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TENDER FORM

The Chairman – Tender Opening Committee
PNG Power Ltd
P. O. Box 1105
BOROKO 111 NCD
Papua New Guinea
Phone: (675) 324 3381
Fax: (675) 3250791
Email: supplyhelpdesk@pngpower.com.pg

We (Full name of company).....
.....
.....
.....

hereby tender for the undermentioned goods and services subject to the conditions of tendering and at the prices quoted in the scheduled therein

TENDER No. **07/2019**

CLOSING AT 4.00 PM FRIDAY 08TH MARCH 2019

FOR **FOR THE SUPPLY & CONSTRUCTION OF REINFORCED CONCRETE WALL STORM WATER DRAINAGE & BACKFILL WITH SELECTED MATERIALS TO TOWER 30 OF LINE 536 LOCATED AT 6MILE SARAGA, PORT MORESBY.**



TOWER:60 of line 536 basement or foundation protection specs: 01019

File: 003

CIVIL WORKS SPECIFICATIONS

TECHNICAL REQUIREMENTS

PURPOSE: DESIGN & CONSTRUCTION OF REINFORCED CONCRETE RETAINING WALL, DRAINAGE & BACKFILLMENT TO TOWER NO. 60 OF LINE 536.

LOCATION: AT 6MILE SARAGA,ALONG THE BACKROAD LEADING TO BAUTAMA FROM SIX MILE, PORT MORESBY, NCD

FOR: TOWER PROTETION PROJECT - PNG POWER LIMITED

22/ January/2019

1. SCOPE OF SUPPLY

This work shall consist of design, assembling, and construction of reinforced concrete retaining wall, drainage works, earth works and backfill with selected materials with recommended compaction along the tower base. Onsite Supervision by an engineer from PPL Civil Team including other necessary drawings and specifications such as Department of Works (DOW) Specifications of Roads & Bridges are part of this SOW

2. PURPOSE OF THE WORKS

Due to heavy rainfall experienced, the basement and the foundation of the tower is severely threatened by erosion and slip at the bottom which is resulting in foundation failures and subsequently the tower will collapse. Therefore, the reinforced concrete retaining wall and drainage with backfill will protect further erosion and prevent tower from falling.

3. LOCATION

The tower is located at 6 Mile Saraga, Outside of Port Moresby which carries line 653 from Rouna to 6 mile Substation, Port Moresby, National Capital District.

4. SCHEDULE & PRELIMINERIES

4.1 GENERAL

The contractor shall carry out the works as detailed in the drawing and or inferred in this specification.

4.2 DESCRIPTION OF WORKS.

The works specified in this specification shall consist of construction of Reinforced Concrete retaining wall to tower 60 of line 536. In brief works shall consist of the following but not limited to:

- Mobilization & Demobilization of plants, equipment and workmen to site
- Site development including leveling, filling & compacting of tower foundation area about 20m away from the desired height.

- Supply and construction of 30m length × 10m high reinforced concrete retaining wall at the base face of the tower.
- Reinforcement must be done with SL72 mesh fabric centrally placed so that the retaining wall must be firm and strong.

4.3. STANDARDS & WORKMANSHIP

All works shall be carried out to the accepted standard practices, local authority regulations and the relevant PNG, Australian and or New Zealand Standards. The contractor shall be wholly responsible for the setting out, the accuracy and quality of his works. Superintendent/Engineer's inspection of the works shall not be deemed as acceptance of the error. Corrections relating to such defects shall be made at the contractors own expense.

4.4. SITE INSPECTION

Prior to lodging bids, bidders must inspect the site to fully inform themselves of the conditions. This includes confirmation of measurements and identify any additional works required that may have been overseen by the Engineer/Superintendent. Bidders should then advice the Engineer/Superintendent during the tendering phase to have the works included in the scope and as their separate component in their bid.

4.5. SAFETY REQUIREMENT

The Contractor shall ensure that all Work Place Safety Standards and requirements are adhered to when carrying out his works. All accidents shall be reported to the Engineer/Superintendent. PNG Power shall bear no liability for any accidents due to the contractor's negligence.

4.6. USE OF SECOND HAND MATERIALS

No second hand materials shall be used in the works except where indicated in the specification or shown on the drawings or unless they have been inspected and approved by the Engineer/Superintendent. Any materials reused shall be finished to "as new" condition.

4.7. TRANSPORT TO SITE

The Contractor is responsible for the transport of all materials and manpower to and from site.

4.8. DURATION OF THE PROJECT

All required works shall be completed in eight (8) weeks from the date of Possession of Site given in the Letter of Acceptance.

4.9. TERMS OF PAYMENT

As specified in point 7 of this specification.

4.10. POSSESSION OF SITE

The date of Possession of Site will be stated in the Letter of Acceptance. The Contractor shall be given such possession of site as is considered necessary to carry out these works but such possession shall not be deemed to mean exclusive possession.

5. CONSTRUCTION DETAILS

5.1. FOUNDATION PREPRATION

The foundation on which the reinforced concrete Retaining Wall are to be constructed shall be cut or filled and graded to the lines and grades shown on the drawings or as directed by the supervising engineer. Surface irregularities, loose materials, vegetation and all foreign matter shall be excavated and be removed from foundation surface area. When fill is required, it shall consist of materials conforming to the specified requirements. Retaining wall shall not be constructed until the foundation preparation is completed and the sub-grade surfaces have been inspected and approved by the engineer's representative or site engineer.

5.2. COMPLIANCE WITH STANDARDS

All works specify under this specification shall conform to the following standards:

- a) Department of Works (DoW) Specification for Road and Bridge Works – 1995
- b) AS/NZS 4671:2001. Steel Reinforcing Materials
- c) AS3600:2001. Concrete Structures
- d) AS 1554, Part 3: 2002. Structural Steel Welding – Welding of Reinforcing Steel

6. TOOLS AND EQUIPMENT

All tools and equipment that will be used shall not be limited to the following:

- a) Excavator
- b) 10 cu.m/6 cu.m/ 4cu.m/2 cu.m dump truck(s)
- c) Walker Packer
- d) And all other necessary tools for the construction of works specified in this specification must be made available for the satisfactory completion of works.

7. TERMS AND CONDITIONS

7.1. SUPPLY AND DELIVERY

A suitable Dispatch schedule will be confirmed with PNG Power before Confirmation of Order.

For budget purposes please allow approximately **20 – 24 Working Weeks Ex-Works**, from *receipt of confirmed, fixed and final, specifications*. Should this quoted delivery period be not satisfactory, please do not hesitate to contact us for our further consideration.

Delivery estimate is made in good faith with regard to the current manufacturing programs and reasonable assumption on your

requirements. Slight variations to these estimates may occur over the period leading up to your order, but will be confirmed within 4 weeks of your order as to the exact delivery expectation.

7.2. PAYMENTS

Subject to negotiation however our preferred method of payment would be by means of a confirmed irrevocable letter of credit (CILC), to be established at the time of order from a vendor approved banking facility and shall allow for the following progress payments:

- 25% Down payment with your mobilization invoice and set up.
- 25% Payment for submission of drawings and confirmation of items as per scoped and foundation works.
- 40% Completion of construction of the Protection works & retaining wall to the tower foundation.
- 10% Final payment completion and commissioning and demobilization.

7.3. WARRANTY PERIOD

The foundation offers a defects liability period of 12 months from delivery from commissioning whichever is earlier. The mandatory defects liability period shall be the basis for payments and releases of securities.

CONTACT PERSONS

Forward your requests regarding clarification and or additional information should be directed to;

Mr. Jonah Kinta on Email: jkinta@pngpower.com.pg

Mr. Luke Malemba on Email: lmalemba@pngpower.com.pg

SUPPLY/TENDER

Supplier to submit Quote to:

Tenders Committee

PNG Power Ltd

P.O. Box 1105 BOROKO, NCD, Papua New Guinea

Email: supplyhelpdesk@pngpower.com.pg

Submission of quote/tenders shall be one (1) week. Quotations received after the closing date will not be considered.



PNG POWER Ltd

Report for Tower Foundation For
Towers 57,59 & 60 of line 536
Located at 6mile, Saraga Port
Moresby, NCD.

CIVIL TEAM, TRANSMISSION &
DISTRIBUTION

Complied by : Jonah Kinta

A handwritten signature in black ink, appearing to read 'Jonah Kinta'.

Civil Specialist Engineer

16th of January, 2019



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1. INTRODUCTION

The purpose of this report is to show the conditions of Towers 58,59 & 60 of Line **536** which carries 66kv from the Rouna To Boroko Substation after the massive rainfall which Port Moresby has ever experienced days after the new year of 2019.

These towers pass through the ATS back road to 6mile Saraga area. However, due to the massive rainfall has affected the foundations of these 3x towers along the chain as they sit right on a newly excavated or open cut road recently constructed which leads from Saraga to Boutama . The site visit was conducted by Civil Specialist Jonah Kinta and Graduate Engineer, Janson Wakma on the12/01/2019.

2. CONDITION OF EACH TOWER

I. Tower 57 of Line 536

Location: 6mile Saraga

Current Condition: This specific tower was badly affected by the heavy rainfall. Its foundations were either sink or eroded. A selected fill materials is required urgently to stronger compaction, drainage construction and a 30m reinforcement of concrete wall is recommended.

Photos Of Tower 57.





II. Tower 59 of Line 536

Protection to Tower 59 foundation was a bit of an urgent problem to its foundation due to its location which is very close to fall. This specific tower is badly affected by the newly road construction and its some 2-3 meters away from the slope. Due to the recent rain more slips happened threatened the based of the tower. The construction of a reinforced concrete wall is highly recommended and backfill of selected materials and drainage to cater for storm water.

Photos of tower 59



Reinforced concrete wall is recommended and Backfill of selected materials required with storm water lined.



III. Tower 60 of Line 563

Protection to Tower 60 foundation is also urgent due to its location which is very close to fall. This specific tower is badly affected by the newly road construction and is some 2-3 meters away from the slope. Due to the recent downpour of rain more slips happened threatening the base of the tower. The construction of a reinforced concrete wall is highly recommended and backfill of selected materials and drainage to cater for storm water.





3. SUMMARY TABULATED

Tower No.	Condition	Tendency of falling within the next 6-12months	Remarks
Tower 57 of Line 563	Badly affected at foundation	90-100%	Protection works should commence immediately
Tower 59 of Line 563	Badly affected at foundation	90-100%	Protection works should commence immediately
Tower 60 of Line 563	Badly affected at foundation	90-100%	Protection works should commence immediately

4. ECONOMIC JUSTIFICATION

There is one transmission line, namely 563, that transport power from Rouna to 6mile Substation inside Port Moresby. If Tower 57, 59 & 60 of line 563 collapses due to unattended protection works other towers would also collapse as well therefore Lines 563 will not transmit power.

It would take four weeks to construct a bypass and restore power. Assume that the shortfall can be supplied by thermal generation and the cost of diesel generation is. Additionally the cost of constructing one single is about K500,000.00 - K600,000.00 depending on the site conditions. Therefore it is technically and economically beneficial to undertake proactive maintenance urgently.

5. CONCLUSION & REMARKS

Urgent scope of protection works should be commenced and approvals should be given for works to commence. Management should also budget for the following towers protection works

as these towers are of pivotal in supplying power to the National Capital District and Port Moresby.