SUBSTATION M

FROM NEW MAIN INTAKE SUBSTATION 11 kV SWITCHBOARD

1 x 3C x 240mm² Cu XLPE SWA + 1C x 70mm² Cu INSULATED EARTH WIRE

INCOMER 1

FROM NEW MAIN INTAKE SUBSTATION 11 kV SWITCHBOARD

1 x 3C x 240mm² Cu XLPE SWA + 1C x 70mm² Cu INSULATED EARTH WIRE

INCOMER 2

11 kV SWITCHBOARD

3 x 1C x 240mm² Cu XLPE + 1C x 70mm² Cu INSULATED EARTH WIRE

1250 A

$\frac{11}{\sqrt{3}} / \frac{0.11}{\sqrt{3}} / \frac{0.11}{\sqrt{3}} / \frac{0.11}{3}$ kV

BB VT

3 x 1C x 240mm² Cu XLPE + 1C x 70mm² Cu INSULATED EARTH WIRE

$\frac{11}{\sqrt{3}} / \frac{0.11}{\sqrt{3}} / \frac{0.11}{\sqrt{3}} / \frac{0.11}{3}$ kV

BB VT

1250 A

11 kV 1250 A 31.5 kA 3-PHASE BUSBAR

11 kV 1250 A 31.5 kA 3-PHASE BUSBAR

630 A

630 A

630 A

630 A

630 A

1250 A

1250 A

BUSBAR

FRONT VIEW OF SWITCHBOARD

3 x 1C x 120mm² Cu XLPE + 1C x 70mm² Cu INSULATED EARTH WIRE — T3 BUILDING TX FEEDER

3 x 1C x 70mm² Cu XLPE + 1C x 70mm² Cu INSULATED EARTH WIRE — SUBSTATION LOCAL TX FEEDER

3 x 1C x 70mm² Cu XLPE + 1C x 70mm² Cu INSULATED EARTH WIRE — T3 CONVEYOR TX FEEDER

GENERAL FEEDER 1

TFR LOAD SUPPLY 1

T3 CONVEYOR TRANSFORMER
3.5 MVA OCTS
11 kV / 3.3 kV
Dyn11
7%

T3 TRANSFORMER NOT RATED FOR N-1 REDUNDANCY

SUBSTATION LOCAL TRANSFORMER
1 MVA OCTS
11 kV / 0.4 kV
Dyn11
5%

NO REDUNDANCY ON SUBSTATION (N-1) LOCAL TRANSFORMER

3 x 1C x 300mm² Cu XLPE + 2 x 1C x 70mm² Cu INSULATED EARTH WIRE — 01

3.3 kV SWITCHBOARD

INCOMER 1

1250 A

$\frac{3.3}{\sqrt{3}} / \frac{0.11}{\sqrt{3}} / \frac{0.11}{\sqrt{3}} / \frac{0.11}{3}$ kV

BB VT

01

3.3 kV 1250 A 25 kA 3-PHASE BUSBAR

630 A

630 A

630 A

1250 A

1250 A

450 kW VSD FEEDER

750 kW VSD FEEDER

750 kW VSD FEEDER

FRONT VIEW OF SWITCHBOARD

1 x 3C x 120mm² Cu XLPE SWA + 1C x 70mm² Cu INSULATED EARTH WIRE

3 x 1C x 300mm² Cu XLPE (FULL SIZE NEUTRAL) + 3 x 1C x 95mm² Cu INSULATED EARTH WIRE — 01

1600 A

400 V 1600 A 35 kA 3-PHASE 4-WIRE

SEE LV SINGLE LINE DIAGRAMS FOR DETAILS

T3 BUILDING TRANSFORMER
3.15 MVA OCTS
11 kV / 0.4 kV
Dyn11
7%

NO REDUNDANCY (N-1) ON T3 BUILDING TRANSFORMER

NOTE:
T3 TRANSFORMER TO BE SET TO TAP 5

AWAITING FINAL OFFERED MV EQUIPMENT DETAILS. — 01

LEGEND:

- THREE POSITION SWITCH
- CIRCUIT BREAKER
- TRI FURCATING JOINT
- DYN11 DRY TYPE TRANSFORMER
- FUTURE
- CABLE TERMINATION
- BUSBAR

ABBREVIATIONS:

BB	BUSBAR
Cu	COPPER
TRFR	TRANSFORMER
SWA	STEEL WIRE ARMOURED
T3	TIPPLER 3
TFR	TRANSNET FREIGHT RAIL
XLPE	CROSS-LINKED POLYETHYLENE
OCTS	OFF-CIRCUIT TAP SWITCH

DRAWING NO.	REFERENCE

REFERENCE DRAWINGS

NOTES:

1. SEE SPECIFICATIONS FOR TERMINATIONS OF SWITCHGEAR.
2. SEE SPECIFICATIONS FOR CABLE PLUGS AND TERMINATIONS FOR TRANSFORMER ENCLOSURE BOXES.
3. ALL POWER CABLES INTERNAL TO THE SUBSTATION TO BE UNARMOURED.
4. ALL POWER CABLES EXTERNAL TO THE SUBSTATION TO BE ARMOURED.

01

MASTER
07 JUN 2018
AECOM TRANSNET

AECOM

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REG. No. 1966/006628/07

NO.	DESCRIPTION	BY	CHKD	APPD	DATE
01	ISSUED FOR CONSTRUCTION: • HOLD POINT ADDED. • REMOVED 3.3 kV VT FROM FEEDER. • QUANTITY CHANGED. • NOTES REMOVED AND UPDATED. • UPDATED CONDUCTOR SIZE.	GB	DA	CP	'18-06-06
00	ISSUED FOR CONSTRUCTION	GB	DA	BS	'18-03-15

REVISIONS

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OPERATING DIVISIONS			
TITLE	NAME	SIGN	DATE

TRANSNET CAPITAL PROJECTS			
TITLE	NAME	SIGN	DATE
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CHECKED	JF		'18 06 06
DESIGNED	BS		'18 06 06
CHECKED	DA		'18 06 06
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SIGNATURE		'18 06 06
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PORT OF SALDANHA

IRON ORE TIPPLER 3 PROJECT
BULK ELECTRICAL POWER UPGRADE:
SUBSTATION M
MV SINGLE LINE DIAGRAM

PROJECT NUMBER	OD	FBS	DIS	TYPE	DRAWING NO.	SHEET	REV	ID
1924701-230				ES	L-0005	01	01	AE