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Compiled by

……..

V Chirwa

System Engineer: Civil Structures

Date: 2026/06/03

Authorised by

p.p ……..

N Hlophe

Auxiliary Engineering Manager

Date: 2026/06/03

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FIGURES

Figure 1: Duvha Solar PV Plant Site Location ..... **Error! Bookmark not defined.**

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1. INTRODUCTION

The Eskom Integrated Long Term Plan and the Eskom Corporate Plan sets up the organisation for growth and maps out a low carbon future in a post-coal environment. The plan describes Eskom's participation in renewable energy and other technologies to deliver on opportunities that will add generating capacity and in turn aid in alleviating system constraints, while also pursuing a low carbon future.

The installation of Solar Photovoltaic (PV) at the existing Duvha Power Station site was identified as one of the projects that could achieve these objectives. Duvha Power Station Solar PV Plant will be located within the borders of South Africa in the Emalahleni Local Municipality of the Nkangala District, in the Mpumalanga Province. The town Witbank is located about 15 km from the site.

The area identified within Duvha Power Station's premises has trees, uneven surfaces as well as possible rocks. The identified and Environmental Authorised land has an area of 35.2ha, without considering the site constraints. This document covers the scope of work required for barricading around the site establishment area which only covers 100m x 100m.

2. SUPPORTING CLAUSES

2.1 SCOPE

The document covers the following scope of work.

1. Site establishment for offices and storage container.
2. Removal of vegetation, bushes, shrubs, and undergrowth along the perimeter of the fence line.
3. Removal of topsoil and stockpile in a suitable area within the construction land.
4. Erection temporary fencing and access gate to demarcate the construction site.
5. Dust control during construction.
6. Transportation of a 15m container.
7. Waste disposal

2.1.1 Purpose

The purpose of the document is to outline the technical requirements for the execution of site establishment and barricading works for Duvha Power Station installation of solar PV.

2.1.2 Applicability

This document shall apply to the Duvha Power Station PV Plant project.

2.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

[1] ISO 9001 Quality Management Systems.

[2] 240-53114026 Project Engineering Change Management Procedure.

[3] 240-53113685 Design Review Procedure.

[4] SANS 1200 C: Site Clearance.

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2.2.2 Informative

[5] 240-76368574: high security mesh fencing.

2.3 DEFINITIONS

Definition	Description
PV Plant	A power system designed to supply usable electrical power by means of photovoltaics, consisting of an arrangement of PV modules, inverters, transformers, cabling, and other electrical accessories
System Engineer	System Engineer / Plant Engineer (SE): A competent and qualified site/plant-based discipline or System/Plant Engineer, who has the training, technical qualification and expert knowledge of the plant or systems affected by the engineering change.

2.3.1 Disclosure Classification

Controlled disclosure: controlled disclosure to external parties (either enforced by law, or discretionary).

2.4 ABBREVIATIONS

Abbreviation	Description
PV	Photovoltaic
SE	System Engineer
ISO	International Organization for Standardization
ITP	Inspection Test Plan
QCP	Quality Control Plan
QM	Quality Management
SANS	South African National Standards

2.5 ROLES AND RESPONSIBILITIES

Compiler: Responsible to compile the document and to ensure that the content is integrated to reflect the requirements of every stakeholder forming part of this project.

Functional Responsibility: The Functional Responsible person is responsible to approve the content of the document and assure its correctness before the document is submitted for authorisation.

Authoriser: The document Authoriser is responsible to ensure that the correct processes were followed in developing this document and that the relevant stakeholders have been involved. The Authoriser also reviews the document for alignment to business strategy, policy, objectives, and requirements. He/she shall authorise the release and application of the document

Project Manager: The role of the Project Manager is to facilitate the integration of this Solar PV functional specification with other project documents and translate it into a Works Information that will be issued to the market. The Project Manager will define the project strategy that will inform the project's conditions of contract.

Senior Manager: The role of the Senior Manager Engineering (Renewables) is to give assurance that the document has been reviewed and signed by all relevant parties before issuing for the procurement purposes.

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2.6 PROCESS FOR MONITORING

The primary process for monitoring will be governed by 240-53113685 Design Review Procedure, which entails assuring that the design achieves the requirements set out in this document. Any changes to this document will be performed as per 240-53114026 Project Engineering Change Management Procedure.

2.7 RELATED/SUPPORTING DOCUMENTS

N/A.

3. TECHNICAL SPECIFICATION

3.1 TECHNICAL REQUIREMENTS

3.1.1 Details of Plant

The area is located adjacent to the Duvha Power Station cooling towers of Units 4-6 within the authorised area estimated to be 35.2 Ha to be used for the installation of the solar PV. The area currently has trees, vegetation and rocks which needs to be removed and cleared in preparation for construction works. An attempt was done for clearing the site, about 56m x 20m has been cleared however the area is not properly levelled. There is a possibility for presence of underground services such as power cables and pipes. The area also consists of the 11kV overhead power lines that needs to be taken into consideration during the execution of the works. The area shaded in figure 1 below



Figure 1: Site Establishment for Duvha Solar PV

3.1.2 Scope of Works

The contractor shall execute the following activities.

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Site Establishment

- Establish a temporary site office for coordination and supervision.
- Establish safe working zones in accordance with Duvha Power Station health and safety regulations.
- Provision of fire extinguisher
- Provision of emergency sign
- The site to be clearly demarcated for material storage, parking, eating area, smoking area and waste areas.

Vegetation Clearance

- The establishment area is about 100m x 100m located towards the North-western side of the Duvha solar PV area.
- Clear vegetation, bushes, shrubs, and undergrowth for the temporary site office, access road from the access road the site, temporary storage space and along the temporary fence perimeter.
- Provide 2m wide fire break along the fence line of the site establishment area.
- Uproot small trees, remove roots and stumps within the cleared corridor to prevent regrowth
- Disposal of trees and shrubs waste to be transported to designated area provided by the client, the area is with 8km from the construction site.
- Disposal of domestic waste such as grass to be disposed into a designated skip bin provided by the client.
- Grade and level the cleared corridor to remove obstructions and provide safe access for installation works.
- Levelling shall be done in consideration of surface drainage to the lowest side of the area.

Temporary Perimeter Fence

- Mark and excavation to be 250mm x 250mm x 600mm deep for end and corner fence posts, spaced at not more than 40m apart.
- Supply and install galvanised 2.4m long, 76mm in diameter and 2mm thick main steel posts with 50mm diameter pipe stays.
- The main post shall be installed at corners and gate supports of the barricade
- Supply and install 2.4m long fencing Y-standards beams for line posts along the fence.
- Line posts are to be self-driven to the ground and spaced as 3m apart.
- Supply and place 15Mpa mass concrete fence posts.
- Supply and install diamond mesh fence of 1800mm x 75mm x 1.8mm.
- Supply and install high strain wire for bottom, intermediate and top straining.
- Supply and install heavy duty galvanised vehicle gate of 7m wide and 1.5m high.
- The access gate to be double leaf swinging gate supported on 101mm x3 mm x1.8mm

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Transportation of Storage container within the premises of Duvha Power Station

- Transport the 15m container from coal staith 1 to the establishment site which is approximately 1.5km apart.
- Contractor to make provision of rigging and transportation of the container.
- Clearing of the container for any debris or unused materials.

3.1.3 Design Requirements

N/A.

3.1.4 Manufacturing Requirements

N/A.

3.1.5 Construction Requirements

The activities shall comply with SANS 10400-A

3.1.6 Commissioning Requirements

N/A.

3.1.7 Testing Requirements

N/A.

3.1.8 Operating Requirements

N/A.

3.1.9 Maintenance Requirements

N/A.

3.1.10 Handover Requirements

Handover shall be done by the contractor upon completion of the works with fully signed QCPs.

3.1.11 Decommissioning Requirements

N/A.

3.2 GENERAL REQUIREMENTS

3.2.1 Health & Safety requirements

- Safety File must be pre-approved by Duvha Safety Department.
- Contractor employees must complete Duvha Safety Induction Course, before any work can be executed.
- Risk assessment and Pre-job brief shall be conducted by Contractor Supervisor with all his employees. Copies shall be handed over to the client.
- No work shall be performed without a Permit to Work. Domestic installations are exempted.
- No work shall be performed without pre-arrangement with the contract manager.
- All required Personal protective equipment (PPE) must be worn all the time.
- All Eskom's and other safety rules must be adhered to all the time.

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3.2.1.1 Risk Assessment

A risk assessment must be conducted prior to carrying out site activities to identify any hazards and risks that may be encountered during maintenance activities.

3.2.2 Quality requirements

The *Contractor's* ISO 9001:2015 Certificate of compliance or equivalent must be supplied with tender documents. If the *Contractor* is not certified, the objective evidence of a developed and fully implemented Quality Management System that complies with ISO 9001:2015 requirements shall be submitted.

The *Contractor* shall comply with the *Employer*'s Quality Requirements as specified in the Supplier Quality Management Specification 240 – 105658000 (QM-58). Form A (Tender and contract quality requirements for QM 58 and Quality Requirements for ISO 9001 standard) of this Specification indicates the specific application thereof.

All Quality Control documentation must be submitted to the *Employer* at least one month before project start. Quality Control Plans must include hold and witness points; must clearly state 3rd party interventions and quality/test specifications where applicable.

The Quality Control documentation that will be handed over within 30 days of order placement by the successful *Contractor* to the Employer and shall consist of the following:

3.2.2.1 Quality Control Plan

The Quality Control Plan shall consist of the following as a minimum and shall be accepted by the *Quality representative* of the *Contractor* prior to commencement of work and shall be sent to Eskom for approval. The QCP will also include welding procedures where applicable.

A covering page, table of contents and QCP which includes and makes provision for the following but not limited to:-

- QCP unique number.
- Revision number.
- Page number
- Provision for QCP approval signatures by the *Contractor* (Supervisor and Quality Controller) and Eskom System Engineer and/ or Eskom QC.
- Provision to incorporate all inspection reports or any form of records to prove conformity to requirements.
- High level description of work in execution including Item/ component/ system/ sub-system.
- Provision for nomination of intervention points for each activity as per SOW.
- Provision for review and approval signatures and dates by the *Contractor* (Supervisor and Quality Controller) and Eskom System Engineer and/ or Eskom QC.
- Provision for final acceptance/ releases approval signatures by the *Contractor* (Supervisor and Quality Controller) Eskom System Engineer and/ or Eskom QC.

3.2.3 Environmental requirements

- The Contractor must submit a current Environmental Policy that aligns with the principles of ISO 14001:2015 standard.
- Contractor to submit a dust management plan detailing the control measures, the frequency of suppression and the number of equipment to be used.

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- A detailed method statement outlining the alien invasive species removal method, including the proposed use of any chemicals and a detailed waste handling method.
- Material Safety Data Sheets for all proposed chemicals, to be submitted with the method statement.
- Contractor to submit impacts and aspects register in line with the scope.
- The contractor must have an environmental officer on site who has experience in alien invasive species eradication.
- The contractor must adhere to Duvha Power Stations Waste Management Procedure ENVP0005.

3.2.4 Documentation requirements

The contractor shall provide the following documents.

- Document List.
- Instruction for Work/ Purchase Order.
- Approved ITP's, QCP's.
- Method statements and specifications adhered to.
- Inspection Reports.
- Non-conformance reports.
- Transport notifications.

3.2.5 Communication requirements

All communications shall be done formally in writing to the appointed project manager.

3.2.6 Other requirements (Process/Legislative/Contractual)

N/A

4. AUTHORISATION

This document has been seen and accepted by:

Name & Surname	Designation
Benson Lubisi	Snr Technologist Engineer: Electrical Engineering
Andiswa Ntanjana	Environmental Officer: Environmental

5. REVISIONS

Date	Rev.	Compiler	Remarks
June 2026	1	V Chirwa	Scope of work revised for fence and office container

6. DEVELOPMENT TEAM

The following people were involved in the development of this document:

- Benson Lubisi
- Andiswa Ntanjana

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7. ACKNOWLEDGEMENTS

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