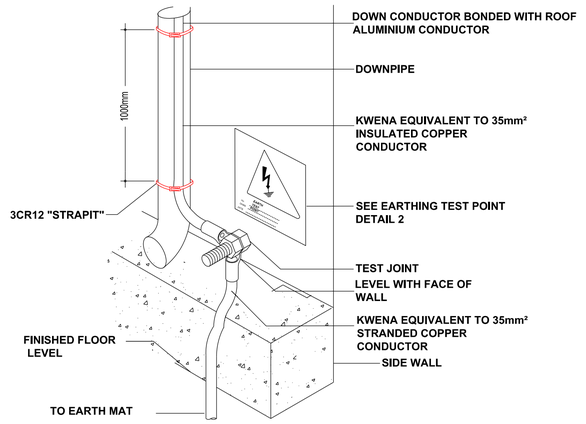
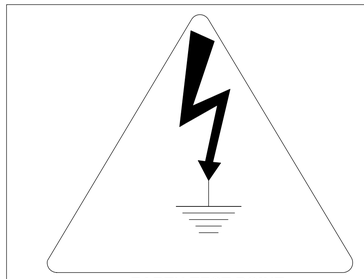
EARTHING DETAIL 1



NOT TO SCALE

EARTHING TEST POINT DETAIL 2



EARTH TEST POINT

No. .....

OHMS. .....

DATE : .....

TEST POINT SPECIFICATION	
MATERIAL	STAINLESS STEEL 316
BACKGROUND INFORMATION	ENGRAVED AND PAINTED
TEST INFORMATION	VINYL LETTERING
MOUNTING DETAILS	HOT DIPPED GALVANISED STEEL STRUCTURE

THIS DRAWING IS FOR ELECTRICAL PURPOSES ONLY

LEGEND

- CONNECTION POINT
- EXOTHERMIC WELD
- EARTH ELECTRODE POINT
- BONDING CONDUCTOR
- EARTH CONDUCTOR
- EARTH ELECTRODE
- EARTHBAR

EARTH TERMINATION NOTES

Earth Termination System General Requirements

The results from the soil resistivity tests shall be used to design an earth termination system,

Type B Earthing arrangement shall be used for any building installation.

The ring earth electrode (type B arrangement) should preferably:

- Be buried at a depth of at least 0,5 m and
- At a distance of about 1 m away from the external walls.

3. The calculation of an earth termination system shall be done in accordance with the formulae in SANS 10199

   A low earthing resistance if possible lower than 10Ω when measured at low frequency

   shall be obtained from an earthing termination system.
4. An earth rod shall be of length at least 7.5 m and may be extendible, if so required.
5. The material, configuration and minimum cross-sectional area of, earth electrode shall be in accordance with Table 7 of SANS 62305-3
6. Earth-termination systems shall be bonded:
   - Minimum dimensions of conductors connecting different bonding bars or with connecting bonding bars to the earth-termination system shall be in accordance Table 8 of SANS 62305-3
   - Minimum dimensions of conductors connecting internal metal installations to the bonding bar shall be in accordance with Table 9 of SANS 62305-3

LPS COMPONENTS

1. ONLY LIGHTNING PROTECTION SYSTEN(LPS) COMPONENTS TESTED IN ACCORDANCE WITH THE FUTURE IEC 62561 SERIES SHOULD BE USED.

DOWN CONDUCTORS

1. DOWN CONDUCTORS MUST BE INSULATED BY AT LEAST 3mm CROSS LINKED POLYETHYLENE.
2. WARNING NOTICES TO BE INSTALED TO MINIMISE THE PROBABILITY OF DOWN CONDUCTORS BEING TOUCHED
3. ALL NON CURRENT CARRYING METAL PARTS OF THE INSTALLATION TO BE BONDED TO EARTH

TEST JOINTS

1. TEST JOINTS SHOULD BE CAPABLE OF BEING OPENED WITH THE AID OF TOOL

CLIENT: TRANSNET national ports authority

Client Name:	
Designation & Section:	ELECTRICAL ENGINEER: PORT ENGINEERING
Client Signature:	Project Phase: 0
Date:	
Contact No.'s:	

No.	DATE	REVISION DETAIL
00	11-12-2020	ORIGINAL
01	27-11-2022	APPROVED FOR CONSTRUCTION (AFC)

Main Contractor:

Stateway Switchboards (Pty) Ltd.

55 Second Road, Linbro Park Sandton
P.O. Box 1055 Linbro Park 2065
TEL. +27(0) 11 021 7260
FAX. +27(0) 86 503 2258

Main Contractor:	STATEWAY SWITCHBOARDS (PTY.) LTD.
ZML Africa Drawing No.	TNPA/2020

Consultant:

Z.M.L Africa Group
Engineering Africa Forward

Site Address:

Sturrock Dry Dock, Cape Town

Building Name:

Combined Pumphouse and Graving Dock Substation

Project Description:

Sturrock Dry Dock Electrical Infrastructure Upgrades: - Sketch Plan

Drawing Description:

Earthing and Lightning Protection Layout

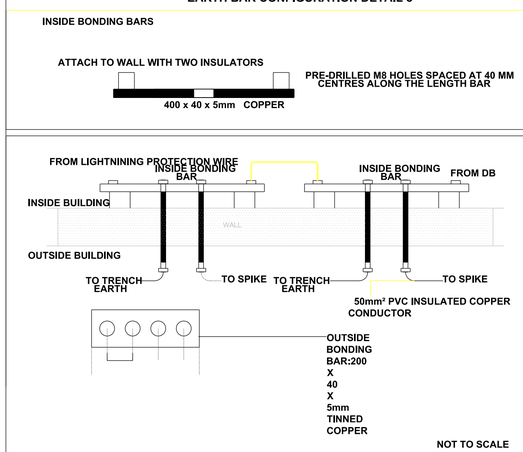
Drawn:	P.MAZIBUKO	Date:	29 / 07 / 2021
Designer / Checked:	M.SHEZI	Scale:	AS SHOWN
Approved:	M.SHEZI	Drawing Size:	A1
Prof Reg. No.	20110108	Revision No:	01
Signature:	27/11/2022		

Drawing Number: TNPA/2020-000-E-ELSP-0003

Site & Building No.	Floor No.	Discipline & Service Type

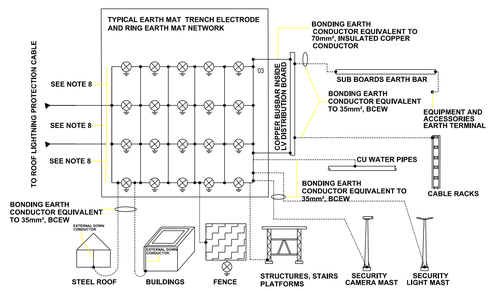
Sheet Number	Project Number	Proposal No
003		000

EARTH BAR CONFIGURATION DETAIL 3



NOT TO SCALE

SUBSTATION TYPICAL EARTH MAT SCHEMATIC (DETAIL 4)



NOTES

1. THIS DRAWING IS FOR THE LIGHTNING PROTECTION ONLY
2. CERTIFICATE OF COMPLIANCE TO BE COMPLETED BY CONTRACTOR ON COMPLETION OF WORK
3. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH SABS 10313
4. THE LIGHTNING PROTECTION CONTRACTOR SHALL CARRY OUT THE SOIL RESISTIVITY SURVEY AND SUBMIT A REPORT PRIOR TO ANY COMMENCEMENT OF WORK
5. ALL DOWN CONDUCTORS SHALL BE MINIMUM 35mm² SOLID ROUND ALUMINIUM
6. THE CONTRACTOR SHALL DESIGN, SUPPLY AND INSTALL A LIGHTNING PROTECTION SYSTEM WITH CERTIFICATE BY A EARTHING SPECIALIST WITH ALL NECESSARY PROFESSIONAL SIGNATURES
7. AN EARTH MAT DESIGN SHALL BE DONE BY AN EARTHING SPECIALIST
8. DISTANCE TO BE DETERMINED BY SPECIALIST EARTHING DESIGNER
9. EARTH MAT TO ACHIEVE <1ohm ON EACH INDIVIDUAL MAT
10. ALL EARTH MATS TO BE BONDED TO SUBSTATION EARTH TERMINAL BAR BELOW GROUND LEVEL BY BARE 70mm² CONDUCTORS

NOT TO SCALE