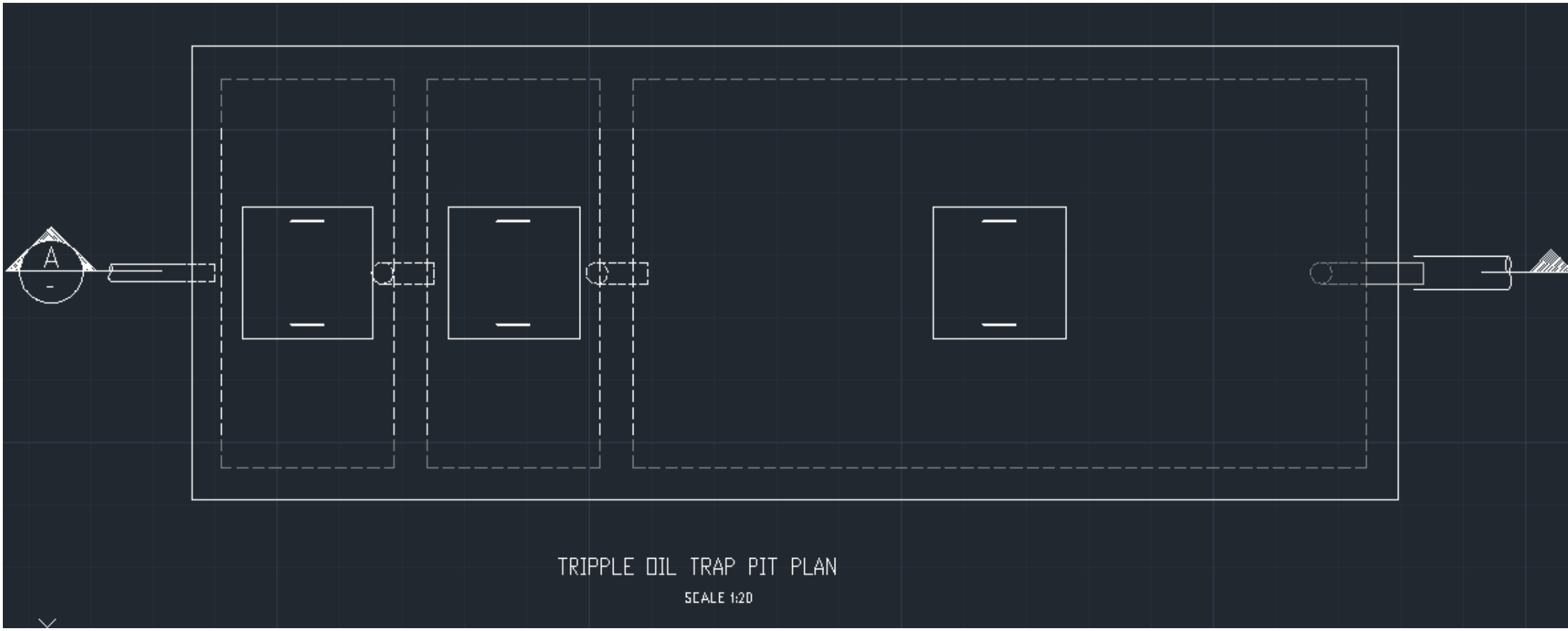
Section 3
Drawings and Literature

1. *Typical Drawing of a 15MVA transformer Foundation Pad.*



2. *Typical Drawing of an Oil separator pit.*




A
-
TRIPPLE OIL TRAP PIT PLAN
SCALE 1:20

1 OTHER DOCUMENTS & DRAWINGS TO BE SUBMITTED WITH BID

As a minimum and mandatory, the following documents & drawings shall be submitted with the Bid for Evaluation.

COMPLIANCE CHECKLIST

Compliance – the following documents are to be provided with the tender bid:

No.	Compliance	Check(√)
1	Valid FRCS tax compliance certificate.	
2	Valid FNPF certificate of Compliance.	
3	Previous list of similar work experience.	
4	Work procedure for working at heights and use of scaffolding.	
5	Gantt chart.	
6	Business registration details.	
7	Insurance cover details – Public Liability, Workers Compensation, Contractor's all risk	

Bidders are to ensure that the above item are included as part of their bid. Failure to provide documentation for the above will disqualify the bid.

Name of Authorized Person	
Signature of the Bidder	
Company Stamp	
Date	

Tender Submission - Instruction to bidders

Two (2) hard copies of the tender bids in sealed envelope shall be deposited in the tender box located at the Supply Chain Office at the EFL Head Office, 2 Marlow Street, Suva, Fiji.

Courier charges for delivery of Tender Document must be paid by the bidders.

This tender closes at 4:00 p.m. (16.00hrs Fiji time) on Wednesday 6th June, 2018.

Each tender shall be sealed in an envelope with the envelope bearing only the following marking:

MR 200/2018
Design and Construct, Civil Works for New Vuda 10MW Generator Transformer Pad, Firewell and Oil Separator Pit

The Secretary, Tender Committee
Energy Fiji Limited
Supply Chain Office
Private Mail Bag,
Suva

It must also indicate the name and address of the tenderer on the reverse of the envelope.

All late tenders, unmarked Envelopes and envelopes without bidder's name and address on the reverse on the envelope will be returned to the Tenderers unopened. (Bids via e-mail or fax will not be considered).

The bidders must ensure that their bid is inclusive of all Taxes payable under Fiji Income Tax Act and must have the most current Tax Compliance Certificate.

For further information or clarification please contact our Supply Chain Office on phone **(+679) 3224360 or (+679) 9991587.**

Bidders are requested to submit a:

- **Valid Tax Compliance Certificate**
- **FNPF Compliance Certificate**