Eskom National Transmission Company South Africa ™	**Scope of Work**	**NTCSA Telecommunications**

Title: **LM-Container Replacement Zandspuit RS**

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Compiled by	**Functional Responsibility**	**Authorized by**
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Date: 26/09/2025	Date: 26/09/2025	Date: 26/09/2025

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1. Introduction

In 1994 Zandspruit RS was established to provide the telecommunications services in the Mogalakwena municipality area. The site was established with two Fiber glass container, erected on an uneven surface which has been a problem especially with heavy equipment like batteries sinking the floor of this containers. These containers have served their purpose for over twenty years, their condition has deteriorated, and they must urgently be replaced with a new equipment shelter that will meet ever increasing and evolving telecommunications requirements.

This document outlines the technical requirements that must be met in the construction, supply and delivery to site of the equipment housing or container.

2. Supporting Clauses

2.1 Scope

The scope will provide the requirements for supply, deliver and construct the new equipment shelter suitable for housing the Telecommunications equipment with sufficient DC system to handle existing load as well as the future growth.

2.1.1 Purpose

This document is prepared to provide scope of work for supply, delivery and construction of the new equipment shelter at Zandspruit RS and ensure that the site complies with Telecommunications standards and procedures.

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions/ National Transmission Company South Africa SOC Ltd Reg No 2021/539129/30.

2.1.3 Effective date

This document shall be effective upon the authorisation date.

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] 240-56362336 Standard for the Installation of a Telecoms Equipment Cabinet.

[3] 240-132190480 Telecommunications Equipment Installation Standard

[4] 240-73198174 SHE Specification

[5] 240-89498731 Equipment Container for AC-Powered Sites

[6] 240-138065940 Anti-Intrusion Measurements for Equipment Container at AC-Powered Sites.

[7] 240-56177186 Battery Room Standard

[8] 240-141785049 Technical Evaluation Criteria for Equipment Container for AC-Powered Sites.

[9] 240-56872119 Telecommunication Concrete Plinths.

[10] 240-82172806 Standards for air-conditioning in Transmission substations buildings and Telecommunications sites.

2.2.2 Informative

[11] 240-73198174 SHE Specification

[12] 240-56176168 DC Systems Settings Standard.

[13] 240-118870219 Standby Power Systems Topology and Autonomy for Eskom Sites

[14]

2.3 Definitions

Customer satisfaction: A commitment to meet and strive to exceed the needs of the receivers of products and services.

2.4 Abbreviations

Abbreviation	Explanation
AC	Alternating Current
ATP	Acceptance Test Procedure
CoC	Certificate of Compliance
DC	Direct Current
EAS	Environmental Alarm System
ERA	Execution Release Approval
LM	Limpopo
NMC	Network Management Centre
NPAE	National Planning and Application Engineering
NTCSA	National Transmission Company South Africa
O&FS	Operations and Field Services
QA	Quality Assurance
REH	Regional Engineering Head
RS	Radio Station
SLA	Service Level Agreement
TDRT	Telecommunications Design Review Team

2.5 Roles and Responsibilities

- **Regional Engineering Manager** will be responsible for the implementation of the project from a design perspective.
- **Project Management** will be responsible for execution of the Zandspruit RS Container replacement project.
- **Network Planning Engineer** will be responsible for designs and/or design inputs for the Container replacement.
- **Civils Engineer** will be responsible for Civils designs for Zandspruit RS Container replacement.
- **Engineering Surveyor** was responsible for Land survey and servitude demarcation.
- **Project implementation O&FS** will be responsible for relocating existing equipment into the new container.
- **SHEQ team** will be responsible for developing the project specific SHEQ requirements.
- **Quantity Surveyor** will be responsible for costing of the project materials and services.
- **Contractor/s** will be responsible for supply, deliver and construct the container.

2.6 Process for Monitoring

National Planning Application and Engineering (Limpopo) regional engineering is the custodian of document.

2.7 Related/Supporting Documents

- 240-56872119 Telecommunications concrete plinths Rev4
- 240-56872313 Radio station earthing and bonding Rev 3

3. Scope of Work LM-Container Replacement Zandspruit RS

This document aims to provide scope of work for supply, delivery and construction of the new equipment shelter at Zandspruit RS and ensure that the site complies with Telecommunications standards and procedures. Replacing the old Fibre Glass Containers will ensure safekeeping of assets is effective and DC upgrade will be possible which will lead to network availability and reliability even in AC power failure days. Sites will adhere to Eskom standards and procedures. There will be less maintenances and system related faults. Adequate data transmission from stations to NCC and NMC. Efficient remote network management. Manageable faults response with a use of minimal human resources

The detail will include, but not limited to the following,

- The Civils design includes landscaping and construction of Concrete plinth for the new container suitable to house the Telecommunications equipment in Zandspruit RS
- Construction and Assembly of the 6m x 3m x3m container with divider to house both the equipment and batteries
- Incorporate the anti-intrusion measures during manufacturing, assembling and construction of the equipment shelter.
- Reticulation of the new equipment shelter and installation of overhead racking inside the equipment room.
- Supply and installation of the Overhead Feeder Cable Gantry with supporting poles to the existing Telecoms Tower
- AC connection from the Municipality meter point.
- New Equipment Cabinets in the equipment room
- Supply a 4.5kg CO_2 fire extinguisher in the battery room
- Supply a typist chair and a fold down table (450mm x 900mm x 850mm)

3.1 High Level Scope of Work Zandspruit RS

- Supply, delivery and construction of the new equipment shelter suitable for housing Telecommunications equipment. The equipment shelter shall be 6m x 3m x 3m (Vented lead acid batteries with room divider) with a floor capable of carrying a weight of 2000kg/Sq. meter as per standard "**240-89498731 – Equipment Container for AC powered Sites".**
- The contractor/s shall be evaluated as per standard "**240-141785049 Technical Evaluation Criteria for Equipment Container for AC-Powered Sites"**.
- Supply and install the overhead feeder cable gantry supported by steel poles from the new container to the tower.
- Supply and install gladding around the equipment shelter to prevent easy damage in case of theft or vandalism.
- The SHEQ team to evaluate and signed off the Contractor/s SHEQ files before any work can proceed.

3.2 Scope of Work for Contractor (Concrete Plinth & Container)

- The contractor to ensure that all SHEQ documents are submitted and approved.
- The approved SHEQ files must always be available onsite during construction.
- The contractor to attend the kick-off meeting and NTCSA induction.
- The contractor to construct the civil works including the landscaping and concrete cement plinth as per the approved civil design **"Zand23P01SE-D65"**

- The contractor to supply, deliver and construct the equipment shelter, 6m x 3m x 3m (Vented lead acid batteries with room divider) with a floor capable of carrying a weight of 2000kg/Sq. meter as per standard "**240-89498731 – Equipment Container for AC powered Sites".**
- Incorporate the anti-intrusion measures during manufacturing, assembling and construction of the equipment shelter as per "**240-138065940 – Additional Anti-Intrusion Measurements for Equipment Container At AC-Powered Sites.**
- Supply and install the overhead feeder cable gantry supported by steel poles from the new container to the tower.
- Recommended approach would be for the horizontal feeder tray to allow for cables to be suspended underneath the tray. A support pole must be supplied and installed for every 5m of horizontal gantry. The feeder gantry must be at least 300mm wide.
- The cable tray shall be a heavy-duty cable tray pre galvanised standard finish and the splicing method must be overlap with M6 gutter bolts and square nuts. Where bend are required it shall be of horizontal bend see annexure A.4 cable tray.
- Supply a 4.5kg CO_2 fire extinguisher in the battery room
- Supply a typist chair and a fold down table (450mm x 900mm x 850mm)
- The contractor to connect AC supply from the municipality meter box into the container.
- The contractor to trench for the AC cable, poured with concrete underground for security.
- Supply and install a generator plug and change over switch as per standard 240-89498731
- The AC supply to the Container is 3 Ø
- The input circuit breaker on the internal AC board must be 80A, 3 Ø
- The circuit breaker for the Charger in the internal AC board must be 63A, Ø
- The contractor to complete the electrification as per standard and issue the Certificate of Compliance.
- The contractor to do the site handover to NTCSA team.

3.3 Scope of Work for Engineering and O&FS

- O&FS must ensure all SHEQ requirements are met by the contractor when providing supervision.
- O&FS to provide access to site and supervise Contractor.
- O&FS to install the three cabinets into the equipment container as per the container layout drawing, and secure cabinets onto the floor.
- O&FS to install the dc cables from the cabinets to the battery charger system cabinet trip switches.
- O&FS to arrange outage with NMC and notify NMC before cut-over
- O&FS to relocate existing equipment into the new container

- O&FS to install the new Feeder cables to the existing tower and restore services
- O&FS to scrap the old equipment and dispose as per NTCSA standards.
- Accept Site Handover from Contractor.
- On project completion, ensure that all changes in this Project Documentation are RED lined and returned to PM to update the as-build documents

3.4 Scope of Work for Project management

- Project Management must ensure that the landlord or farmer is notified before constructions can start onsite.
- Project management and O&FS to provide access and supervision during construction.
- Project management and O&FS to arrange outage and liaise with NMC.
- Appoint and co-ordinate contractor.
- Ensure compliance to all standards, specifications, and procedures as per Civils design report.

3.4 Scope of Work for SHEQ

- Coordinate project specific SHEQ Specification and Plan/File evaluation template and requirements internal session
- Facilitate Session for presentation of SHEQ plans by contractors and approval.
- Facilitate Session with contractor to explain the requirements
- Facilitate SHE induction onsite (Kick-off meeting)
- Conduct site inspections (SMAT and JOB Observations) during construction

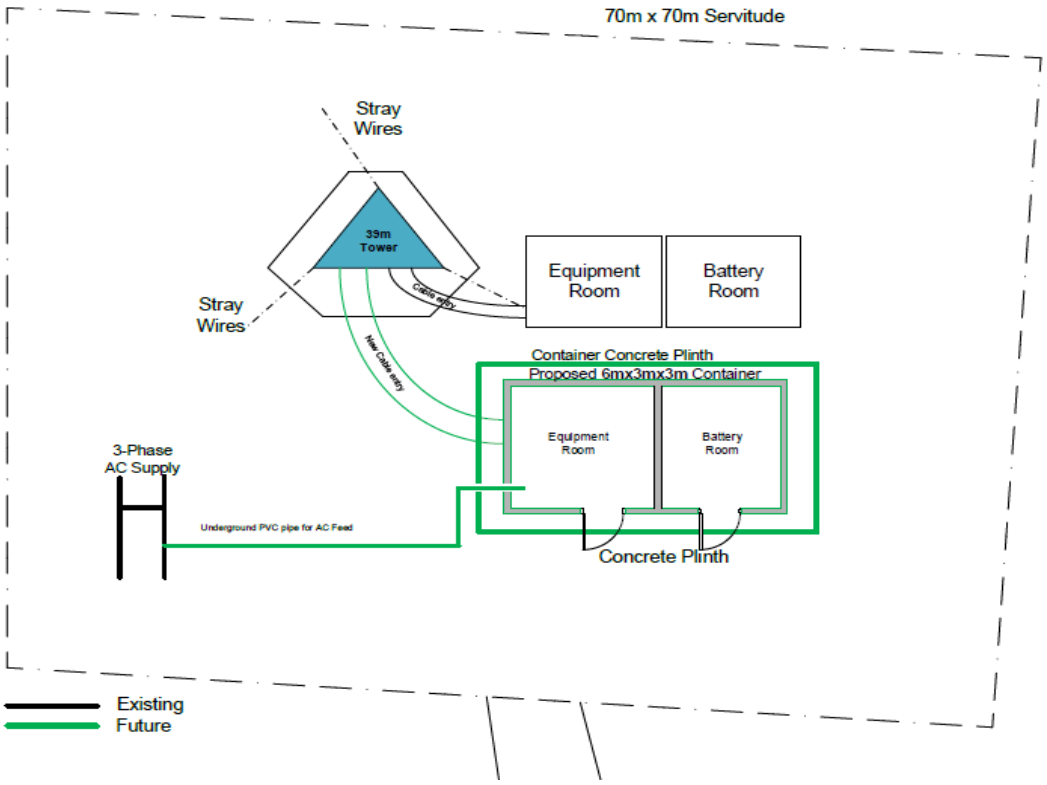


Figure 1: Proposed Site layout

4. Acceptance

This document has been seen and accepted by:

Name	Designation
Thabo Morule	Manager Application & Engineering North
Thabo Ringani	Manager Operation & Field Limpopo
Petrus Masoka	Middle Manager Northern Region
Fako Pitsi	Project Manager Northern Portfolio
Matlou Molea	Senior Engineer NPAE North
Mandla Bhiya	Senior Supervisor Polokwane
Phillip Nthabalala	Senior Supervisor Plant
Obed Aphane	Senior Supervisor Implementation

Name	Designation
Siboniso Zungu	Project Engineer NPAE North
Edward Rakgwahla	Project Engineer NPAE North

5. Revisions

Date	Rev.	Compiler	Remarks
May 2025	1	LJ Lamola	Scope of work for supply, deliver and construct equipment shelter
September 2025	2	LJ Lamola	Added anti-intrusion and miscellaneous items

6. Development Team

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

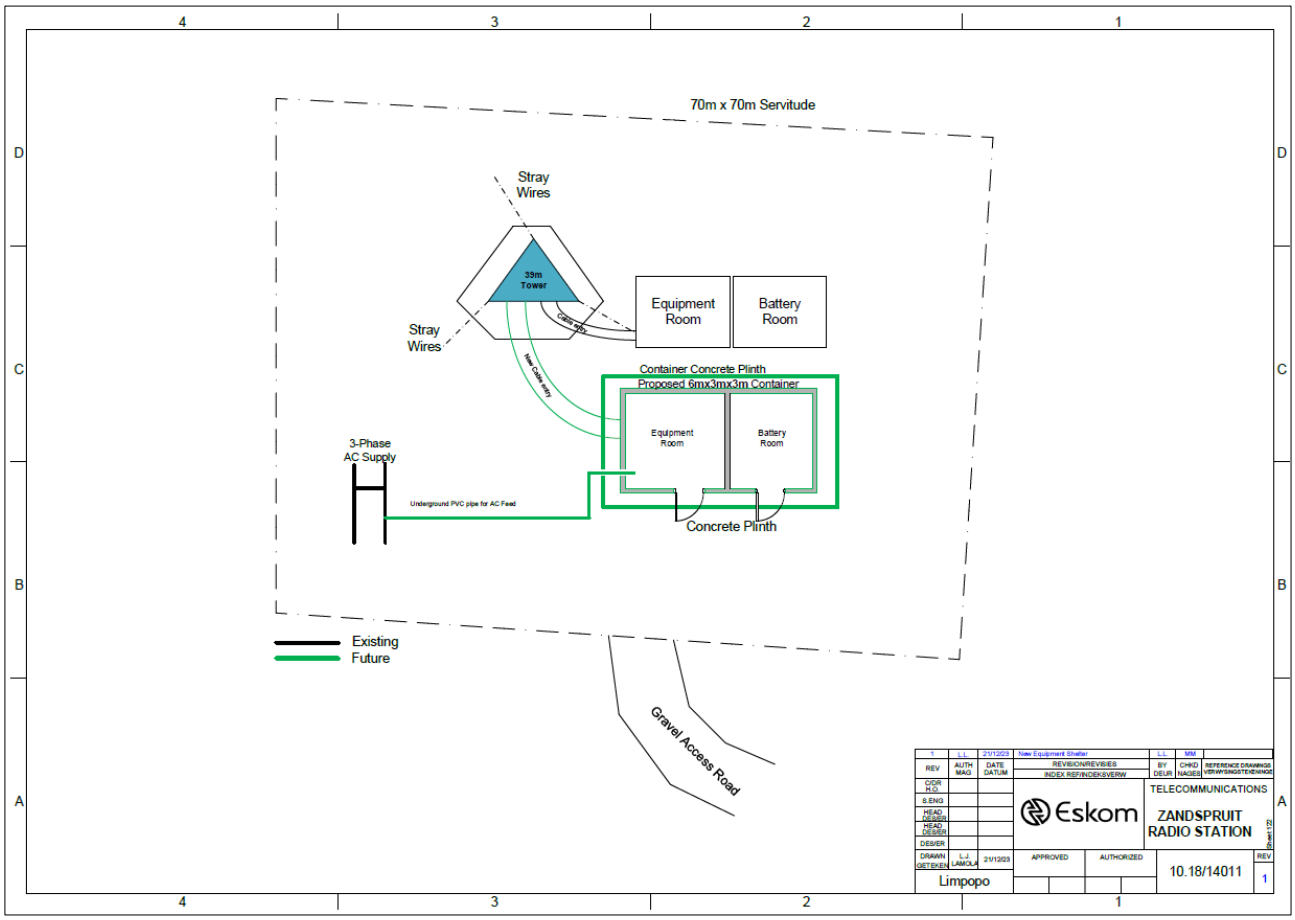
- Lesibana Lamola
- Siboniso Zungu
- Jacques van Der Heide

7. Acknowledgements

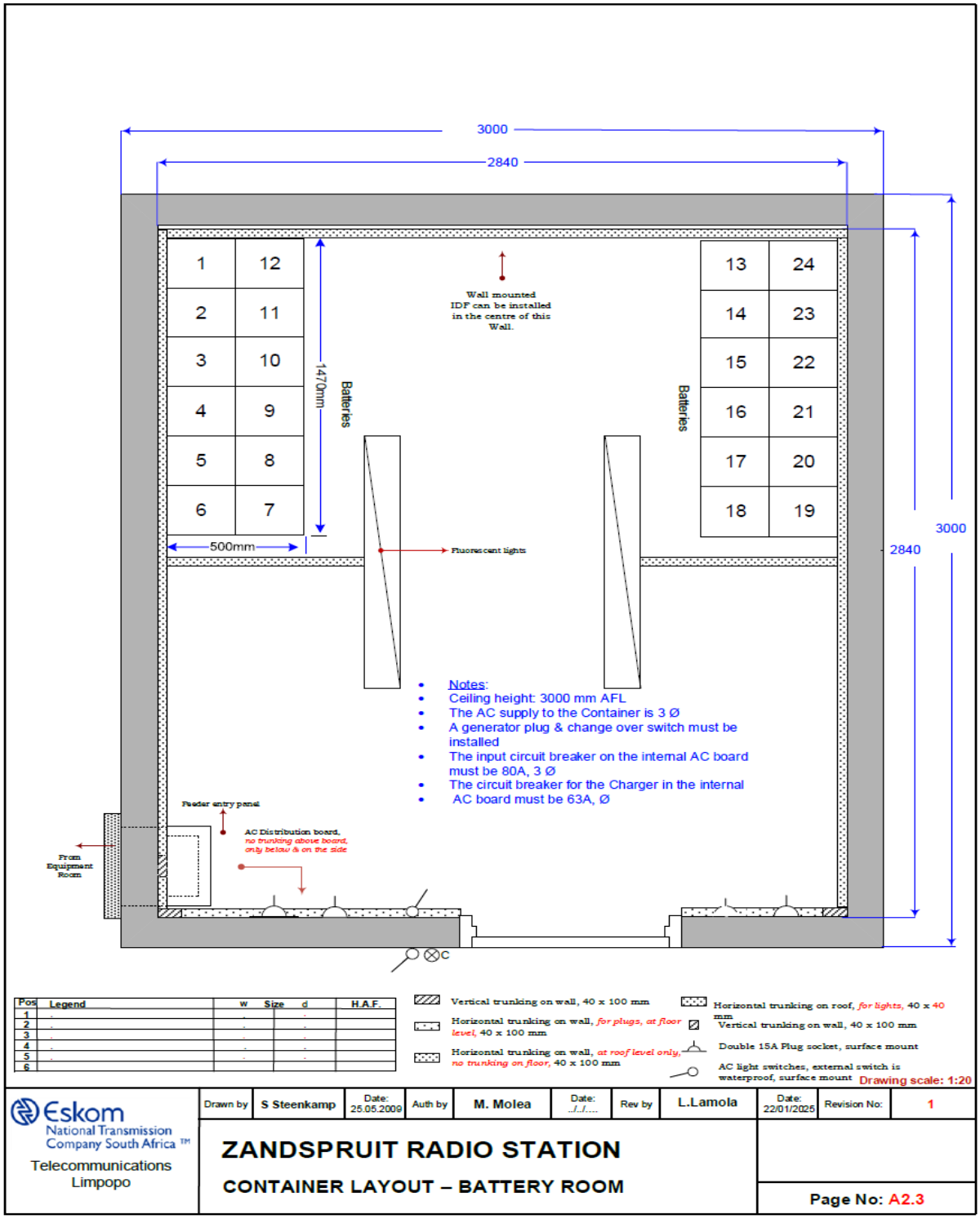
- Jacques van Der Heide
- Siboniso Zungu
- Thabo Morule
- Vishal Hemraj
- Wayne Pringle
- Nelson Shandu

Appendix A – Zandspruit RS Document Hierarchy

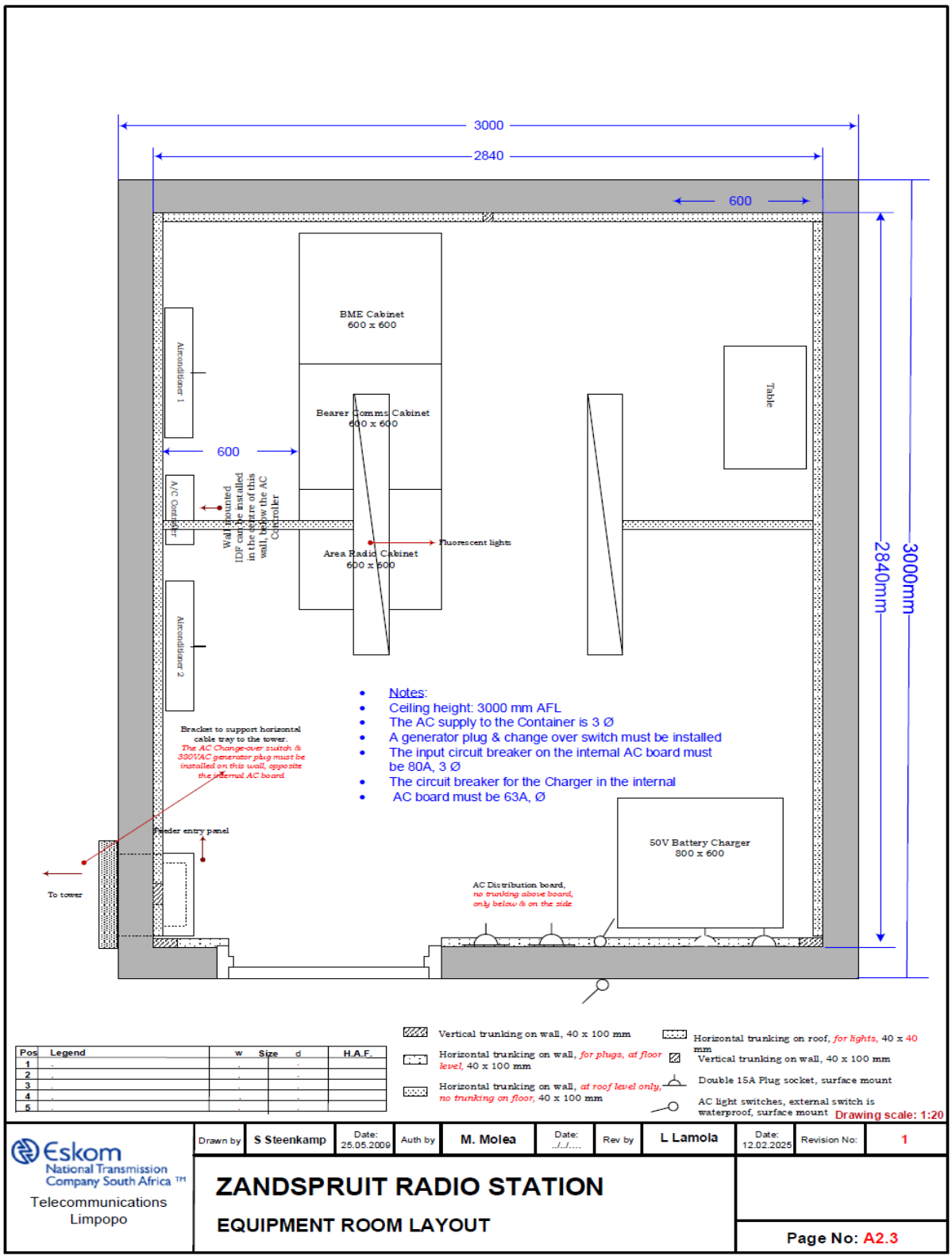
A.1 Zandspruit RS Proposed Site Layout



A.2 Zandspruit RS Battery Room Layout



A.3 Zandspruit RS Equipment Room Layout



A.4 Feeder Gantry Cable Tray

Horizontal bend

Straight cable tray heavy duty pre-galvanised

Width (mm)	304mm
Height (mm)	19
Finish fasteners	Electro-galvanised
Number of gutter bolts & square nuts per joint	3

Cable tray parameters