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Scheme	
Project	**MOOKODI 1ST 500MVA TRANSFORMER**
Project WBS	**N.ETMOOKO.D.NW.INT.TE.SU**
Substation	**MOOKODI**
Grid	**NORTHERN**
Date	**02/05/2023**
Revision Number	**1**
Eskom Reference Documents:	

Select:	**LABELS**	**X**	**HARDWARE**	
	OTHER		specify	

REVISION CONTROL

Rev	Date	Description	Compiler
1	02-05-2023	First issue	C Thomas

	Name	Designation	Signature	Date
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MOOKODI

132kV BUSBAR 1A

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL(kg)	MASS BOLTS(kg)
132kV BUSBAR 1A	150	1 (1830x305mm)	1	**1**	16	0.54/1790	9,50	0,80
132kV BUSBAR 1A VT	30 25	5 (460x230mm)	1	**1**	8	J	143,99	0,23
132kV BUSBAR 1A EARTH SWITCH	30 25	5 (460x230mm)	2	**1**	8	J	143,99	0,23
132kV BUSBAR 1A VT JB	30 25	7 (320x100mm)	3	**1**	4	NONE	NONE	NONE
R, W, B *(ONE LETTER PER DISC)*	150	6	4,5,6	SETS				
(ON VT's)		(DIA. 230mm)	(1 SET)	**1**	12	J	431,97	0,69
(ON BB BEAM)				**1**		L	1,41	0,69
				TOTALS	**48**		**730,86**	**2,64**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x	1	9,50	0,80
0.54/403 (J) x	5	719,95	1,15
0.54/1794 (L) x	3	1,41	0,69

*** NOTE:**

"J" & "L" Bracket quantities are for calculation purposes only and will be ordered on a separate steelwork pro-forma.

MOOKODI

132kV BUSBAR 1B

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL(kg)	MASS BOLTS(kg)
132kV BUSBAR 1B	150	1 (1830x305mm)	1	**1**	16	0.54/1790	9,50	0,80
132kV BUSBAR 1B VT	30 25	5 (460x230mm)	1	**1**	8	J	143,99	0,23
132kV BUSBAR 1B EARTH SWITCH	30 25	5 (460x230mm)	2	**1**	8	J	143,99	0,23
132kV BUSBAR 1B VT JB	30 25	7 (320x100mm)	3	**1**	4	NONE	NONE	NONE
R, W, B *(ONE LETTER PER DISC)*	150	6	4,5,6	SETS				
(ON VT's)		(DIA. 230mm)	(1 SET)	**1**	12	J	431,97	0,69
(ON BB BEAM)				**1**		L	1,41	0,69
				TOTALS	**48**		**730,86**	**2,64**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x	1	9,50	0,80
0.54/403 (J) x	5	719,95	1,15
0.54/1794 (L) x	3	1,41	0,69

*** NOTE:**

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MOOKODI

Eskom Transmission

132kV BUSBAR 1

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL(kg)	MASS BOLTS(kg)
132kV BUSBAR 1 BUS SECTION 2 ISOLATOR BUSBAR 1A SIDE	30 25 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
132kV BUSBAR 1 BUS SECTION 2 ISOLATOR BUSBAR 1B SIDE	30 25 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
132kV BUSBAR 1 BUS SECTION 2 BREAKER	30 25	5 (460x230mm)	1	**1**	0	J	0,73	0,23
132kV BUSBAR 1 BUS SECTION 2 BKR EARTH SWITCH BUSBAR 1A SIDE	30 25 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
132kV BUSBAR 1 BUS SECTION 2 BKR EARTH SWITCH BUSBAR 1B SIDE	30 25 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
BUS SECTION 2 132kV JB	30 25	7 (320x100mm)	3	**1**	4	_	NONE	NONE
R, W, B *(ONE LETTER PER DISC)* *(CT)*	150	6 (DIA. 230mm)	4,5,6 (1 SET)	**1** SETS	12	L	2,19	0,69
				TOTAL	**48**		**5,84**	**1,84**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x			
0.54/400 x			
0.54/403 (J) x	8	5,84	1,84
0.54/1794 (L) x			

*** NOTE:**

"J" & "L" Bracket quantities are for calculation purposes only and will be ordered on a separate steelwork pro-forma.

MOOKODI Eskom

132kV BUS COUPLER A

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL(kg)	MASS BOLTS(kg)
132kV BUS COUPLER A BUSBAR 1 ISOLATOR	30 25	5 (460x230mm)	1	**3**	24	J	0,00	0,69
132kV BUS COUPLER A BUSBAR 2 ISOLATOR	30 25	5 (460x230mm)	1	**3**	24	J	2,19	0,69
132kV BUS COUPLER A BREAKER	30 25	5 (460x230mm)	1	**1**	16	J	0,73	0,23
132kV BUS COUPLER A BKR EARTH SWITCH BUSBAR 1 SIDE	30 25 25	5 (460x230mm)	2	**1**	8	0	0,73	0,23
132kV BUS COUPLER A BKR EARTH SWITCH BUSBAR 2 SIDE	30 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
132kV BUS COUPLER A 132kV JB	30 25	7 (320x100mm)	3	**1**	4			
R, W, B *(ONE LETTER PER DISC)* *(CT)*	150	6 (DIA. 230mm)	4,5,6 (1 SET)	**1** SETS	12	L	1,41	0,69
				TOTAL	**96**		**5,79**	**2,76**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x			
0.54/400 x			
0.54/403 (J) x	8	4,38	2,07
0.54/1794 (L) x	3	1,41	0,69

*** NOTE:**
"J" & "L" Bracket quantities are for calculation purposes only and will be ordered on a separate steelwork pro-forma.

MOOKODI Eskom

TRANSFORMER 14

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL (kg)	MASS BOLTS(kg)
TRANSFORMER 14 132kV BUSBAR 1 ISOLATOR	30 25	5 (460x230mm)	1	**3**	24	J	2,19	0,69
TRANSFORMER 14 132kV BUSBAR 2 ISOLATOR	30 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
TRANSFORMER 14 132kV BREAKER	30 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
TRANSFORMER 14 132kV BKR EARTH SWITCH BUSBAR SIDE	30 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
TRANSFORMER 14 132kV BKR EARTH SWITCH TRFR SIDE	30 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
TRANSFORMER 14 132kV JB	30 25	7 (320x100mm)	3	**1**	8	NONE	NONE	NONE
TRANSFORMER 14 TDB	30 25	7 (320x100mm)	3	**1**	8	NONE	NONE	NONE
TRANSFORMER 14 TJB	30 25	7 (320x100mm)	3	**1**	8	NONE	NONE	NONE
R, W, B *(ONE LETTER PER DISC)* *(CT, SA & BEAM)*	150	6 (DIA. 230mm)	4,5,6 (1 SET)	**4** SETS	48	L	5,64	2,76
				TOTAL	**128**		**10,75**	**4,37**

TOTALS

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x			
0.54/400 x		NONE	NONE
0.54/403 (J) x	7	5,11	1,61
0.54/1794 (L) x	12	5,64	2,76

*** NOTE:**
"J" & "L" Bracket quantities are for calculation purposes only and will be ordered on a separate steelwork pro-forma.

MOOKODI

400kV BUSBAR 1A

Eskom Transmission

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL(kg)	MASS BOLTS(kg)
400kV BUSBAR 1A	150	1 (1830x305mm)	1	**2**	32	0.54/1790	19,00	1,60
400kV BUSBAR 1A VT	30 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
400kV BUSBAR 1A EARTH SWITCH	30 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
400kV BUSBAR 1A 400kV VT JB	30 25	7 (320x100mm)	3	**1**	4	NONE	NONE	NONE
R, W, B *(ONE LETTER PER DISC)*	150	6	4,5,6	SETS	12			
(ON CVT's)			(1 SET)	**1**		**J**	2,19	0,69
(ON SUPPORT)		(DIA. 230mm)	units	**1**		**J**	0,73	0,23
(ON BB BEAM)				**0**		**L**	0,00	0,00
				TOTALS	**64**		**23,38**	**2,98**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x	2	19,00	1,60
0.54/403 (J) x	6	4,38	1,38
0.54/1794 (L) x	0	0,00	0,00

*** NOTE:**

"J" & "L" Bracket quantities are for calculation purposes only and will be ordered on a separate steelwork pro-forma.

MOOKODI

400kV BUSBAR 1B

Eskom Transmission

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL(kg)	MASS BOLTS(kg)
400kV BUSBAR 1B	150	1 (1830x305mm)	1	**2**	32	0.54/1790	19,00	1,60
400kV BUSBAR 1B VT	30 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
400kV BUSBAR 1B EARTH SWITCH	30 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
400kV BUSBAR 1B 400kV VT JB	30 25	7 (320x100mm)	3	**1**	4	NONE	NONE	NONE
R, W, B *(ONE LETTER PER DISC)*	150	6 (DIA. 230mm)	4,5,6 (1 SET)	SETS **1**	8	**J**	2,19	0,69
(ON CVT's)			units	**1**		**J**	0,73	0,23
(ON SUPPORT)				**0**		**L**	0,00	0,00
(ON SUPPORT)				**TOTALS**	**60**		**23,38**	**2,98**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x	2	19,00	1,60
0.54/403 (J) x	6	4,38	1,38
0.54/1794 (L) x	0	0,00	0,00

*** NOTE:**

"J" & "L" Bracket quantities are for calculation purposes only and will be ordered on a separate steelwork pro-forma.

MOOKODI

Eskom Transmission

400kV TRANSFER BUSBAR

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL(kg)	MASS BOLTS(kg)
400kV TRANSFER BUSBAR	150	1 (1830x305mm)	1	**2**	32	0.54/1790	19,00	1,60
400kV TRANSFER BUSBAR VT	30 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
400kV TRANSFER BUSBAR EARTH SWITCH	30 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
400kV TRANSFER BUSBAR 400kV VT JB	30 25	7 (320x100mm)	3	**1**	4	NONE	NONE	NONE
R, W, B *(ONE LETTER PER DISC)*	150	6	4,5,6 (1 SET)	SETS **1**	6	**J**	2,19	0,69
(ON CVT's)		(DIA. 230mm)	units	**2**		**J**	1,46	0,46
(ON SUPPORT)				**0**		**L**	0,00	0,00
(ON SUPPORT)				**TOTALS**	**58**		**24,11**	**3,21**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x	2	19,00	1,60
0.54/403 (J) x	7	5,11	1,61
0.54/1794 (L) x	0	0,00	0,00

*** NOTE:**

"J" & "L" Bracket quantities are for calculation purposes only and will be ordered on a separate steelwork pro-forma.

MOOKODI

400kV BUSBAR 1
BUS SECTION 2

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL(kg)	MASS BOLTS(kg)
400kV BUSBAR 1 BUS SECTION 2 ISOLATOR BUSBAR 1A SIDE	30 25 25	5 (460x230mm)	1	**1**	8	L	0,47	0,23
400kV BUSBAR 1 BUS SECTION 2 ISOLATOR BUSBAR 1B SIDE	30 25 25	5 (460x230mm)	1	**1**	8	L	0,47	0,23
400kV BUSBAR 1 BUS SECTION 2 BREAKER	100 75	1 (1830x305mm)	1	**1**	0	0.54/400	22,15	0,50
400kV BUSBAR 1 BUS SECTION 2 BKR EARTH SWITCH BUSBAR 1A SIDE	30 25 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
400kV BUSBAR 1 BUS SECTION 2 BKR EARTH SWITCH BUSBAR 1B SIDE	30 25 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
400kV BUSBAR 1 BUS SECTION 2 JB	30 25	7 (320x100mm)	3	**1**	4	NONE	NONE	NONE
R, W, B *(ONE LETTER PER DISC)* *(CT)*	150	6 (DIA. 230mm)	4,5,6 (1 SET)	**0** SETS	0	J	0,00	0,00
					36		**24,55**	**1,42**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x			
0.54/400 x	1	22,15	0,50
0.54/403 (J) x	2	1,46	0,46
0.54/1794 (L) x	2	0,94	0,46

*** NOTE:**
"J" & "L" Bracket quantities are for calculation purposes only and will be ordered on a separate steelwork pro-forma.

MOOKODI Eskom

400kV TRANSFER BUS CPLR A

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL(kg)	MASS BOLTS(kg)
400kV TRANSFER BUS CPLR A BUSBAR 1 ISOLATOR	30 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
400kV TRANSFER BUS CPLR A BUSBAR 2 ISOLATOR	30 25	5 (460x230mm)	1	**3**	24	L	1,41	0,69
400kV TRANSFER BUS CPLR A TRANSFER BUSBAR ISOLATOR	30 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
400kV TRANSFER BUS CPLR A BREAKER	100 75	1 (1830x305mm)	1	**1**	16	0.54/400	22,15	0,50
400kV TRANSFER BUS CPLR A BKR EARTH SWITCH BUSBAR 1 SIDE	30 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
400kV TRANSFER BUS CPLR A BKR EARTH SWITCH TRANSFER BUSBAR SIDE	30 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
400kV TRANSFER BUSBAR EARTH SWITCH	30 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
TRANSFER BUS CPLR A 400kV JB	30 25	7 (320x100mm)	3	**1**	4	NONE	NONE	NONE
R, W, B *(ONE LETTER PER DISC)* *(CT)*	150	6 (DIA. 230mm)	4,5,6 (1 SET)	**1** SETS	12	J	1,41	0,69
				TOTAL	**96**		**28,62**	**3,03**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x			
0.54/400 x	1	22,15	0,50
0.54/403 (J) x	8	5,06	1,84
0.54/1794 (L) x	3	1,41	0,69

*** NOTE:**
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MOOKODI

Eskom Transmission

TRANSFORMER 14

LABEL WORDING	LETTER SIZE (mm)	LABEL TYPE & SIZE	COLOUR SCHEME	QTY	WASHERS QTY	BRACKET TYPE	MASS STEEL (kg)	MASS BOLTS(kg)
TRANSFORMER 14 400kV BUSBAR 1 ISOLATOR	30 25	5 (460x230mm)	1	**3**	24	L	1,41	0,69
TRANSFORMER 14 400kV BUSBAR 2 ISOLATOR	30 25	5 (460x230mm)	1	**1**	8	L	0,47	0,23
TRANSFORMER 14 400kV BREAKER	100 75	1 (1830x305mm)	1	**1**	8	0.54/400	22,15	0,50
TRANSFORMER 14 400kV BKR EARTH SWITCH BUSBAR SIDE	30 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
TRANSFORMER 14 400kV BKR EARTH SWITCH TRFR SIDE	30 25 25	5 (460x230mm)	2	**1**	8	J	0,73	0,23
TRANSFORMER 14 400kV JB	30 25	7 (320x100mm)	3	**1**	8	NONE	NONE	NONE
TRFR 13 AUX TRFR 1 DB	30 25	7 (320x100mm)	3	**1**	8	NONE	NONE	NONE
TRANSFORMER 14 400/132/22kV	100 75	1 (1830x305mnm)	1	**1**	8	0.54/400	22,15	0,50
TRANSFORMER 14 AUX TRFR 1 22kV/400V	30 25 25	5 (460x230mm)	1	**1**	8	J	0,73	0,23
R, W, B *(ONE LETTER PER DISC)*				SETS				
(CT, 2XSA, PANTO)	150	6 (DIA. 230mm)	4,5,6 (1 SET)	**4**	60	J	8,76	2,76
(BEAMS)				**1**		L	1,41	0,69
				TOTAL	**148**		**58,54**	**6,06**

LABEL TYPE	QTY.	S/W (kg)	BOLTS (kg)
0.54/1790 x			
0.54/400 x	2	44,30	1,00
0.54/403 (J) x	7	10,95	3,45
0.54/1794 (L) x	5	3,29	1,61

*** NOTE:**

"J" & "L" Bracket quantities are for calculation purposes only and will be ordered on a separate steelwork pro-forma.