



FIJI ELECTRICITY AUTHORITY

BIDDING DOCUMENT

MR 338/2017

**SUPPLY OF UNDERGROUND CABLE
LOCATOR COMPLETE WITH
ACCESSORIES**

Section 1. Instructions to Bidders

- 1. Scope of Bid** The Fiji Electricity Authority (hereinafter referred to as "the Employer"), wishes to receive bids for supply of Underground Cable Locator with Accessories as specified in these bidding documents (hereinafter referred to as "Cable Locator").
- 2. Eligible Bidders** This Invitation to Bid is open to bidders who have sound financial and technical background and have expertise in supplying such equipment with arrangement for training and servicing/repairing or facilitating for such.
- 3. Eligible Materials, Equipment and Services** The Cable Locator to be supplied under the Contract shall have their origin from reputable companies from various countries excluding China. The bidders will be required to provide evidence of the origin of the Cable Locator.
- 4. Qualification of the Bidder** To be qualified for award of Contract, bidders shall submit all relevant documents, brochures, details and filled evaluation criteria document which shall be providing sufficient detail to confirm the bidder's capability to fulfil the contract.
- 5. 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.
- 6. 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 3rd January, 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.
- 7. Late Bids** Any bid received by the Employer after the deadline for submission of bids prescribed will be rejected.
- 8. 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.
- 9. Employer's Right to Accept any Bid and to Reject any or all Bids** 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.

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1. General Description

This tender is to purchase quality, durable and reliable underground cable locators (receiver and transmitter) designed for Electrical Utilities. The supplier is to supply each unit complete of all recommended accessories that would enable cable route with depth location either through induction or direct connection method as well as cable verification from a bundle of energized cable.

The cable locator must have the provision to capture accurate GPS coordinates of the cable route with depth information identified without FEA having to purchase additional accessories/equipment. In addition, visual (left/right guidance, signal direction and compass) and audible aid for cable location to minimize human error must be a feature of the equipment. Moreover, the supplier shall provide for training with regards to cable location and usage of the supplied equipment. Therefore, the bidder's proposal shall address all functional and performance requirements within the specification and shall include sufficient information and supporting documentation in order to determine compliance with this specification without further necessary inquiries.

2. Specifications and Evaluation Criteria

Note to bidders: Please submit a copy the table below with your products details (in the BIDDERS PRODUCT DETAILS column) in comparison to what is required by FEA. Failure to submit the mandatory technical specifications in the table below will automatically result in the disqualification of the tender bid.

General Criteria

CRITERIA	FEA REQUIREMENTS	BIDDERS PRODUCT DETAILS
Locating System/Product Description	Suitable for Electrical Utility	(Yes/No)
	Locating route and depth of buried underground cable	(Yes/No) (State max route and depth supported by equipment)
Receiver and transmitter bundle complete with accessories supplied	10W transmitter with receiver and all accessory as per Technical Standard Accessory mentioned to be supplied as a single package	(Yes/No)
Training	Mandatory training to be given for a minimum of 20 participants with certification	(Yes/No)
	Training details provided with bid	(Yes/No)
Signal Select/Direction	Positive cable identification and aids the notifications of false or ghost signal as return current path	(Yes/No)
Compass	Direction of true signal with compass	(Yes/No)
Distortion Alert	Ability to warn operator via visual aid of magnetic field distortion from hidden utilities	(Yes/No)
Frequency	Variable frequency range from 16Hz to 200kHz	(Yes/No)
	Minimum 10 frequency available for cable location	(Yes/No)
	Programmable frequency	(Yes/No)
Dual Active Frequency	Ability to transmit 2 frequencies at once	(Yes/No)
Impedance Matching	Automatic impedance matching to optimize output efficiency	(Yes/No)
Internal Data Logging	Ability to record approx. 1000 data points for cable location carried out	(Yes/No)
Internal GPS	Internal GPS in receiver with ability to capture: date, time, GPS coordinate, frequency, depth,	(Yes/No)

	current, signal select, signal direction, distortion and mode of operation	
Software	Upgradeable and user programmable	(Yes/No)
Delivery Lead Time	4weeks after issue of LPO	(Yes/No) (state estimated lead time)
Calibration	Periodic calibration not required or ability to calibrate in-house/remotely without sending equipment back to supplier	(Yes/No) (Provide calibration detail if required)

Technical Criteria - Receiver

CRITERIA		FEA REQUIREMENTS	BIDDERS PRODUCT DETAILS
Receiver	Application	Locating and pinpointing the position of underground/buried cables and capturing GPS data for GIS	(Yes/No)
	Construction	High impact thermoplastic (ABS) injected molded housing	(Yes/No) (State construction material if different)
	Weight	Not exceeding 2.5kg	(Yes/No) (State weight)
	Dimension	To be provided by bidder	
	Display Type	Large display (backlight for night usage)	(Yes/No)
	Antenna	2 x Peak	(Yes/No)
		1 x Null	(Yes/No)
		1 x Compass	(Yes/No)
	Batteries	Rechargeable Lithium-ion batteries with 240V AC mains charger	(Yes/No)
		Replaceable batteries to also be used instead of rechargeable (standard alkaline batteries can be used as backup option)	(Yes/No)
	Wireless Connectivity	Bluetooth – for transmitting of data	(Yes/No)
	External Connectors	1 x socket for accessories port (analogue & digital)	(Yes/No)
		1 x mini USB socket for data transfer/programming	(Yes/No)
		1 x socket for battery charger	(Yes/No)
	Standard Compliance	<ul style="list-style-type: none"> • EN 55011 • EN 61000-4-2: A1 & A2 • EN 61000-4-3 • EN 61000-4-8: A1 • ETSI EN 300 330-2 • ETSI EN 301 489-1 • ETSI EN 301 489-3 	(Yes/No) (State any other standard compliance)
	Standard Accessory	• USB Data Cable	(Yes/No)
		• 240V AC mains charger	(Yes/No)
		• Carry Bag	(Yes/No)
		• User Handbook	(Yes/No)
		• A-frame (general fault finding)	(Yes/No)
• Vehicle charging lead		(Yes/No)	
• Bluetooth module		(Yes/No)	
• Internal/integrated GPS module	(state if any deviation)		

		<ul style="list-style-type: none"> • Correct cable identification clamp/stethoscope 	
	Information Displayed	<ul style="list-style-type: none"> • Signal strength – moving bar graph & numeric value • Mode indication (Peak, Null, Broad Peak, Peak with left/right arrow) • Proportional left/right indication • Compass: full 360° line direction indicator • Plug and play automatic recognition of accessories • Accessory specific custom screen • Line location – depth & current measurement • Gain level (dB) • Frequency and applicable operation selected (Signal Select/Signal Direction) • Battery Status • Speaker volume • Operating frequency • Bluetooth and GPS status • Configuration menu and submenus • Definable startup screen • Magnetic field strength • Signal select field distortion and phase angle • Polarized compass arrow for signal select and signal direction 	(Yes/No) (state if any deviation)
	Configuration	<ul style="list-style-type: none"> • Setup frequency selection by pressing a dedicated ‘frequency button’ • Setup location mode selection by pressing a dedicated ‘mode pushbutton’ • Line location • Unit of measure – meters • Power mode – 50Hz • Sound (pitch) – normal/modulated • Language – English • Continuous depth option • Loudspeaker level • Backlight • Bluetooth pairing • Auto shutdown option 	(Yes/No) (state if any deviation)
	Internal Data Logging	<ul style="list-style-type: none"> • Minimum 500 records 	(Yes/No)

	<ul style="list-style-type: none"> • Following parameters to be stored at each location – depth, current, mode, gain setting, frequency, GPS coordinate, date and time • File to be saved in variable formats - .kml / .txt / .xls / .csv • Data transfer program to be provided by supplier ad no additional cost 	
Operating Frequencies	<ul style="list-style-type: none"> • Configurable frequencies from 16Hz to 200kHz 	(Yes/No)
	<ul style="list-style-type: none"> • Signal Direction at any frequency below 2kHz 	(Yes/No)
	<ul style="list-style-type: none"> • Signal Select for a minimum of 4 available frequencies 	(Yes/No)
Operating Modes / Locating Modes	<ul style="list-style-type: none"> • Auto and Manual Gain 	(Yes/No)
	<ul style="list-style-type: none"> • Peak 	(Yes/No)
	<ul style="list-style-type: none"> • Null 	(Yes/No)
	<ul style="list-style-type: none"> • Broad Peak 	(Yes/No)
	<ul style="list-style-type: none"> • Peak with left/right arrows 	(Yes/No)
Data	<ul style="list-style-type: none"> • Software available for data transfer • Data saving formats: xlx, txt and kml 	(Yes/No)
Locating pinpointing accuracy	<ul style="list-style-type: none"> • 3% of depth for route up to 3meters • 5% of depth for route over 3meters 	(Yes/No) (state accuracy if different)
Depth measurement accuracy	3% of depth	(Yes/No) (state accuracy if different)
Current measurement accuracy	<ul style="list-style-type: none"> • 3% of actual current for route up to 3meters • 5% of actual current for route over 3meters 	(Yes/No) (state accuracy if different)
Depth Range	Minimum of 5mtr depth locatable	(Yes/No) (state maximum achievable)
Sensitivity	<ul style="list-style-type: none"> • Power Mode (50Hz) – 7.5mA • Up to 640hZ - 400µA • Above 640hZ till 8kHz - 40µA • 32kHz and above - 25µA 	(Yes/No) (state if different)
Operating Weather Condition	<ul style="list-style-type: none"> • Up to 50°C • Workable/usable in tropical country climate 	(Yes/No)
Warranty	2years (24months)	(Yes/No)
Software	Upgradeable software via USB port	(Yes/No)

	Weatherproof	IP54 minimum	(Yes/No)
	Internal GPS module	<ul style="list-style-type: none">• Ability to plot coordinates on Google Maps/Earth• Ability to capture accurate coordinate (1mtr accuracy)	(Yes/No) (state GPS accuracy)
	Cable identification	Ability to use locator accessory to correctly identify and confirm target cable in a bundle of cables	(Yes/No)

Technical Criteria - Transmitter

CRITERIA		FEA REQUIREMENTS	BIDDERS PRODUCT DETAILS
Transmitter	Application	<ul style="list-style-type: none"> • 10W Cable locator transmitter • Transmit active signals for location of underground/buried cables 	(Yes/No)
	Construction	<ul style="list-style-type: none"> • High impact thermoplastic (ABS) injected molded housing 	(Yes/No) (state if different)
	Weight	Not exceeding 5kg	(Yes/No) (state max weight)
	Dimension	To be provided by bidder	
	Display Type	LCD display – LED backlight	(Yes/No)
	Power Output	10W maximum	(Yes/No)
	Power Supply	<ul style="list-style-type: none"> • Rechargeable battery pack • Option to use standard alkaline battery • External charger to be supplied 	(Yes/No)
	Battery Life	<ul style="list-style-type: none"> • Minimum 4hours at 10W continuous usage • Minimum 25hours at 1W continuous usage 	(Yes/No) (state if different)
	External Connectors	<ul style="list-style-type: none"> • 1 x 3pin connection socket – XLR • 1 x fuse (output protection) • 1 x USB socket • 1 x socket for battery charger/power 	(Yes/No)
	Output Protection	Protection against accidental momentary connection up to 240V AC	(Yes/No)
	Standard Compliance	<ul style="list-style-type: none"> • EN 55011 • EN 61000-4-2: A1 & A2 • EN 61000-4-3 • EN 6100-4-8: A1 • ETSI EN 300 330-2 • ETSI EN 301 489-1 • ETSI EN 301 489-3 	(Yes/No) (state other standards if complied)
	Standard Accessory	<ul style="list-style-type: none"> • 1 x direct connection lead (XLR plug with 2 cables each minimum 3.5mtrs long with crocodile clips) • 1 x ground lead approx. 10mtrs long • 1 x ground stake • Carry bag 	(Yes/No)

	<ul style="list-style-type: none"> • Rechargeable battery with charger • 12V DC Vehicle power lead • 240V AC power supply • 18" flexible signal select clamp 	
Operating Weather Condition	<ul style="list-style-type: none"> • Upto 50°C • Workable/usable in tropical country climate 	(Yes/No)
Warranty	2years (24months)	(Yes/No)
Software	Upgradeable software via USB port	(Yes/No)
Weatherproof	IP54 and NEMA 4	(Yes/No)
Information Displayed	<ul style="list-style-type: none"> • Current (numeric) • Voltage • Resistance • Frequency of output signal • High voltage warning if voltage on line exceeds 30V AC • Beeper volume • Battery condition icon • Bar graph showing proportion of signal applied • Animation icon confirming connection mode (induction, direction connection or clamp) 	(Yes/No)
Location Modes	<ul style="list-style-type: none"> • Induction – uses internal antenna • Direct connection – uses cable to clip one end to cable directly and another end to earth • Clamp – uses inductive clamp that is placed around the target cable to apply signal 	(Yes/No)
Transmitting Frequency	<ul style="list-style-type: none"> • Induction Mode – variable frequencies from ~8kHz up to 200kHz • Direct Connection Mode – variable frequencies from 100Hz up to 200kHz • Clamp mode – variable frequencies from 16Hz up to 200kHz 	(Yes/No)
Transmitting Power Output	For all frequencies under 45kHz – 10Watts	(Yes/No)

	Maximum Output Voltage	30V/50V RMS	(Yes/No)
	Maximum Output Current	1A RMS constant current	(Yes/No)
	Audio Indication	<ul style="list-style-type: none"> • Connection quality – beep sound indicating quality of signal applied • Low battery warning • Beep to confirm action 	(Yes/No)
	Controls	Pushbutton select for: <ul style="list-style-type: none"> • Frequency • Output level • Information – volts and resistance • Setting – volume, frequency and multi-mode 	(Yes/No)

3. Relevant Standards

All bidders, shall cite relevant standards and submit applicable documents proving and substantiating the compliance of the products in their bids with the relevant standards.

4. Training

Bidders are to include cost of training for 20 participants in Fiji at FEA's Kinoya Depot. The duration of training, with brief overview of topics covered (classroom & practical) shall be given as part of the bid. Moreover, the training is to also include supply of 2 x i7 laptops installed with the cable locator software.

5. Warranty

24 month warranty on the receiver, transmitter and accessories are to be provided. The warranty shall start from the point the training has concluded and the supplier certifies that the supplied equipment is in good working conditions. For this purpose, the training must be held within one month of receiving the equipment by FEA and tested during the training course.

6. User Operation Manual

Complete overview and detail are to be provided for each function, configuration detail and onscreen options.

7. Operating Conditions

Since the Cable Locator will be used to locate routes for Low Voltage and High Voltage Underground Cables (ranging from 240V AC to 33,000V AC) at tropical (fairly humid, rainy and hot) conditions with temperatures ranging from 16 to 50 Degrees Celsius. The nominal frequency of electrical reticulation in Fiji is 50Hz.

The equipment shall be water resistant, dust resistant and deliver exceptional results in both day time as well as night time utilized either indoors or outdoors regardless of terrain.

The range of the distance effectively covered by the Cable Locator shall be up to 10,000 meters (10km).

8. Delivery

All items shall be delivered to Nadi Airport (Fiji) on CIF basis. The bidder must take into account all logistics and costs involved to have the item shipped to Fiji.

9. Period of validity of Goods

9.1 Bids shall remain valid for a period of 90 days after the deadline for the receipt of Bids. A bid valid for a shorter period shall be rejected by FEA as non-responsive.

9.2 In exceptional circumstances, FEA may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing.

10. Bid Currency

Unless otherwise specified, the unit rates and prices shall be quoted by the bidder's country of origin.

The following table must be filled and then returned with the bid. The prices must be valid for a minimum period of 90days.

Description	Quantity	Unit Price (CIF)	Total Price (CIF) to Nadi Airport
10W Transmitter and Receiver with GPS. Inclusive of all accessories specified under 'standard accessory'	6		

Description	Participants	Training Package Price	Price per extra student
Training cost inclusive of all training material/equipment/software	20		

The above table is to be filled and submitted with the bid. Failure to submit price as per CIF terms may result in the bid being rejected for evaluation and award.

11. Company Information

1.	Name of Bidding Company	
2.	Contact Person Name	
3.	Telephone	
4.	Fax	
5.	Email	
6.	Mobile	
7.	Name of Company CEO	
8.	Sales Tax/ Commercial Tax/ CST Nos.	
9.	Service Tax No.	
10.	Income Tax No.	

1.	Name of Authorized Person for bidding	
2.	Signature of Authorized Person	
3.	Company Stamp	

Tender Submission - Instruction to bidders

It is mandatory for Bidders to upload a copy of their bid in the TENDER LINK Electronic Tender Box no later than **1600hrs, Wednesday, 3rd January, 2018.**

To register your interest and tender a response, view 'Current Tenders' at:

<https://www.tenderlink.com/fea>

For further information contact The Secretary Tender Committee, by e-mail

TDelairewa@fea.com.fj

In additional, 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 **1600hrs, Wednesday, 3rd January, 2018.**

Addressed as:

Tender – MR 338/2017 – Supply of Underground Cable Locator Complete with Accessories

**The Secretary Tender Committee
Fiji Electricity Authority
Head Office
Suva
Fiji**

Tenders received after **closing time 1600hrs, Wednesday 3rd January, 2018.**

- Will not be considered.
- Lowest bid will not necessarily be accepted as successful bid.
- It is the responsibility of the bidder to pay courier chargers and all other cost associated with the delivery of the hard copy of the Tender submission.