

### Access Roads Upgrade to 132kV Transmission Towers

#### TENDER SPECIFICATION

The Fiji Electricity Authority (FEA) invites bids from reputable contractors for the upgrade of existing Access Roads to its Transmission Towers on the Wailoa-Cunningham 132,000V Transmission Line. This document serves to define the extent of works to be carried out.

**Compulsory Site Visit** shall be organized by the FEA **on Wednesday 9<sup>th</sup> till Friday 11<sup>th</sup> December 2015**. Interested Bidders are to report **at 08:30hrs at FEA Kinoya Depot**. Bidders shall bring their own 4x4 vehicles for transportation to the site. Trip to the site is about 2 – 3 hours from Kinoya. Site Visits shall be conducted by the Technical Officer Transmission and **attendance shall be compulsory and recorded by FEA and signed by the interested bidders**.

#### SCOPE OF WORKS

The following is the scope of works for the restoration of 132kV Transmission Line Tower Access Roads:

1. **First-Cut:**
  - a. Bulldoze and clear a minimum 5000mm wide access road carriageway on along the existing route, as shown during the site visit, removing and disposing all vegetation.
  - b. Install culverts where required. Culverts shall be supplied by the FEA, delivered to the entrance of the access road jobsite. Contractor shall request the culverts from the FEA Project Manager in writing (including the desired sizes), at least 3 weeks prior to the utilization of the culverts.
  - c. Minor Diversions and re-routing of the existing access road may be required based on existing site conditions, and these works shall be executed at zero additional cost.
  - d. FEA 4x4 vehicles shall start occasional utilizing the road after the “First Cut” to carry out line maintenance works on the 132kV Transmission Line Towers.
2. **Crowning & Coning of Carriageway:** Carry out crowning / coning along the entire length of the access road carriageway. Crowned / Coned access road carriageway shall be a minimum of 5000mm wide. The typical carriageway cross section shall have minimum 5% to 10% slopes (crowning / coning), from the center line to both the edges, for immediate water drainage to the side edge drains. For those sections of the carriageway where one edge is higher than the other, then the above mentioned slopes shall be applicable from one edge to another. The carriageway surface shall be free of any mud and loose soil.
3. **Side Edge Drains:** Side Edge drains shall be formed running along both sides of the access road carriageway, wherever possible and as and were required and shall be provided throughout the entire length of the access road carriageway to drain water away from the access road carriageway, to a low point and discharged into an existing river or creek. All drains shall be formed in a manner to keep the water table lower than the carriageway and its edge drains. Soil excavated to form the edge drains shall not be put on the access road carriageway. Excavated soil shall be placed in such a manner that it does not wash back into the drains and/or the access road carriageway. The side edge drains shall smoothly integrate with the access road carriageway, and should not be a sudden/steep vertical drain. This shall ensure that any vehicles which accidentally slip into the drain can be easily towed out. Side Edge drains shall not encroach into the 5000mm wide access road carriageway, and shall be formed outside the carriageway boundary. Drainage costs/prices quoted by the bidders shall include the construction of new drainage and soil batter cutting/forming as and where required. The bidders shall verify for themselves, the quantities of new drainage, existing drainage and side batter

cutting/forming during the site visits. Separate rates shall not be provided for de-silting existing drainage and cutting/forming new drainage and side batter slopes. Bidders to provide one unit rate for all drainage works entailed on a per meter and lump sum basis as per the pricing schedule below.

4. **Soft-Spots Treatment (OPTIONAL Item):** Occasionally, along the access road, soft spots may be encountered and it may not be practical or possible to divert or re-route the access road around the soft spot area. These soft spot areas may be marshy and boggy, soft soil areas with a high soil entrapped water content and soggy soil which is not hard enough to form an access road over. Such areas if encountered shall be remedied as follows:
- Excavate and remove all soft material to 1m below the finished road level,
  - Install 5000mm to 7000mm wide layer of geotextile (Bidim A39 or equivalent).
  - Spread and compact a 700mm deep layer of crushed rock of maximum size 200mm.
  - Spread and compact a 300mm deep layer of AP75 crushed rock or FEA engineer approved river gravel.
  - Compaction shall be carried out in 150mm deep layers. Compaction may be carried out utilizing multiple passes of Bulldozer Track and Bulldozer towed roller, provided the bulldozer and roller weight meets or exceeds 20,000 kilograms minimum weight requirement. Proof rolling and Vibrational Roller-Compactors may be mandated and required if deemed necessary by the FEA. Bidders shall provide a unit rate for vibrational roller compactors. Compaction shall be subject to testing and approval by the FEA. Independent third party testing by a mutually recognized independent third party may be carried out at the cost of the contractor if required, due to differences in FEA and contractor opinion. Relevant industry standard testing shall be carried out as per ASTM and AASHTO standards. Other internationally recognized applicable testing standards may be utilized, if deemed necessary.

*Modus Operandi: The optional Soft-Spot treatment areas shall be identified by the contractor during the First-Cut stage of the project. The contractor shall notify the FEA Project Manager, when such Soft-Spot areas are identified. The FEA Project Manager / Engineer shall inspect and clearly peg and measure and indicated the route and length of the access road where the optional Soft-Spot treatment is required. A separate purchase order shall be issued by the FEA for the execution of these works. The contractor shall not commence the optional soft spot treatment, without FEA's consent and approval and issuance of a purchase order for the same. Bidders shall provide a unit rate for this optional Soft-Spot treatment as required by the below-mentioned price schedule.*

5. **Steep & Slippery Sections Treatment:** Occasionally, along the access road, extremely Steep and Slipper Sections spots may be encountered and it may not be practical or possible to divert or re-route the access road around these Steep & Slippery areas. To improve vehicular traction and to provide driving safety, the following Steep & Slippery Sections Treatment shall be carried out:
- Spread and compact a 150mm layer deep of AP-75 crushed rock / crushed metal or FEA Project Manager / Engineer approved river gravel. The width of the soft spot treatment area shall be **4000mm** wide (fully compacted 150mm deep layer of AP-85). The AP75 Crushed Rock or River Gravel shall be purchased and supplied by FEA.
  - Based on site conditions the FEA may or may not mandate the contractor to install 5000mm wide layer of geotextile (Bidim A39 or equivalent) prior to the spreading and compaction of AP-85 crushed rock/metal of river gravel. Bidders shall provide unit rates for the same.
  - Compaction shall be carried out in 150mm deep layers. Compaction may be carried out utilizing multiple passes of Bulldozer Track and Bulldozer towed roller, provided the bulldozer and roller weight meets or exceeds 20,000 kilograms minimum weight requirement. Proof rolling and Vibrational Roller-Compactors may be mandated and required if deemed necessary by the FEA. Bidders shall provide a unit rate for vibrational roller compactors. Compaction shall be subject to testing and approval by the FEA. Independent third party testing by a mutually recognized independent third party may be carried out at the cost of the

contractor if required, due to differences in FEA and contractor opinion. Relevant industry standard testing shall be carried out as per ASTM and AASHTO standards. Other internationally recognized applicable testing standards may be utilized, if deemed necessary.

- d. **FEA Shall provide the required construction materials such as Geotextile Fabric, AP75 Crushed Rock, Culverts etc delivered to Access Road Entrance i.e. Stockpile Site. Bidders are to exclude the cost of purchasing these materials. The Cartage of the materials within the access roads shall be at the sole cost of the bidder/contractor.**

*Modus Operandi: The optional Steep & Slipper Sections treatment areas shall be identified by the contractor during the First-Cut stage of the project. The contractor shall notify the FEA Project Manager, when such Steep & Slipper Sections areas are identified. The FEA Project Manager / Engineer shall inspect and clearly peg and measure and indicated the route and length of the access road where the optional Steep & Slipper Sections treatment is required. A separate purchase order shall be issued by the FEA for the execution of these works. The contractor shall not commence the optional Steep & Slipper Sections treatment, without FEA's consent and approval and issuance of a purchase order for the same. Unit rates for Steep & Slipper Section Treatment shall apply on purchase orders and contractor's deliverables on a per Square Meter Road Surface Area basis.*

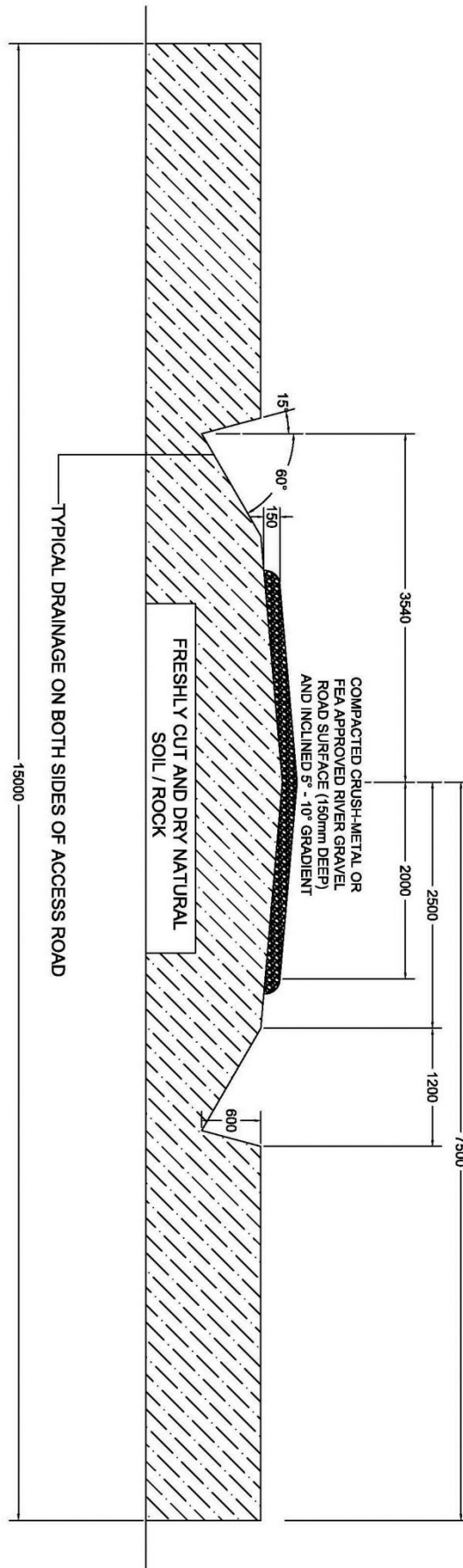
6. **Side Parking & Pass Zones (OPTIONAL Item):** Along every 500m interval, or as deemed necessary and required by the FEA, Side Parking & Pass Zones shall be provided along the route of the access road. In such Side Parking & Pass Zones, the access road carriageway shall be 10m wide, such that, vehicles may park and/or cross and/or pass each other in a safe manner. The length of the 10,000mm wide Side Parking & Passing Zone shall be 20,000mm. Bidders shall provide a unit rate for the construction of the same.
7. **Side Vegetation Clearing (Optional Item):** Cut and clear any vegetation along the edges of the access-way, to the extent of 7500mm from the centerline of the access road carriageway. Vegetation clearing shall be carried out by trained and qualified persons, such as ministry of forestry trained and certified chainsaw operators. All trees and vegetation within falling distance of the access road, that may have the tendency to block the access-way after inclement weather events shall also be cleared, as required and deemed necessary and instructed by the FEA Project Manager to the contractor, at zero additional cost.

### NOTES:

1. Schematic drawings for scope of works to be carried out shall be provided on the day of the site visit.
2. Bidders are to provide proof of ownership of machinery and equipment, such as LTA registration and third-party documents, and photographs of each machinery and equipment intended to be used on the project. If bidders intend to hire machinery and equipment from other parties, then bidders are to submit quotations for the same, together with LTA registration and third-party documents, and photographs of each hired machinery and equipment intended to be used on the project.
3. FEA desires the contractor to execute the works in an efficient and optimized manner to complete the works in the minimum possible timeframe. Multiple Works can be and shall be executed simultaneously. For example, One bulldozer can be carrying out the First-Cut, second bull dozer can be following the first and carrying out the Crowning & Coning, and one or more excavator(s) can be following behind carrying out the drainage and culvert installation works. The FEA desires the contractor to work 7 days a week if possible, and 6 days a week minimum in the worst case, and fully utilizing the entire day's daylight, if possible. Works shall be responsibly carried out by the contractor with minimal FEA supervision. For the purpose of this contract, the FEA mandates supervision when the contractor is working within 50m proximity of the FEA's Transmission Towers.
4. Liquidated Damages (LD) for delays in completion of works shall apply across each item defined in the scope of works. LD shall be applicable at the rate of 1% per day up to a maximum of 15%. The FEA shall consider loss of productive days due to inclement weather and other force majeure events, as defined by FIDIC Guidelines. The following time-frame shall be utilized for each item defined in the scope of works:

Workscope Item	Quantity	Contractual Timeframe for completion
First Cut of Access Road Carriageway	Per 1km	4 Calendar Days
Crowning & Coning of Access Road Carriageway	Per 1km	2 Calendar Days
Side Edge Drains (both sides of access road carriageway)	Per 1km	2 Calendar Days
Steep & Slippery Section Treatment	Per 1km	7 Calendar Days
Side Parking and Pass Zones	Per Place	1 Calendar Day
Side Vegetation Clearing (both sides of access road)	Per 1 km	3 Calendar Days

5. Landowners Consents and Sevusevu: The FEA shall liaise with the Landowners as and where required, and the contractor must seek and follow FEA guidance and accompaniment to observe the required traditional protocols of the land, as and where required. The cost of Yaqona for Sevusevu shall be borne by the contractor.



### AREA AND EXTENT OF WORKS:

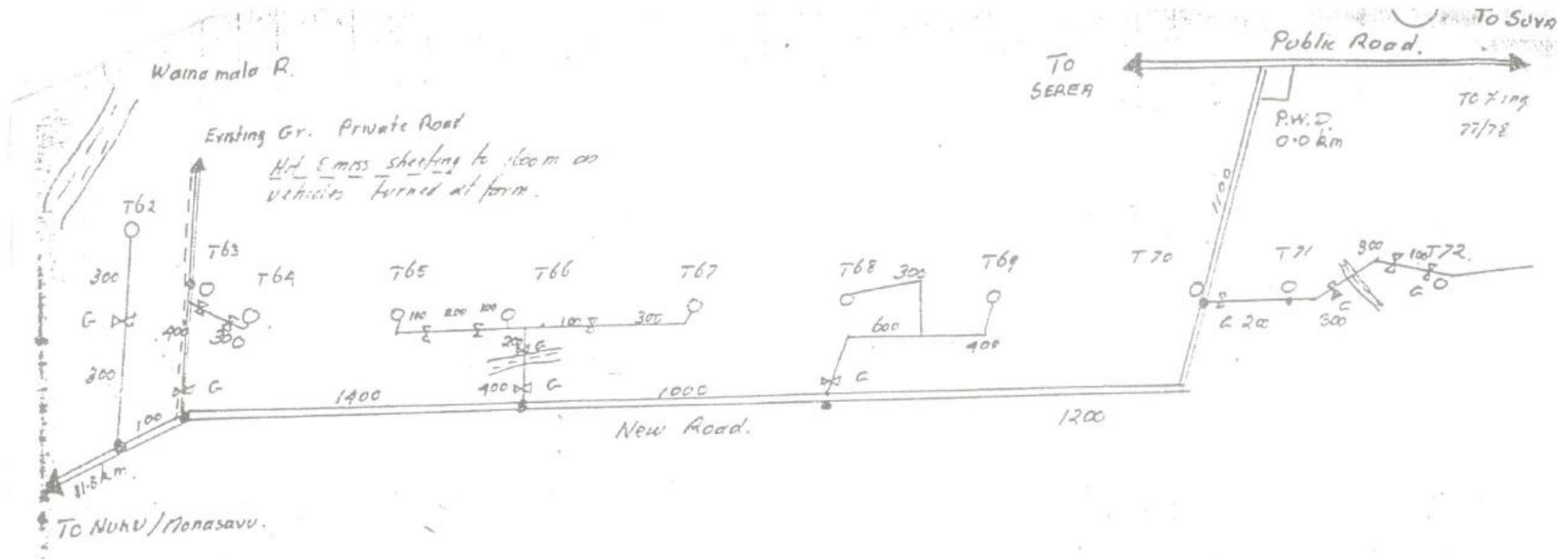
#### 1. STAGE A: T62 TO T88

- a. Track 1: T62
- b. Track 2: T63, T64
- c. Track 3: T65, T66, T67
- d. Track 4: T68, T69
- e. Track 5: T70
- f. Track 6: T71, T72, T73
- g. Track 7: T74, T75
- h. Track 8: T76
- i. Track 9: T77
- j. Track 10: T78
- k. Track 11: T79
- l. Track 12: T80, T81, T82
- m. Track 13: T83, T84
- n. Track 14: T85
- o. Track 15: T86
- p. Track 16: T87
- q. Track 17: T88

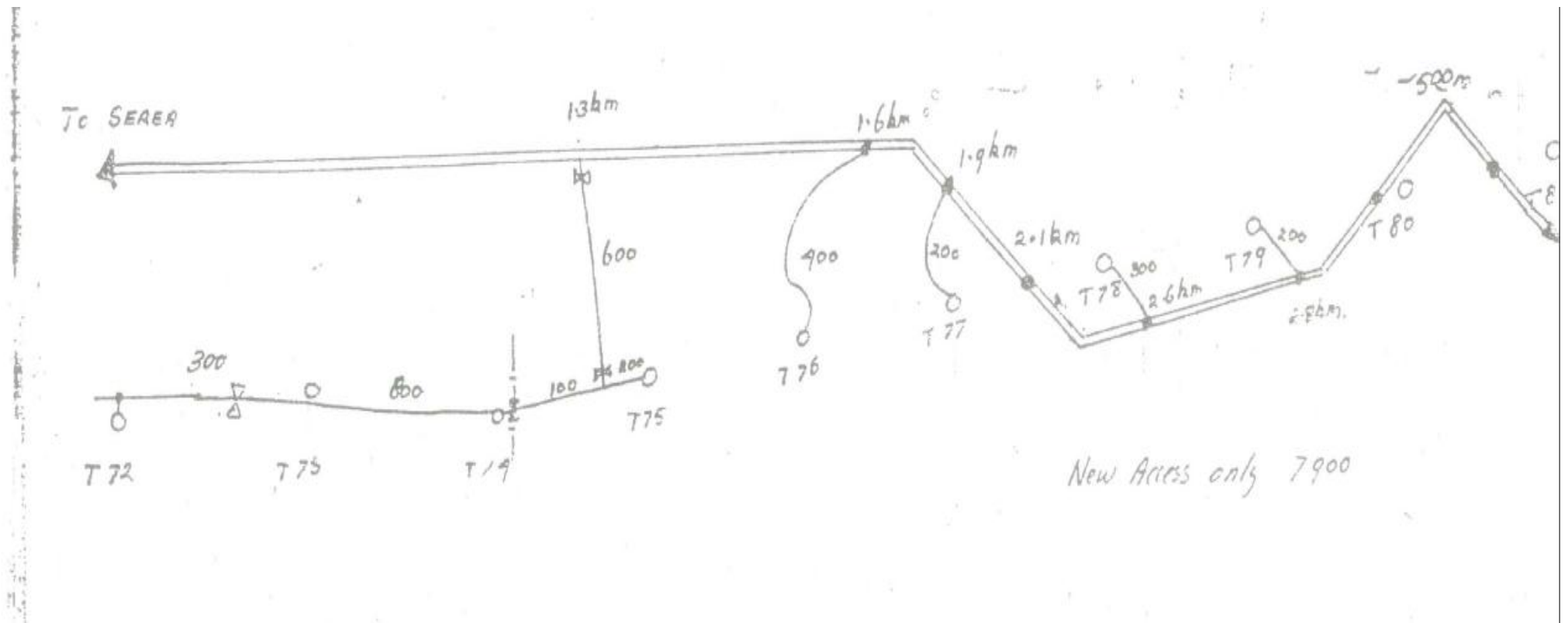
#### 2. STAGE B: T89 TO T97

- a. Track 1: T89, T90, T91, T92, T92A, T93
- b. Track 2: T94, T95
- c. Track 3: T96, T97

### TOWER LOCALITY DRAWINGS

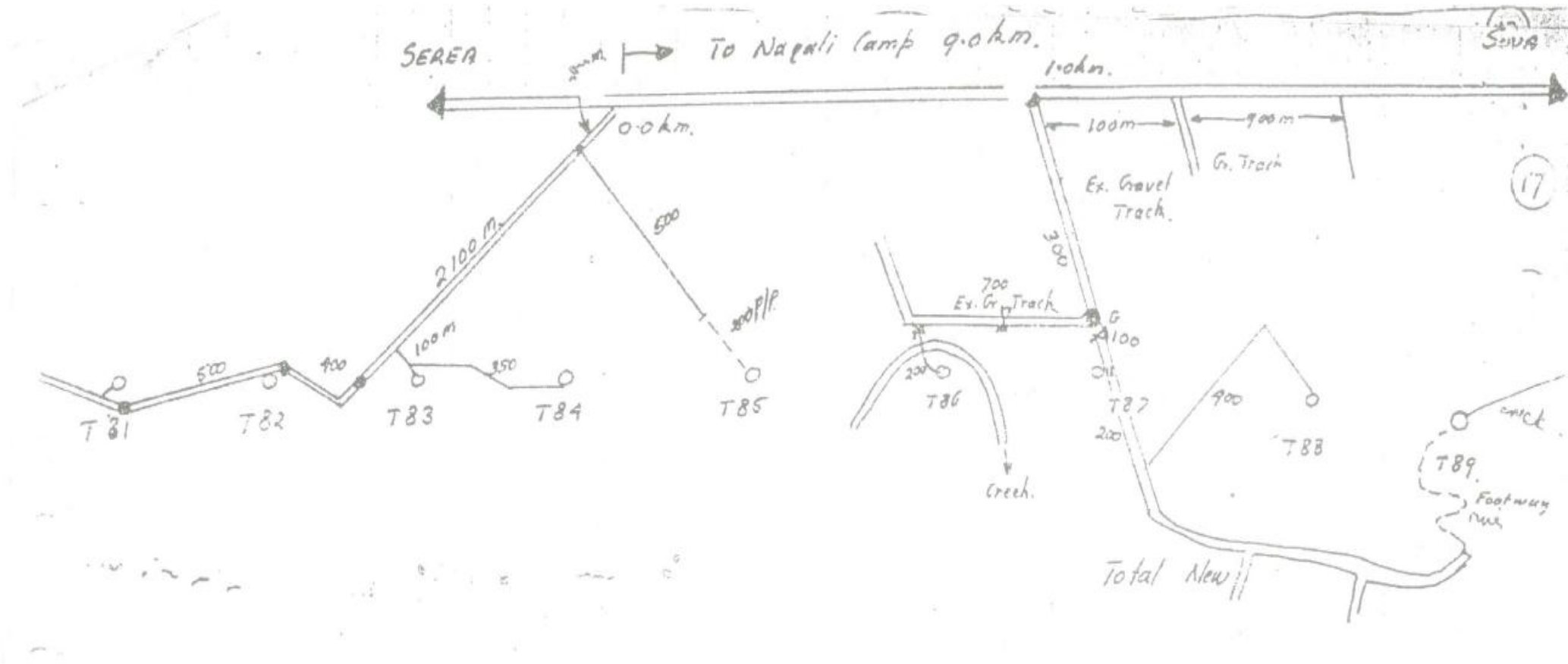


**TOWER LOCALITY DRAWINGS**

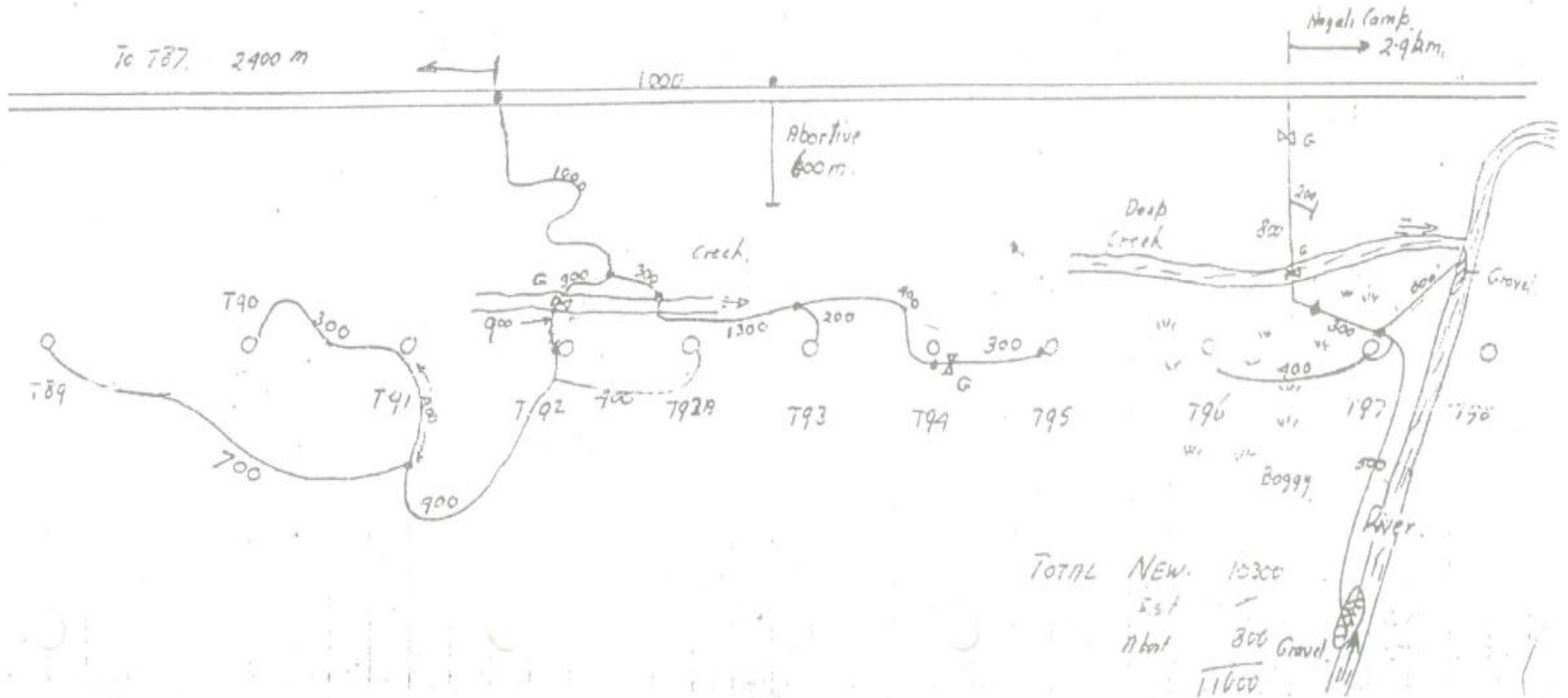




**TOWER LOCALITY DRAWINGS**



**TOWER LOCALITY DRAWINGS**



<b>Stage A: Access Road to Towers 62 to 88</b>			
<b>S.N.</b>	<b>Tower Numbers</b>	<b>Approximate Quantity of Works</b>	<b>Area Name</b>
1.	62	1.Total Anticipated Access Road Carriageway Length = 10.75km 2.Total Anticipated Drainage = 10.75 X 2 (both sides of access road as and where required) 3. Culvert requirements to be determined during construction works  NOTE: ALL LENGTHS / QUANTITIES ARE APPROXIMATE AND SUBJECT TO VERIFICATION AND FINALIZATION BY BIDDERS DURING SITE-VISIT AND PRIOR TO BID DEADLINES  Note: T70, T80, T81, T82 and T87 are located besides the main road	Tailevu, Serea, Navuaकेce, Bull Station
2.	63		
3.	64		
4.	65		
5.	66		
6.	67		
7.	68		
8.	69		
9.	70		
10.	71		
11.	72		
12.	73		
13.	74		
14.	75		
15.	76		
16.	77		
17.	78		
18.	79		
19.	80		
20.	81		
21.	82		
22.	83		
23.	84		
24.	85		
25.	86		
26.	87		
27.	88		
<b>Stage-B: Access Road to Towers 89 to 97</b>			
<b>S.N.</b>	<b>Tower Numbers</b>	<b>Approximate Quantity of Works</b>	<b>Area Name</b>
1.	89	1. Total Anticipated Access Road Carriageway Length = 7.9km 2. Total Anticipated Drainage =7.9 X 2 (both sides of access road). 3. Culvert requirements to be determined during construction works  NOTE: ALL LENGTHS / QUANTITIES ARE APPROXIMATE AND SUBJECT TO VERIFICATION AND FINALIZATION BY BIDDERS DURING SITE-VISIT AND PRIOR TO BID DEADLINES	Bull Station, Waidra, Naqali
2.	90		
3.	91		
4.	92		
5.	92A		
6.	93		
7.	94		
8.	95		
8.	96		
9.	97		

### **BIDDER'S PRICE SCHEDULES**

- (i) Bidders are to compulsorily complete and submit the following price breakdown schedule for each stage, as per the following tables.
- (ii) Bidders shall submit any and all additional costs anticipated to be associated with the execution of the project.

**Table # A.1: STAGE-1 PROJECT COST SUMMARY**

**Stage-A : Access Road to Towers 62 to 88**

Approximate Access Road Route Length:					10.75km
S.N.:	Scope of Work as defined in Tender Specification	Unit of Measurement	Bidder's Unit Rate FJD \$ (VEP)	Anticipated Quantity (Verified by Bidder during Site Visit)	Lump Sum Price FJD \$ (VEP)
1.	<b>First Cut</b>	meters		10,750m	
2.	<b>Crowning &amp; Coning</b> of Carriageway as per tender specification	meters		10,750m	
3.	<b>Side Edge Drains</b> as per tender specification (Both sides of access road carriageway as and where required)	meters		21,500m	
4.	<b>Slippery/Steep Sections</b>				
	<b>Installation of Geotextile fabric (5m wide rolls of variable length)</b> <b>Note:</b> Geotextile fabric shall be purchased and supplied by FEA, delivered to site stockpile (Access Road Entrance)	meters		10,750m	
	Cartage of AP75 crushed rock from Access Road Site stockpile along Access Road for spreading. (1000 Cubic meters per Kilometer) <ul style="list-style-type: none"> <li>• Include Cost of Machinery (Excavator / Loader) for Loading AP75 onto trucks for Cartage along Access Road.</li> <li>• Include Cost of Trucks used for the Cartage of AP75 crushed rock from site stockpile along Access Road</li> </ul>	1000 Cubic meters per Kilometer		10,750 cubic meters for 10,750m long access roads	
	Cost of Machinery (Excavator / Bulldozer / Grader) for Spreading of AP75 Crushed rock on Access Road	1000 Cubic meters per Kilometer		10,750m	
	Cost of Machinery (Vibrational Roller) for Compaction of AP75 Crushed rock on Access Road	1000 Cubic meters per Kilometer		10,750m	
5.	<b>Side Parking &amp; Pass Zones (Optional Item)</b>	Each Instance			
6.	<b>Side Vegetation Clearing (Optional)</b>	meters			
7.	<b>Soft – Spots Section Treatment (Optional)</b>	meters			
<b>STAGE A TOTAL:</b>					
<b>FJD \$ (VEP)</b>					

**Table # B.1: STAGE-1 PROJECT COST SUMMARY**

**Stage-B : Access Road to Towers 89 - 97**

Approximate Access Road Route Length:					7.9km
S.N.:	Scope of Work as defined in Tender Specification	Unit of Measurement	Bidder's Unit Rate FJD \$ (VEP)	Anticipated Quantity (Verified by Bidder during Site Visit)	Lump Sum Price FJD \$ (VEP)
1.	<b>First Cut</b>	meters		7,900m	
2.	<b>Crowning &amp; Coning</b> of Carriageway as per tender specification	meters		7,900m	
3.	<b>Side Edge Drains</b> as per tender specification (Both sides of access road carriageway as and where required)	meters		15,800m	
4.	<b>Slippery/Steep Sections (Optional)</b>				
A.	<b>Installation of Geotextile fabric (5m wide rolls of variable length)</b> <b>Note:</b> Geotextile fabric shall be purchased and supplied by FEA, delivered to site stockpile (Access Road Entrance)	meters		7,900m	
	Cartage of AP75 crushed rock from Access Road Site stockpile along Access Road for spreading. (1000 Cubic meters per Kilometer) <ul style="list-style-type: none"> <li>• Include Cost of Machinery (Excavator / Loader) for Loading AP75 onto trucks for Cartage along Access Road.</li> <li>• Include Cost of Trucks used for the Cartage of AP75 crushed rock from site stockpile along Access Road</li> </ul>	1000 Cubic meters per Kilometer		7,900 cubic meters for 7,900m long access roads	
	Cost of Machinery (Excavator / Bulldozer / Grader) for Spreading of AP75 Crushed rock on Access Road	1000 Cubic meters per Kilometer		7,900m	
	Cost of Machinery (Vibrational Roller) for Compaction of AP75 Crushed rock on Access Road	1000 Cubic meters per Kilometer		7,900m	
5.	<b>Side Parking &amp; Pass Zones (Optional Item)</b>	Each Instance			
6.	<b>Side Vegetation Clearing (Optional)</b>	meters			
7.	<b>Soft – Spots Section Treatment (Optional)</b>	meters			
<b>STAGE B TOTAL:</b>					
<b>FJD \$ (VEP)</b>					

<b>Table # C.1: INSTALLATION OF CULVERTS AND HEADWALL CONSTRUCTION (OPTIONAL)</b>				
<b>S.N.:</b>	<b>Scope of Work as defined in Tender Specification</b>	<b>Unit of Measurement</b>	<b>Bidder's Unit Rate FJD \$ (VEP)</b>	<b>OPTIONAL Construction of Concrete Head Wall of appropriate size as per culvert size, to FRA / DNR Specifications.</b>  <b>Bidder's Unit Rate FJD \$ (VEP)</b>
1.	<b>Culvert Installation</b>			
	300mm Dia x 2.44m Long x 3 pieces	Each Instance		
	600mm Dia x 2.44m Long x 3 pieces	Each Instance		
	900mm Dia x 2.44m Long x 3 pieces	Each Instance		
	1200mm Dia x 2.44m Long x 3 pieces	Each Instance		
	1500mm Dia x 2.44m Long x 3 pieces	Each Instance		
	1800mm Dia x 2.44m Long x3 pieces	Each Instance		

**Note: Culverts and other materials shall be purchased and supplied by FEA.**

### **BID DOCUMENTS SUBMISSIONS**

**This tender closes at 4.00pm (16:00hrs Fiji Time) on Wednesday 23<sup>rd</sup> December, 2015.**

It is mandatory for bidders to submit **two (2) hard copies** of tenders in sealed envelopes.

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

The envelope bearing only the following marking:

**Tender – MR192/2015 – Access Roads Upgrade to 132kV Transmission Towers**

The Secretary, Tender Committee  
Fiji Electricity Authority

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 of the envelope will be returned to the Tenderers.**

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

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