



## **SCOPE OF WORK AND SPECIFICATIONS**

### **Supply and installation of clear vu fence at Florida and Roodepoort distribution substations**

#### **1. COMPULSORY REQUIREMENTS:**

*The following schedules shall be returned with the tender document which shall be evaluated:*

- *CIDB grading of 4 SQ or higher*
- *Requirements as per the technical functionality*

#### **2. SAFETY REQUIREMENTS:**

*All work in this contract shall comply with the Occupational Safety Act, 1993 (Act No: 85 of 1993). These items shall all be included in the tendered rates. A copy of the act as well as an approved safety file shall be kept on site for the duration of the project.*

#### **3. General**

- The contractor is required to supply and install the equipment as specified on the below BOQ.

#### **4. Subcontracting**

4.1 The Contractor shall not make use of any sub-Contractor to perform the works or parts thereof without prior permission from the Project Manager.

#### **5. Health and Safety**

5.1 The contractor shall be responsible for the safety of personnel on site; a detailed safety plan shall therefore be submitted by the appointed contractor upon award.

The safety file requirements are provided to assist the tenderers to cater for the safety aspects.

5.2 The site access certificate shall only be issued (to the successful bidder) after the evaluation and approval of the safety file.

5.3 The Contractor shall comply with all applicable legislation and Metrorail's safety requirements adopted from time to time and instructed by the Project Manager / Technical Officer. Such compliance shall be entirely at his own cost, and shall be deemed to have been allowed for in the rates and prices in the contract.

5.4 The Contractor shall ensure that a safety representative is always at site .

5.5 The Contractor shall report all incidents in writing to the Project Manager / Technical Officer. Any incident resulting in the death of or injury to any person on the works shall be reported within 24 hours of its occurrence and any other incident shall be reported within 48 hours of its occurrence.

## **6. Financial**

6.1 Payments shall be made for fully functional equipment only, i.e, all work completed.

6.2 All prices quoted shall be fixed and firm for the duration of the contract

6.3 If the Contractor fails to complete the Services within the time stipulated in this Contract for completion of Services or a part or portion of Services, the Contractor shall be liable to the Employer for an amount calculated at 0.3% of the Contract Price per delayed Day per order, which shall be paid for every Day which shall elapse between the time for due completion and completion of the relevant Services. However, the total amount due under this sub-clause shall not exceed the maximum of 10% of the Contract Price.

6.4 The imposition of such penalty shall not relieve the Contractor from its obligation to complete Services or from any of its obligations and liabilities under the Contract.

6.5 Rates supplied in the BOQ shall be used to calculate the final payment for equipment.

## **7. Scope of Work**

### **7.1 Specification and requirements**

## Clear view fence

**NB: See attached illustrative sketch below**

### 7.1.1 Part 1 - General

#### 7.1.2 Scope

This specification covers material requirements and installation of security fencing and gates,

#### 7.1.3 Work included

Furnish and install fence and gates, and accessories as required and shown.

#### 7.1.4 References Codes and Standards

CSIR, SABS, North Atlantic Treaty Organization (NATO) and International Aviation Authority Organization (ICAO).

CSIR Test	980289, 050036, 050056, T09998
SABS Test	536/YM139
Nato Stock	5600/99-458-7474
ICAO	ICAO Security Manual

#### 7.1.5 Submittals

- a. Certificate of compliance for materials and coatings
- b. Shop drawing for gates
- c. Submittal requirements are identified within the Specification.
- d. Quality control program shall be submitted to the Engineer for review prior to commencement of any work.

### 7.1.6 Part 2 – Products

#### 7.1.7 General

- a. All steel materials shall be of good commercial quality, galvanized steel.
- b. All pipes shall be galvanized, one piece without joints. Furnish moisture proof caps for all posts.
- c. Zinc coating shall be smooth and essentially free from lumps, globs, or points.
- d. Miscellaneous material shall be galvanized

### 7.1.8 Description of Fence System

#### a. Posts:

- Post shall be 3m long Taper Locking Post.
- Post width shall be 85mm - tapering to 45mm with a depth of 85mm.
- Post shall include 'Locking Recess Mechanism' to secure panel edge.
- Post shall be sealed with a UV stabilized polymer cap.
- Post finish shall be galvanized.

#### b. Panel:

- Panel shall be of 3,297m width and 2.4m in height.
- Panel aperture size (centres) shall be 76.2mm x 12.7mm.
- Wire diameter will be 3mm
- The panel shall be reinforced with 4 x 50mm deep 'V' formation horizontal recessed bands (rigidity)
- Panel shall have 2 x 70° flanges along sides (internal fixtures- all fixtures shall be on the inside of fence line)
- Panel shall have 2 x 30° flange along top and toe (integrated rigid angle).
- Panel post shall have a flush panel post finish with no climbing aid.
- Panel shall be affixed to post over 48-line wires using 8 x Double bolt comb clamps and 8 x Single bolt comb clamps using 24 x Anti vandal bolts.
- Panel and fixtures shall be galvanized.
- Panel Post connection minimum break force.

#### c. Additions

No additions.

#### d. Fence Corner Configuration.

The fence configuration should not have any sharp corners and all angles at changes of direction should be a minimum of 130 degrees.

### 7.1.9 Gates

#### a. Swing gates

- All connections and joints shall be welded to form rigid frames or assembled with corner fittings.

- Hinges shall not twist or turn under the action of the gate, shall be so arranged that a closed gate cannot be lifted off the hinges to obtain entry.

#### **b. Sliding gates**

- Gate frame fabrication and miscellaneous items shall be similar to Swing Gates.
- All fittings, brackets and rear wheel tracks shall be standard manufactured products for the intended application.

### **7.1.10 Part 3 – Execution**

- **General**

- a. Install all fencing and gates in accordance with the drawings, specifications, instructions, and as specified lines and grades indicated. Line posts shall be spaced at intervals of 3.382 m (10 ft). Terminal posts shall be set at abrupt changes in vertical and horizontal alignment.

- **Posts**

- a. Post holes shall be cleared of loose material. Waste material shall be spread where directed by Engineer. The ground surface irregularities along the fence line shall be eliminated to the extent necessary
- b. Posts shall be set plumb and follow the indicated alignment. All posts shall be set to the depth indicated on the design documents. Concrete shall be thoroughly consolidated around each post, free of voids, and finished with a domed shaped surface, with the base of dome at grade elevation. Concrete shall be allowed to cure prior to installing any additional components to the posts.
- c. Concrete footings shall be carried down to at least the depth indicated on the design documents and shall not be smaller than the dimensions shown. Where a rock layer is encountered within the required depth to which the post is to be erected, a hole of a diameter slightly larger than the largest dimension of the post may be drilled into the rock and the post grouted in. Then the regular concrete footing shall be placed between the top of the rock and the top of the footing elevation as shown on the design documents. Posts shall be approximately centred in their footings. All concrete shall be placed promptly and consolidated by tamping or other approved methods.
- d. Where the ground is firm enough to permit excavation of the post hole to neat lines, the concrete may be placed without forms by completely filling the hole. Curing may be achieved by covering the concrete with not less than four inches of loose moist material immediately after placing concrete, or by using a curing compound. All excess material from footings, including loose material used for curing, shall be disposed of as directed by the Engineer

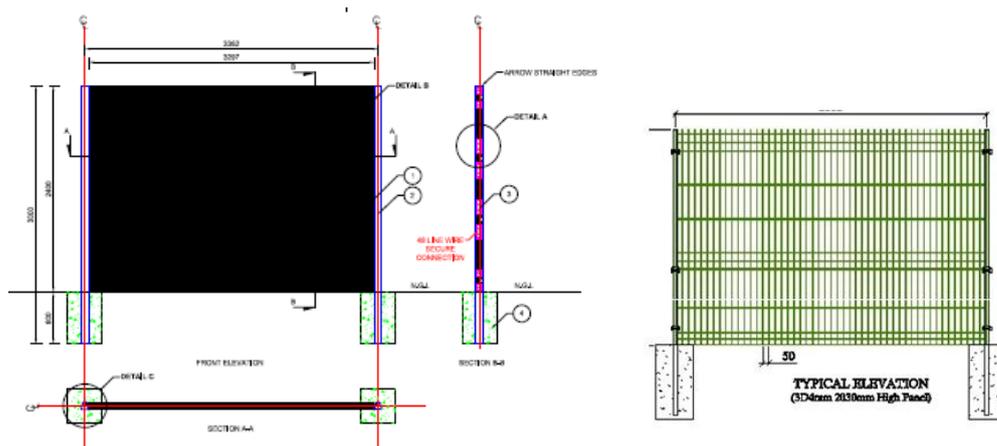
- e. Where the ground cannot be satisfactorily excavated to neat lines, forms shall be used to place concrete for footings. Under these conditions the earth and forms encountering the concrete shall be moistened and all ponded water shall be removed from the hole prior to placing concrete. When forms are removed, the footing shall be backfilled with moistened material, and thoroughly tamped. The top of the concrete shall then be covered with not less than 100 mm (4 in) of loose moistened material or use curing compound if the 7-days cure is not completed. All excess material from footings, including loose material used for curing, shall be disposed of as directed.

- Gates

Gates shall be installed at the locations shown. Hinged gates shall be mounted to swing as indicated. Latches, stops, and keepers shall be installed as required. Slide gates shall be installed as recommended by the manufacturer.

- Adjusting

- a. Gate: Adjust gate to operate smoothly, easily, and quietly, free from binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- b. Lubricate hardware and other moving parts.



**Sketch of a typical See Through**

## **8. Care of the Site**

8.1 From the date on which the Site is handed over to the Contractor to the date of the issue of a Certificate of Completion, the Contractor shall take full responsibility for the care of the Works and the Employer's Assets on the Site and of all Plant intended for incorporation into the Works and materials on the Site intended for incorporation into the Works.

## **9. To be provided by the contractor**

9.1 Site books (each in triplicate) to record:

9.2 All incidents as well as the progress of work during the occupation.

9.3 All instructions pertaining to the technical details of the work being performed at that time.

9.4 Upon appointment, the contractor shall supply machinery, equipment, material, labour and consumables, etc. necessary for the undertaking and completion of the works to satisfaction of the client.

9.5 The client will require conformance documentation for each item of material procured by the contractor for installation used in this contract.

9.6 Any damage caused to the property of PRASA will be for the contractor's account.

9.7 Before commencing construction in any area, the contractor shall verify the positions of services. Where any underground services are shown on the drawings, the contractor shall have the equipment available on site for as long as is necessary to detect and locate such services and, if so ordered, he or she shall excavate by hand to expose such services in areas and in a manner and at a time agreed upon with the technical officer.

9.8 Protection of cables- Before any excavations take place near identified service cables, the contractor shall contact the technical officer. The contractor shall advise the Prasa technical officer at least 7 days in advance of the actual date on which to excavate near any cable. The contractor shall not use mechanical equipment to excavate within 3m of the estimated position of identified cable and shall, if necessary, expose the cable by means of hand excavation carried out under proper supervision.

## **10. Measurement of Quality of Construction**

10.1 The works shall be quantified by the contractor with the assistance of PRASA personnel, the payment will be subject to the rates submitted in the tender.

10.2 Where the condition of the site is such that the specified performance standards cannot be achieved, the contractor should record all relevant

information in conjunction with the Prasa Technical Officer before and after working. Correctness and final approval shall be the responsibility of PRASA.

## **11. Rectification of sub-standard work**

11.1 Where the specified standards of workmanship and accuracy are not attained, the Contractor shall rectify at own cost within 7 working days. should the contractor fail to honor the stipulated notified days he can be reported to the National Treasury for non-performance and may be blacklisted (prevented from doing any business with the state).

## **12. General**

12.1 Should any claim arise due to damage caused by any action of work by the Contractor to property of PRASA and his employees or any other person/s, the Contractor shall be held liable to settle such claims at his own cost.

12.2 The contractor shall provide transport, equipment, tools, consumables, supervision, protection, and labour necessary to successfully complete the contract.

## **13. Safety**

13.1 The Contractor shall comply with requirements of safety legislations and regulations in all respects.

13.2 All drivers shall be in possession of valid driver's licenses and Public Drivers Permits (PDP) where applicable. Crane operators will be required to have a valid Crane Operator's certificate. All vehicles shall be roadworthy.

13.3 The Contractor shall be responsible for all protective clothing and –equipment for his employees. All employees required to climb structures shall be issued with suitable harnesses.

13.4 The contractor shall be responsible for security of personnel and material onsite as well as during transit.

13.5 All work shall always comply with the E7/1 Specification attached hereto.

13.6 Normal protection measures in accordance with the Protection Manual shall apply.

13.7 An effective safety procedure to be followed by all personnel on any work site in the case of approaching rail traffic shall be compiled by the Contractor and implemented before any work commences. This procedure shall be updated whenever the need arises, and any changes shall be communicated to all employees on a works site before work proceeds.

13.8 It is the requirement of this contract that the contractor should provide PRASA with a detailed safety plan prior to being issued with a site access certificate, in accordance with the latest version of the OHS Act and the SPK7 and the E4E.

#### **14. Measurements and payments**

14.1 Claims for payment will be made monthly.

14.2 Any rejected and incomplete work will not be paid.

14.3 All rates in the schedule of quantities must be made per unit as requested and should be an all-inclusive rate.

14.4 The rate quoted by the Tenderer(s) and accepted by PRASA must hold well till the completion of the work and shall not be subject to any escalation due to increase in the local market rates for materials & labour. No claim on this account whatsoever shall be entertained at any stage including the extended period.

14.5 The client shall retain 10% of all invoices claimed under this contract, this shall be payable at the end of the guarantee period of 52 weeks after the date of handover.

14.6 The amount of the Preliminaries to be included in each monthly payment certificate shall be assessed as an amount prorated to the value of the work duly executed in the same ratio as the preliminaries bears to the total of prices excluding any contingency sum, the amount of the Preliminaries and any amount in respect of contract price adjustment if provided for in the contract.

#### **15. Payment Certificate**

15.1 On or after the assessment date, the Supervisor and the Contractor will together assess the quantities of the progress on each item in the Bill of Quantities and complete the Progress Assessment Detail form, where after the Progress Assessment Certificate will be issued.

15.2 The Contractor shall then submit a VAT invoice and attach the above Progress Certificate for payment by the Employer.

15.3 Contractor to provide the Employer with the necessary details regarding banking details to enable the Employer to make electronic payments.

#### **16. PRICING AND THE WORKS.**

16.1 The contractor is required to provide firm prices/ rates for material and labour for the duration of the contract.

16.2 The contract period shall be inclusive of the delivery and installation period as well as an additional period of at least one year starting from the date of acceptance by the client of the last unit.

16.3 The costs for normal servicing shall be reflected separately and shall be paid quarterly for the duration of the service period.

16.4 The contractor shall make provision for the costs (direct or otherwise) associated with works on, over or adjacent to railway lines. The Contractor is advised to study the requirements of the SPK 7/1 and ensure that all works can be completed in accordance with these requirements.

16.5 The contract offer shall be based on the rates as indicated in the bill of quantities. The quantities shall be agreed during construction per section.

## **17. PENALTIES**

17.1 If the Contractor fails to complete the Services within the time stipulated in this Contract for completion of Services or a part or portion of Services, the Contractor shall be liable to the Employer for an amount calculated at 0.05% of the Contract Price per delayed Day per order, which shall be paid for every Day which shall elapse between the time for due completion and completion of the relevant Services. However, the total amount due under this sub-clause shall not exceed the maximum of 10% of the Contract Price.

17.2 The imposition of such penalty shall not relieve the Contractor from its obligation to complete Services or from any of its obligations and liabilities under the Contract,

17.3 PRASA may set off or deduct from the fees due to the Contractor any penalty amounts due and owing by the Contractor in terms of clause 6.3

## **18. Commissioning tests and completion**

18.1 Designated PRASA personnel, in conjunction with the Contractor, shall carry out the final commissioning test. The Contractor shall carry out any remedial work, if necessary.

## **19. Handing over**

19.1 The handovers shall be for each portion of the work when the Electrical System is tested and commissioned to the satisfaction of the Technical Manager, in accordance with the details as set out in the handing over documentation of PRASA.

## BILL OF QUANTITIES

Item	Description	Unit	Qty	Unit Cost	Total Cost
1.	Supply and installation of a clear view fence at Florida distribution substation, barbed wire shall be installed on top of the Clearview, including a swinging gate	100 meters	100	R.....	R.....
2.	Supply and installation of a clear view fence at Roodepoort distribution substation, barbed wire shall be installed on top of the Clearview	meters	200	R.....	R.....
3.	Provide security for the duration of site works	SUM	1	R.....	R.....
4.	Preliminary and Generals (CLOs, stakeholder engagements, plant and machinery, ablution, etc.)	SUM	1	R.....	R.....
		<b>TOTAL EXCL. VAT</b>			R.....
		<b>VAT @ 15%</b>			R.....
		<b>GRAND TOTAL</b>			R.....

### Technical functionality

The minimum threshold for the Technical/functionality criteria is 70% and bidders who score below this minimum will not be considered for further evaluation in terms of price and specific Goals.

Details of the scoring methodology are as follows:

CRITERIA	WEIGHT	SCORES
<p><b>Organizational Experience</b></p> <p>(N.B. Provide for each successfully completed project/s in the following sequence: Copy of an appointment letter/s(on a company letterhead), description of the project, Client name, Client. Contact (i.e., email and office number), Project start date, project end date, extension of time where applicable, contract value inclusive of VAT.</p> <p>Furthermore, attach completion certificate signed by client or letter from the client confirming successful completion of the project.)</p>	40	<p>Score will be based on successfully executed and completed in the supply and installation of Clearview fence in the past 10 years</p> <p>1 Zero submission is = 0 Points</p> <p>2 1 Letter of similar project = 1 Points</p> <p>3 2 Letters of similar projects = 2 Points</p> <p>4 3 Letters of similar projects = 3 Points</p> <p>5 4 Letters of similar projects = 4 Points</p> <p>6 5 Letters or more projects = 5 Points</p>
<p><b>Project Approach and Methodology</b></p> <p>The project methodology must be in line with the scope of work. Identify the risks associated with the project activities and mitigation measures. Clearly show risks and mitigation measures of working on the railway reserve.</p> <p>Elements:</p> <ul style="list-style-type: none"> <li>• Identification of risks and mitigation,</li> <li>• Work breakdown of activities,</li> <li>• Quality assurance,</li> <li>• Transportation,</li> <li>• Scaffolding,</li> <li>• Plant and equipment, Temporary structural support,</li> <li>• barricading and securing of work,</li> <li>• Accommodation of traffic.</li> </ul>	30	<p>The score will be allocated as follows:</p> <p>0: No information provided = 0 points</p> <p>1: 1 or less elements of the method statement = 1Points</p> <p>2: 2 elements of the method statement = 2Points</p> <p>3: 4 elements of the method statement = 3Points</p> <p>4: 8 elements or more of the method statement = 4Points</p> <p>5: 9 elements or more of method statement = 5Points</p>
<p><b>Project program (Work plan)</b></p>	30	<p>Score will be allocated for MS Project or MS excel Schedule provided.</p>

<p>Provide project schedule in MS projects or MS excel that meets the client's timeline requirements and the schedule to cover the following key Milestones:</p> <ul style="list-style-type: none"> <li>• Project duration within the targeted duration of 8 weeks.</li> <li>• Resource allocation</li> <li>• Critical Path clearly highlighted</li> <li>• Activities showing safety measures to be taken, activities included.</li> </ul> <p>The overall schedule should clearly indicate sequencing of activities with clear understanding of scope.</p>	<p><b>No information provided = 0 points.</b></p> <p>1 Project schedule provided relevant activities and all the indicated elements addressed within 12 or more weeks.</p> <p>2: Project schedule provided with relevant activities and all the indicated elements addressed within 11 weeks=2Points</p> <p>1. Project schedule provided with relevant activities and all the indicated elements addressed within 10 weeks = 3Points</p> <p>2. Project schedule provided with relevant activities and all the indicated elements addressed within 9 weeks= 4Points</p> <p>5. Project schedule provided with relevant activities and all the indicated elements addressed within 8 weeks = 5Pointss.</p>
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