



NKANGALA DISTRICT MUNICIPALITY



PROJECT NO: 150362/6B

CONSTRUCTION OF THE LOSKOP REGIONAL BULK WATER SUPPLY SCHEME IN
THEMBISILE HANI LOCAL MUNICIPALITY – WORK PACKAGE 6B (ESKOM MV BULK
ELECTRICAL CONNECTION (CHICKADEE LINE SECTION TO PUMP STATIONS 3 & 4)

C3: SCOPE OF WORK

Part C3: Scope of Work

- C3.1 Scope of Works (SANS 10403:2003)
- C3.2 Standard Specification
- C3.3 Project Specification
- C3.4 Particular Specification



Tenderer



Witness 1



Witness 2



Employer



Witness 1



Witness 2



C3.1: SCOPE OF WORK (SANS 10403:2003)

1. DESCRIPTION OF THE SCOPE OF WORKS

1.1. EMPLOYER'S OBJECTIVES

The Employers objective is to construct a new Electrical MV Line to supply Pump station 3 and 4 which will be taken over by Eskom after completion of the works.

1.2. OVERVIEW OF THE WORKS

This project entails the construction of the following:

- a. Construct 24.5km 22kV Chickadee line between Amandla substation and AMD252 (APW301)
- b. Excavate and plant new poles along the proposed route as per D-DT-1785 Rev 2 sht 2
- c. Excavate and plant new poles along the proposed route as per D-DT-1786 Rev 2 sht 2
- d. Excavate and plant new poles along the proposed route as per D-DT-1787 Rev 2 sht 2
- e. Excavate and plant new poles along the proposed route as per D-DT-1791 Rev 1 sht 0
- f. Excavate and plant new poles along the proposed route as per D-DT-1793 Rev 1 sht 0
- g. Excavate and plant new poles along the proposed route as per D-DT-1794 Rev 1 sht 1
- h. From existing substation Gantry, string with Chickadee conductor from new pole APW1 up to APW301.
- i. Label the new line accordingly
- j. See detail design attached for pole lengths and accessories

1.3. EXTENT OF THE WORKS

The Works to be carried out by the Contractor under this Contract comprise mainly the following:

(i) General

1. Contractor's establishment on site;

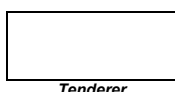
(ii) Concrete Works

1. Not applicable.

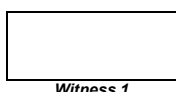
(iii) Electrical Works (Appointed Contractor)

1. Supply, Construction and installation of MV Electrical network and equipment, required for the operation of the Water Treatment Works, to be carried out by the Main Contractor.

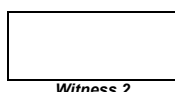
1.4. LOCATION OF THE WORKS



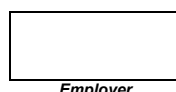
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Witness 1



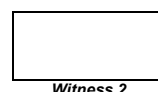
Witness 2



Employer



Witness 1



Witness 2



The proposed site is in the proximity of the Loskop dam area, within the Nkangala District Municipality in the Mpumalanga Province. The route traverses to following local municipal boundaries – Thembeisile Hani LM, Steve Tshwete LM & Elias Motsoaledi LM

Site Co-ordinates:
25°27.973'S, 29°4.163'E

1.5. TEMPORARY WORKS

There will be no temporary works for this construction

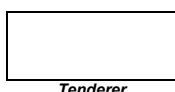
2. ENGINEERING

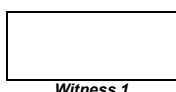
2.1. DESIGN SERVICES AND ACTIVITY MATRIX

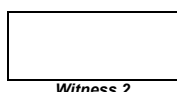
Works designed by, per design stage:

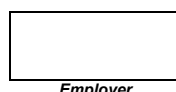
Description	Responsibility
Design of Works (All stages)	Employer's Agent
Concept, feasibility and overall process	Employer
Basic Engineering and detail layouts to tender stage	Employer's Agent
Final Design of Works	Employer's Agent
Final Design to approved for construction stage	Employer
Preparation of tender documentation	Employer's Agent
Placement of Advertisements in newspapers	Employer
Application of Eskom connection point	Employer / Employer's Agent
Payment of Eskom connection fees	Employer
Appointment of sub-contractors	Contractor
Supervision	Employer's Agent
Preparation of as-built drawings	Contractor / Employer's Agent
Completion certificate	Employer's Agent / Employer / Contractor

2.2. EMPLOYER'S DESIGN

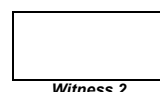

Tenderer


Witness 1


Witness 2


Employer


Witness 1


Witness 2



The permanent works included in this contract has been designed by the Employer's agent. The detail of the works is indicated on the drawing and in the specifications.

2.3. DESIGN BRIEF (CONTRACTORS DESIGN)

Not applicable.

2.4. DRAWINGS

The Employer's Agent will provide the Contractor with one full set of Spanplan drawings (over and above the drawings to be downloaded by the Contractor from Eskom DT Web site) for construction, which will be used exclusively for the recording of as built information by the Contractor.

Only dimensions, positions, levels, co-ordinates etc. that change from the original values, will be required to be entered on these drawings. These drawings, fully marked up, will be handed to the Employer's Agent at the issue of the Certificate of completion, which will not be issued until the as-built information has been received.

The drawings listed below are attached under **Part C5: Annexures** and provide an overview of the project.

Additional construction drawings will, in terms of Clause 5.9 of the General Conditions of Contract (2015), be issued to the Contractor by the Employer's Agent/Employer on the commencement date and from time to time as required.

Project Ref:	Drawing No:	Title
150362/6B	VERENA D- WTW_SS_REVISED_01_WG29	AMANDLA DENNILTON 22KV POWERLINES TO BULK METERING POINT_COMBINED_SPANPLAN
150362/6B	D-DT-0341	Stay Conventional MV F/Glass Med-Soil
150362/6B	D-DT-1785 Rev 2 SHT 2	MV HEAVY CONDUCTOR 22KV THREE PHASE VERTICAL 800 SPACING INTERMEDIATE - 0 DEG. DEVIATION (WOOD POLE)
150362/6B	D-DT-1786 Rev 2 SHT 2	MV HEAVY CONDUCTOR THREE PHASE STAGGERED VERTICAL 800 SPACING INTERMEDIATE - 0 DEG. DEVIATION (WOOD POLE)
150362/6B	D-DT-1787 Rev 2 SHT 2	MV HEAVY CONDUCTOR THREE PHASE STAGGERED VERTICAL 800 SPACING INTERMEDIATE - 0-30 DEG. DEVIATION (WOOD POLE)
150362/6B	D-DT-1791 Sht 1 Rev 0	MV HEAVY CONDUCTOR - 22kv 3 PHASE - VERTICAL 800mm SPACING STRAIN - LARGE (60 - 90 DEG.) DEG. DEVIATION - (60 - 60) DEG. DEVIATION (DOUBLE WOOD POLE)
150362/6B	D-DT-1793 Sht 1 Rev 0	MV HEAVY CONDUCTOR H-POLE SUSPENSION STRUCTURE (WOOD POLE)
150362/6B	D-DT-1794 Sht 1 Rev 1	MV HEAVY CONDUCTOR H-POLE IN-LINE STRAIN STRUCTURE (WOOD POLE)
150362/6B	D-DT-0341 Sht 4	MV HEAVY /HV LINES CONDUCTOR STAY ASSEMBLY


Tenderer


Witness 1


Witness 2


Employer


Witness 1


Witness 2



2.5. DESIGN PROCEDURES

Not applicable.

3. PROCUREMENT

Not applicable

3.1. SUBCONTRACTING

Not applicable

4. CONSTRUCTION

a) Works specification

- **Applicable ESKOM standards**
Refer to Standard Specifications in the eEskom Web site
- **Applicable national and international standards**
Refer to Standard Specifications in the contract
- Particular/generic specifications
Refer to Particular Specifications in the Contract
- Certification by recognized bodies
Only certification by SABS will be allowed
- **Acrément certificates**
None

a) Plant and material

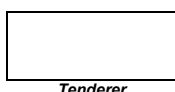
- **Plant and material supplied by the employer**
No plant or material will be supplied by the employer
- **Material, samples and shop drawings**
All materials used, where such mark has been awarded for a specific type of material, bear the SABS mark.

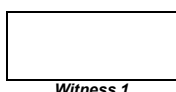
b) Construction Equipment

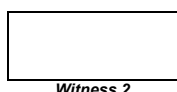
- **Requirements for equipment**
The following equipment is deemed necessary for the successful completion of the project:
 - Crane Trucks
 -
 - TLBs
 - Compactors (Wackers)
 - LDVsPoint will be assigned for the number of plant supplied as per Returnable Schedule O
- **Equipment provided by the employer**
No equipment will be supplied by the employer

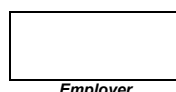
c) Existing Services

- **Known services**

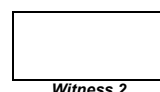

Tenderer


Witness 1


Witness 2


Employer


Witness 1


Witness 2



There are no known services on site. This needs to be confirmed by the contractor prior to excavation in any area.

- **Treatment of existing services**

Existing services which are encountered must be reported to the Employer's Agent who will instruct on which action to be taken.

- **Use of detection equipment for the location of underground services**

None foreseen

- **Damage to services**

The contractor shall repair any amend any services damaged directly due to the construction activities. The cost of which will be covered by the rate for crossing of services in the bill of quantities.

- **Reinstatement of services and structures damaged during construction**

As per the previous item.

d) Site establishment

- **Services and facilities provided by the employer**

No services or facilities will be provided by the employer. The contractor will be responsible to make his own arrangements for the supply of water, electricity and communication. There will be no municipal services to connect to.

e) Facilities provided by the contractor

Offices

The various types of offices required shall be as instructed by the Engineer. Unless otherwise specified in the Contract Documentation, the fittings, furniture and equipment shall conform to the following requirements:

- Meeting Table shall have a surface area of at least 3 m² and 12 chairs.
- Electric power plug points shall be provided. Each office shall have at least two 15 ampere plug points.
- Lights shall be 1 500 mm, 58W fluorescent tubes or 1 500 mm, 22W LED tubes.
- Chairs shall be robust and comfortable.
- Where required by the Engineer, the Contractor shall provide and install air-conditioning units and heaters. Air-conditioning units shall be of the wall mounted split unit inverter type capable of either cooling or heating a room. The capacity of the air-conditioning units shall be adequate for the room area as recommended by the supplier thereof. Heaters shall be of a space-heating type without exposed elements and shall have a capacity of not less than 1.5 kW each.

Where required by the Engineer, the following items shall be provided by the Contractor for his use:

- A rain gauge securely mounted on a pole in a position as indicated by the Engineer.
- A minimum and maximum atmospheric temperature gauge.
- A measuring wheel with a circumference of 1,0 m and equipped with a distance recording device.
- Approved first aid kits to be kept at the site office and/or laboratories and in the site staff vehicles.

Kitchen

None

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



Car ports

Car ports shall be so constructed as to protect vehicles parked in them at all times against the direct rays of the sun. The car ports shall have either a concrete floor or a layer of broken stone to alleviate dusty and muddy conditions. Each car port shall be at least 3,0 m wide, 6,0 m long and 2,5 m high. The roofs of all car ports shall be waterproof.

Ablution unit

A Chemical ablution unit with a clean potable hot and cold water supply and a water-borne sewerage system, including septic tanks if necessary, shall be provided for the Engineer's facilities. The ablution unit shall be established in a position that is easily accessible to both the Engineer's offices and the laboratory buildings. Two ablution unit shall be provided and have separate rooms for males and females and each room shall have a floor area of at least 6m² with a lockable door and shall be equipped with:

- **Storage Container facilities**

The contractor must ensure that he provides adequate storage for the construction activity needs and storage of Equipment.

- **Other facilities and services**

No temporary services will be supplied by the Employer. The contractor must ensure to supply his own foreseen required services

- **Vehicles and equipment**

As stated under "Facilities provided by the Contractor"

- **Advertising rights**

No additional advertising will be allowed other than branding of vehicles, equipment and employee clothing.

- **Notice boards**

The contractor shall supply 2 x name board as per the details indicated on the construction drawings for the entire duration of the contract.

f) Site Usage

Site usage is limited to functions associated with the project only. The water treatment works and pipeline are all located on government land or servitudes registered in the name of the government. The contractor may not traverse on any private properties without written approval from Employer's Agent and the Landowner. It is however not foreseen that access will be required to any privately owned land.

g) Permits and way leaves

Not applicable.

h) Alterations, additions, extensions and modifications to the existing works

Not applicable.

i) Inspection of adjoining properties

Not applicable.

j) Water for construction purposes

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



The contractor shall make his own arrangements regarding a suitable supply of water for the project and he must make adequate provision in his tender for all negotiations and procurement of water for construction activities and all related costs will be deemed to be included in his tendered rates.

Water for use in the concrete mix must be suitable for concrete and be approved by the Engineer, before any construction commences. Should ready mix concrete be used, the water quality will be deemed covered by the suppliers design engineers.

Water may not be abstracted from the local river, streams or Irrigation canals. If the contractor wishes to do so he must submit a request to the Employers agent which includes all the necessary permissions, permits or licenses required to do so.

k) Survey control and setting out of the works

The Employers Agent will provide survey beacons. The contractor shall be responsible for the true and proper setting out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labour in connection therewith.

The Contractor shall take care that property beacons, trigonometrical survey beacons or setting-out beacons are not displaced or destroyed without the consent of the Employer's Agent. Property beacons and trigonometrical survey beacons that have been displaced or destroyed shall be replaced by a registered land surveyor, who shall certify such replacement.

The cost of replacing all beacons displaced or destroyed during the course of the Contract without the consent of the Employer's Agent shall be borne by the Contractor.

5. MANAGEMENT

5.1. Management of the works

a) Applicable SANS standards

The Contractor is referred to SANS 1921: 2004 parts 1, 2 and 3: Construction and Management Requirements for Works Contracts. These specifications shall be applicable to the contract under consideration and the Contractor shall comply with all requirements relevant to the project.

Certain aspects however require further attention as described hereafter.

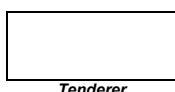
b) Particular / Generic specifications

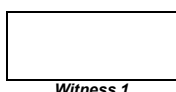
Refer to Part C3.4

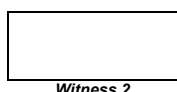
c) Planning and programming

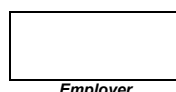
Preliminary programme

The Contractor shall include with his tender a preliminary programme on the prescribed form to be completed by all Tenderers. The programme shall be in the form of a simplified bar chart with sufficient details to show clearly how the works will be performed within the time for completion as stated in the Contract Data.

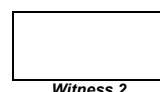

Tenderer


Witness 1


Witness 2


Employer


Witness 1


Witness 2



Tenderers may submit tenders for an alternative Time for Completion in addition to a tender based on the specified Time for Completion. Each such alternative tender shall include a preliminary programme similar to the programme above for the execution of the works, and shall motivate his proposal clearly by stating all the financial implications of the alternative completion time.

The Contractor shall be deemed to have allowed fully in his tendered rates and prices as well as in his programme for all possible delays due to normal adverse weather conditions and special non-working days as specified in the Special Conditions of Contract, in the Project Specifications and in the Contract Data.

The following constraints shall be taken into account in preparing the preliminary construction programme which must be submitted with the Tender. These same constraints shall apply to the final construction programme:

- (a) the Contractor must indicate in his tender the proposed contract period;
- (b) plant and personnel requirements to complete the project must be incorporated in the Tender and shown on the programme;

Programme in terms of Clause 5.6 of the General Conditions of Contract

It is essential that the construction programme, which shall conform in all respects to Clause 5.6 of the General Conditions of Contract, be furnished within the time stated in the Contract Data. The preliminary programme to be submitted with the tender shall be used as basis for this programme.

The following must be stated on the programme:

- (a) The quantity of work applicable to each bar item as well as the rate at which the work will be completed.
- (b) A budget of the value of completed work, month by month, for the full contract period.
- (c) The critical path.
- (d)
- (e) .
- (f) Schedule of plant and resources to be utilized.

The Contractor's attention is also drawn to clause 5.6 of the General Conditions of Contract 2015.

d) Sequence of the works

The contractor may programme the work as to ensure that the works is completed within the duration stated I the Contract Data.

e) Software application for programming

All programmes must be compiled in Microsoft Projects

f) Methods and procedures

- Cleanliness of the site:

The contractor shall ensure that the site remains clear off all rubbish

- Protecting of trees and shrubs:

Protection of trees and shrubs to be as per EMP and ROD

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



- Blasting operations:
Blasting operations must adhere to the following acts:
 1. OCCUPATIONAL HEALTH AND SAFETY ACT (85 OF 1993)
 2. EXPLOSIVES ACT, 1956 (ACT 26 OF 1956)
- Borrow pits, disposal of access material, deposition of material etc. in earthworks activities:
Spoil sites shall be determined on site in conjunction with the Employers Agent, the PSC, and the local authority. The Contractor shall be permitted to use only those spoil areas approved by the Engineer. Should the Contractor wish to use any other spoil area for the disposal of soil, rubble, vegetation, etc., its use shall be subject to the approval of the Employers Agent and the landowner.
- The management and disposal of water on site: (Read with SANS 1921 - 1: 2004 clause 4.6)
The Contractor shall pay special attention to the management and disposal of water and stormwater on the site. It is essential that all completed works or parts thereof are kept dry and properly drained. Claims for delay and for repair of damage caused to the works as a result of the Contractor's failure to properly manage rain and surface water, will not be considered
- Access, roads, maintenance of accesses
The contractor will maintain the access roads to the works at all times.
Access to all properties affected by the construction activities must remain open, and any temporary closures must be arranged in writing with the affected parties.
- Hours of work:
Hours of work are daylight hours from Monday to Saturday.
- Training of operators

g) Quality plans and control

- Quality Assurance (QA) (Read with SANS 1921 – 1: 2004 clause 4.4)
The Contractor will be solely responsible for the production of work that complies with the Specifications to the satisfaction of the Engineer. To this end it will be the full responsibility of the Contractor to institute an appropriate Quality Assurance (QA) system on site. The Engineer will audit the Contractor's quality assurance (QA) system on a regular basis to verify that adequate independent checks and tests are being carried out and to ensure that the Contractor's own control is sufficient to identify any possible quality problems which could cause a delay or failure.

The Contractor shall ensure that efficient supervisory staff, the required transport, instruments, equipment and tools are available to control the quality of his own workmanship in accordance with his QA-system. His attention is drawn to the fact that it is not the duty of the Engineer or the Engineer's representative to act as foreman or surveyor.

- Process control
The Contractor shall arrange for his own process control tests.. Whatever method is used, the Contractor must submit proof of material supplied and supplier names that will supply the materials and workmanship when submitting work for acceptance by the Engineer. The costs for

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Tenderer

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Witness 1

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Witness 2

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Employer

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Witness 1

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Witness 2



these Factory acceptance tests shall be deemed to be included in the relevant rates and no additional payment will be made for testing as required.

- Acceptance control

The process control submitted by the Contractor for approval of materials and workmanship may be used by the Engineer for acceptance control. However, before accepting any work, the Engineer shall have his own acceptance control tests carried out by the dedicated Eskom Clerk of Works as approved by the client.

h) Environmental

Refer to the Environmental Plan in the Particular Specification

i) Accommodation of traffic on public roads occupied by the contractor

- Basic Requirements

The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

The Contractor shall ensure that all road signs, barricades, delineators, flagmen and speed controls are effective and that courtesy is extended to the public at all times.

Failure to maintain road signs, warning signs or flicker lights, etc., in a good condition shall constitute ample reason for the Engineer to suspend the work until the road signs, etc., have been repaired to his satisfaction.

The Contractor may not commence constructional activities affecting existing roads before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual.

The Contractor shall construct and maintain all temporary drainage works necessary for temporary deviations.

The Contractor shall provide and grant access to persons whose properties fall within or adjoin the area in which he is working.

- Payment

The Contractor's tendered rates for the relevant items in the Bill of Quantities shall include full compensation for all possible additional costs which may arise from this, and no claims for extra payment due to inconvenience as a result of the modus operandi will be considered.

j) Other contractors on site

The termination point of the Eskom supply will tie in with the Water Treatment Works Contract which is currently in progress. The Electrical Contractor will have to liaise with the Civils Contractor. Recording of weather

The Contractor shall provide a rain gauge close to the office of the Employer's Agent or as directed by the Employer's Agent and precautions shall be taken to restrict access to the rain gauge.

k) Format of communications

All communication to be done via electronic mails

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



l) Key personnel

Key personnel must be as stipulated in the Returnable schedules under Tender Data. Points will be allocated for the qualifications and experience of the key personnel listed.

m) Management meetings

- Site Meetings:

Times: Every two weeks

Location: Site office

Attendance: Contract manager, Site Agent, Health and Safety Officer and Sub-contractor representatives as required

- Technical Meetings:

Times: Every other two weeks

Location: Site office

Attendance: Contract manager, Site Agent, Health and Safety Officer and Sub-contractor representatives as required

n) Forms for contract administration

To be formalized after appointment

o) Electronic payment

Requirements for electronic payments to be communicated by the Employer after appointment.

p) Daily records

A daily site diary must be kept on site whereby the deliveries, rainfall, daily progress, plant, staff and general daily events are recorded. Both the Site agent and Employer's Agent's Representative must sign each entry off at the end of the day.

q) Bonds and guarantees

As specified in the Contract Data

r) Payment certificates

As specified in the Contract Data

s) Permits

No permits are foreseen to be required, excluding statutory permits

t) Proof of compliance with the law

Refer to Contract Data

u) Insurance provided by the employer

Refer to Contract Data

v) Quality plans and control

The contractor will be provided with a set of standard Quality Control Check sheets which will be used to monitor the quality of the works. Each portion of the works must be signed off by the Employer's Agent and the Site Agent.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



6. HEALTH AND SAFETY

Refer to the Baseline Risk Assessment and Health and Safety Specifications contained in the Document's Annexures.

7. ANNEXURES

Refer to **Part C5: Annexures**.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2