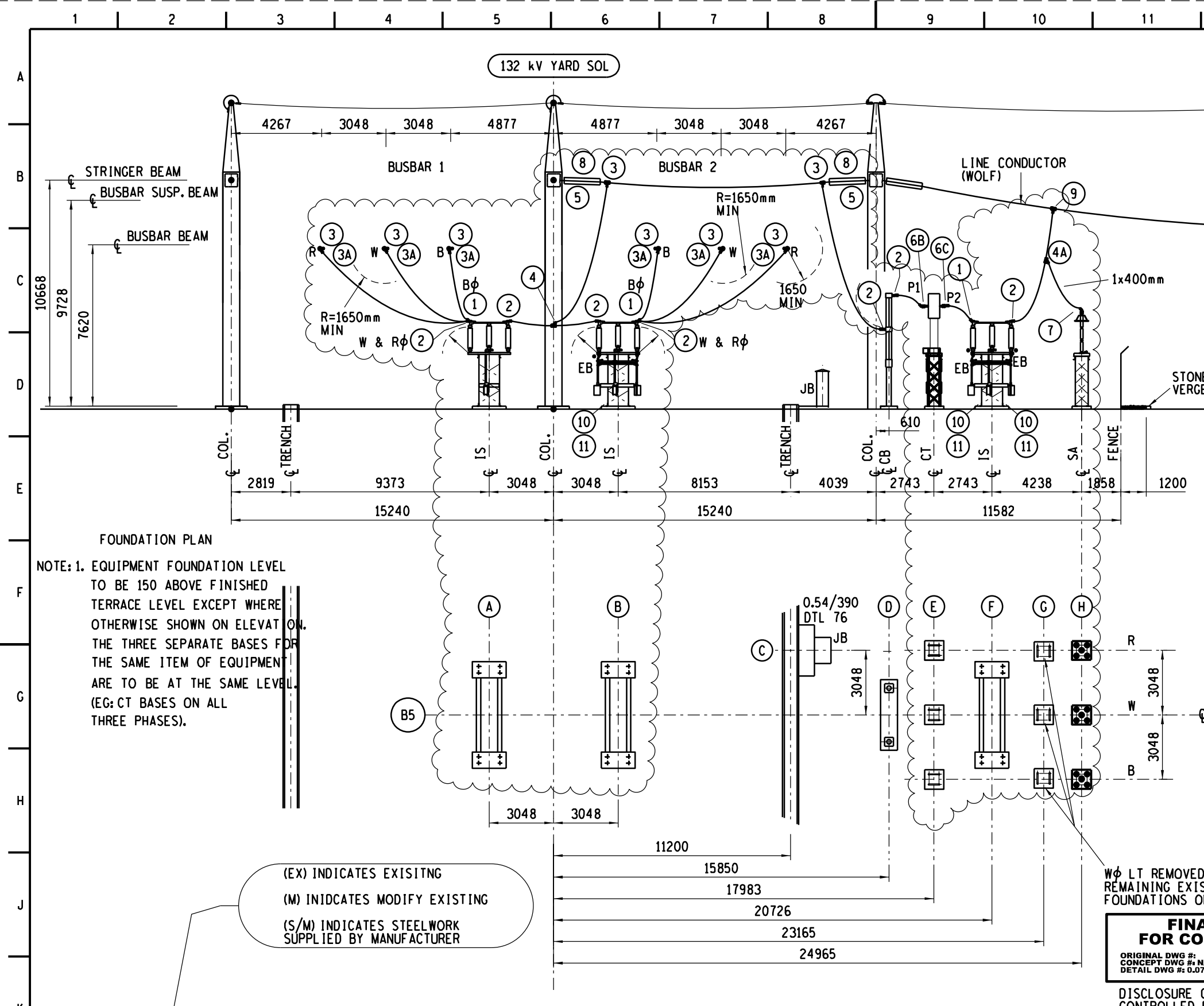


1			2			3			4			5			6			7			8								
SHEET			DESCRIPTION			REV			SHEET			DESCRIPTION			REV			SHEET			DESCRIPTION			REV			EARTHING DESIGN FAULT LEVEL		
0			COVER SHEET			0						132kV									88kV						275kV = 25kA 132kV = 25kA 88kV = 25kA		
1			REFERENCE DRAWING LIST			--			20			FEEDER 1			1			50			FEEDER 1 (FUTURE)			--			A		
1A			CONDUCTOR & HARDWARE SCHEDULE			--			20A			FEEDER 1 - EARTHING			1			50A			FEEDER 1 (FUTURE) - EARTHING			--					
									21			FEEDER 2			1			51			FEEDER 2			1					
									21A			FEEDER 2 - EARTHING			1			51A			FEEDER 2 - EARTHING			1					
									22			FEEDER 3 (FUTURE)			--			52			FEEDER 3			1					
									22A			FEEDER 3 (FUTURE) - EARTHING			--			52A			FEEDER 3 - EARTHING			1					
									23			FEEDER 4			--			53			FEEDER 4			1					
									23A			FEEDER 4 - EARTHING			--			53A			FEEDER 4 - EARTHING			1					
									24			FEEDER 5			1			54			BUS COUPLER A			0					
									24A			FEEDER 5 - EARTHING			1			54A			BUS COUPLER A - EARTHING			0					
									25			FEEDER 6			1			55			TRANSFORMER 11 (FUTURE)			--					
									25A			FEEDER 6 - EARTHING			1			55A			TRANSFORMER 11 (FUTURE) - EARTHING			--					
									26			FEEDER 7			1			56			TRANSFORMER 12			1					
									26A			FEEDER 7 - EARTHING			1			56A			TRANSFORMER 12 - EARTHING			1					
									27			FEEDER 8			1			57			TRANSFORMER 13			1					
									27A			FEEDER 8 - EARTHING			1			57A			TRANSFORMER 13 - EARTHING			1					
									28			FEEDER 9			--			58			BUSBAR 1 VT			0					
									28A			FEEDER 9 - EARTHING			--			58A			BUSBAR 1 VT - EARTHING			0					
									29			FEEDER 10			--			59			BUSBAR 2 VT			0					
									29A			FEEDER 10 - EARTHING			--			59A			BUSBAR 2 VT - EARTHING			0					
									30			FEEDER 11			--														
									30A			FEEDER 11 - EARTHING			--														
									31			TRANSFORMER 1 (FUTURE)			--														
									31A			TRANSFORMER 1 (FUTURE) - EARTHING			--														
									32			TRANSFORMER 2			1														
									32A			TRANSFORMER 2 - EARTHING			1														
									33			TRANSFORMER 3			1														
									33A			TRANSFORMER 3 - EARTHING			1														
									34			TRANSFORMER 4			1														
									34A			TRANSFORMER 4 - EARTHING			1														
									35			TRANSFORMER 5 (FUTURE)			--														
									35A			TRANSFORMER 5 (FUTURE) - EARTHING			--														
									36			TRANSFORMER 11 (FUTURE)			--														
									36A			TRANSFORMER 11 (FUTURE) - EARTHING			--														
									37			TRANSFORMER 12			1														
									37A			TRANSFORMER 12 - EARTHING			1														
									38			TRANSFORMER 13			1														
									38A			TRANSFORMER 13 - EARTHING			1														
									39			BUSBAR 2 BUS SECTION 1			0														
									39A			BUSBAR 2 BUS SECTION 1 - EARTHING			0														
									40			BUSBAR 1 BUS SECTION 1 (FUTURE)			--														
									40A			BUSBAR 1 BUS SECTION 1 (FUTURE) - EARTHING			--														
									41			BUS COUPLER 'A'			0														
									41A			BUS COUPLER 'A' - EARTHING			0														
									42			BUS COUPLER 'B'			0														
									42A			BUS COUPLER 'B' - EARTHING			0														
									43			CAPACITOR BANK 1			1														
									43A			CAPACITOR BANK 1 - EARTHING			1														
									44			BUSBAR 1 VT AND BUSBAR 2 A & B VT			0														
									44A			BUSBAR 1 VT - EARTHING			0														



CONDUCTOR AND HARDWARE SCHEDULE			BAY DESIGNATION		
			132kV FEEDER 5		
			SIZE	QTY (N)	QTY (EX)
CONDUCTOR	BUSBAR	2x800mm ²	800mm ²	—	
	CONDUCTOR (Al)	1x800mm ²	800mm ²	148	--
	CONDUCTOR (Al)	1x400mm ²	400mm ²	9	--
	EQUIPMENT EARTHING		50x3Cu	37.5	--
HARDWARE TO DRG No 0.54/412; CLAMPS SPECIFICATION(S): 240-53113927 AND 240-53113923	DESCRIPTION	MK	ITEM	QTY (N)	QTY (EX)
		1	EPC-E	5	--
		2	EPC-D	19	--
		3	ETC-K	12	--
		3A	ESC-B	6	--
		4	ETC-V	3	--
	INSULATOR ASSEMBLY	5	A41	6	--
		7	EXC-L	3	--
	GLASS DISC	8	--	--	66
	LINE CLAMP	9	ETC-P	3	--
		4A	ETC-U	3	--
		--	--	--	--
		6B	EXC-Q	3	--
		6C	EXC-R	3	--
		--	--	--	
		7	EXC-L	3	--
	L-SHAPED EARTH STUD ADAPTOR (TYPE B)	10	--	6	--
COPPER EARTHING STUD, 20kA	11	--	18	--	

(EX) INDICATES EXISTING
(N) INDICATES NEW
NB: SUBSTATION DIMENSIONS
ORIGINALLY EMPLOYED THE
IMPERIAL MEASUREMENT SYSTEM.
UNLESS OTHERWISE STATED ALL
DIMENSIONS ON THIS DRAWING
ARE NOW CONVERTED TO mm:
TO CO-INCIDE WITH THE METRIC
MEASUREMENT SYSTEM

ARROW INDICATES
ORIENTATION OF THIS
ARRGT WHEN LINED
UP WITH SIMILAR
ARROW ON FOUNDATION
LAYOUT

Wφ LT REMOVED.
REMAINING EXISTING
FOUNDATIONS ONLY

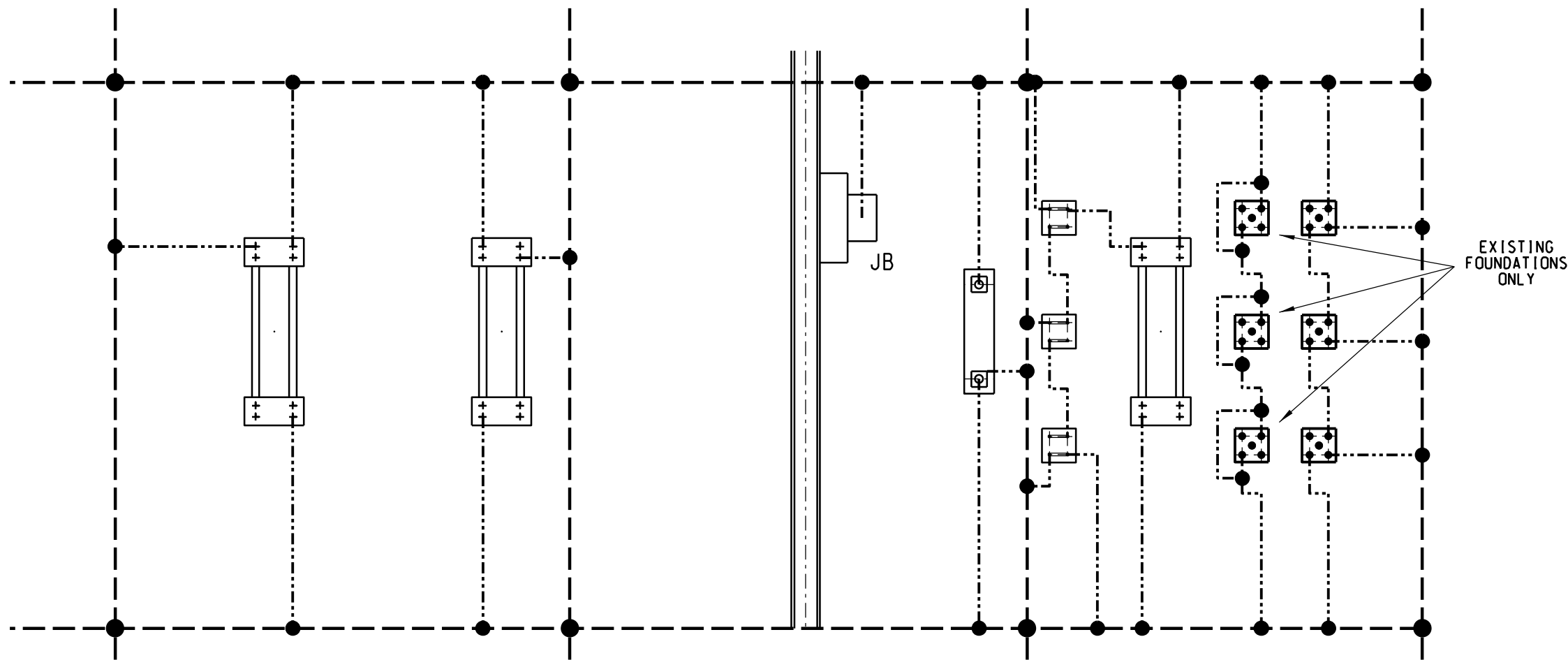
**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07/7042 (M)
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 20 REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

FOUNDATION		-A-	-B-	-C-	-D-	-E-	-F-	-G-	-H-
FOUNDATION DRG No		0.07/7042 (M)	0.07/7042 (M)	4713 (EX)	(EX)	0.07/7103 (M)	0.07/7042 (M)	0.07/7221 (EX)	308 (M)
EQUIPMENT		ISOL OES	ISOL LH/ES	JB (EX)	CIR BKR (EX)	CT	ISOL 2ES	---	SURG ARR
EQUIPMENT RATING	AMPS	2500	2500	---	---	2500	2500	---	---
	kA	40	40	---	---	40	40	---	---
EQUIPMENT STEM/PAD SIZE		8HHP	8HHP	---	8HHP	38mm DIA	8HHP	---	38mm DIA
MAKER		ACTOM	ACTOM	---	---	TRENCH	ACTOM	---	CPS
OUTLINE DRG No 0.54/		7616	7595	---	---	E180001	7577	---	8912
ESKOM NATIONAL CONTRACT		---	---	---	---	---	---	---	---
ORDER NUMBER		---	---	---	---	---	---	---	---
STEELWORK DRG No 0.54/	SUPPORT	7701 (S/M)	7705 (S/M)	---	(S/M) (EX)	306	(S/M)	---	302
	CAP	---	---	---	---	302	---	---	306, 6326

1	GEORGE DALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): 1. REPLACE ALL ISOLATORS, CT's & SURG ARR's AS SHOWN.				
0	GEORGE DALE REFURBISHMENT PROJECT: 1. REPLACE CT ONLY AS SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGE DALE 132kV FEEDER 1 BAY					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		20		1	

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	58
0.54/393 SHT C6 (ea)	31
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	290

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

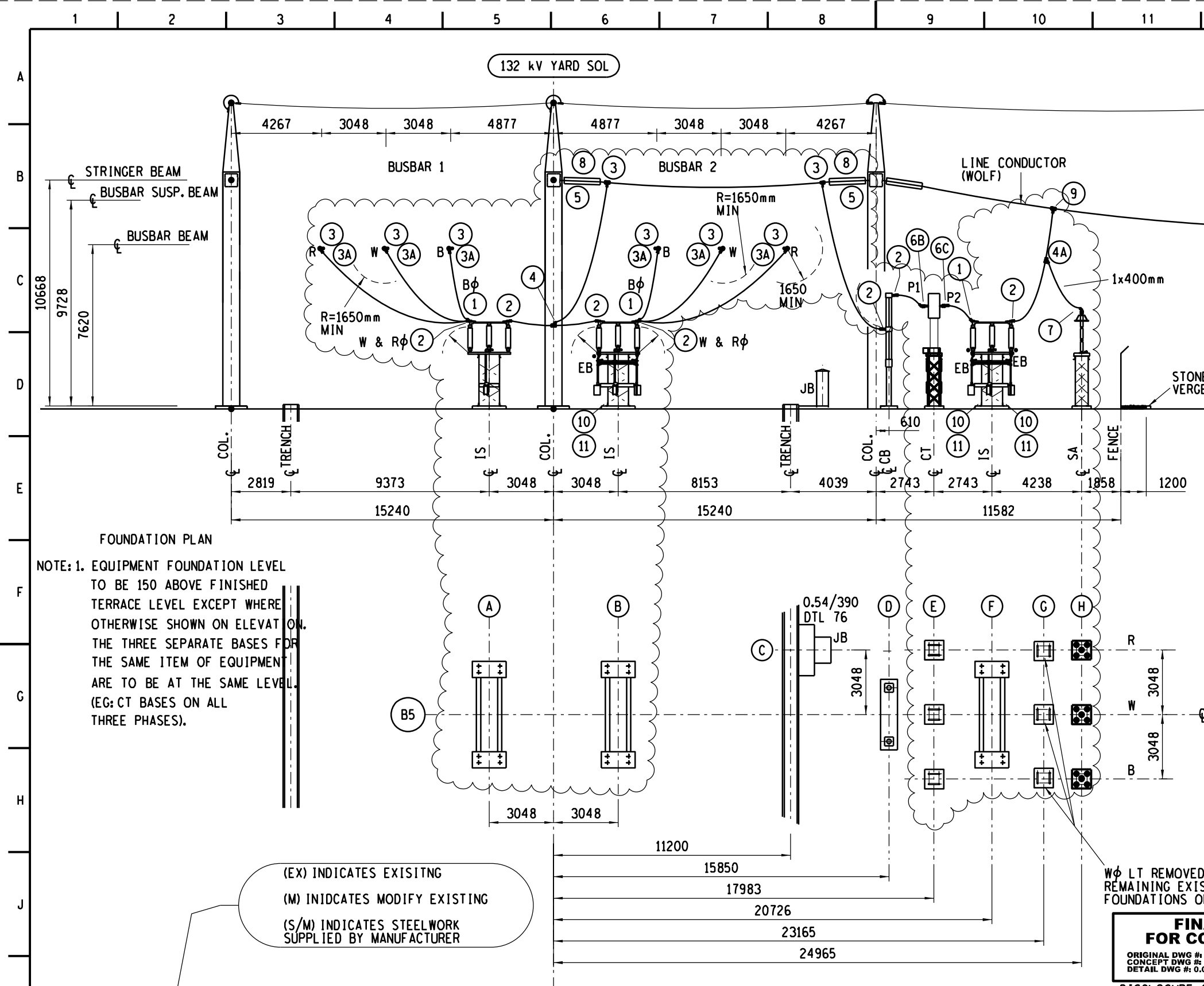
**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 20A REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT; 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV FEEDER 1 EARTHING					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
		20A		1	



FOUNDATION PLAN

NOTE: 1. EQUIPMENT FOUNDATION LEVEL TO BE 150 ABOVE FINISHED TERRACE LEVEL EXCEPT WHERE OTHERWISE SHOWN ON ELEVATION. THE THREE SEPARATE BASES FOR THE SAME ITEM OF EQUIPMENT ARE TO BE AT THE SAME LEVEL (EG: CT BASES ON ALL THREE PHASES).

(EX) INDICATES EXISTING
(M) INDICATES MODIFY EXISTING
(S/M) INDICATES STEELWORK SUPPLIED BY MANUFACTURER

FINAL DESIGN FOR CONSTRUCTION
ORIGINAL DWG #:
CONCEPT DWG # N/A
DETAIL DWG #: 0.07-18082 SHT 21 REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

FOUNDATION		-A-	-B-	-C-	-D-	-E-	-F-	-G-	-H-
FOUNDATION DRG No		0.07/7042 (M)	0.07/7042 (M)	4713 (EX)	(EX)	0.07/7103 (M)	0.07/7042 (M)	0.07/7221 (EX)	308 (M)
EQUIPMENT		ISOL OES	ISOL LH/ES	JB (EX)	CIR BKR (EX)	CT	ISOL 2ES	--	SURG ARR
EQUIPMENT RATING	AMPS	2500	2500	--	--	2500	2500	--	--
	kA	40	40	--	--	40	40	--	--
EQUIPMENT STEM/PAD SIZE		8HHP	8HHP	--	8HHP	38mm DIA	8HHP	--	38mm DIA
MAKER		ACTOM	ACTOM	--	--	TRENCH	ACTOM	--	CPS
OUTLINE DRG No 0.54/		7616	7595	--	--	E180001	7577	--	8912
ESKOM NATIONAL CONTRACT		--	--	--	--	--	--	--	--
ORDER NUMBER		--	--	--	--	--	--	--	--
STEELWORK DRG No 0.54/	SUPPORT	7701 (S/M)	7705 (S/M)	--	(S/M) (EX)	306	(S/M)	--	302
	CAP	--	--	--	--	302	--	--	306, 6326

CONDUCTOR AND HARDWARE SCHEDULE			BAY DESIGNATION			
			132kV FEEDER 5			
			SIZE	QTY (N)	QTY (EX)	
CONDUCTOR	BUSBAR		2x800mm ²	—		
	CONDUCTOR (Al)		1x800mm ²	148	--	
	CONDUCTOR (Al)		1x400mm ²	9	--	
	EQUIPMENT EARTHING		50x3Cu	37.5	--	
HARDWARE TO DRG No 0.54/412; CLAMPS SPECIFICATION(S): 240-53113927 AND 240-53113923	DESCRIPTION		MK	ITEM	QTY (N)	QTY (EX)
			1	EPC-E	5	--
			2	EPC-D	19	--
			3	ETC-K	12	--
			3A	ESC-B	6	--
			4	ETC-V	3	--
	INSULATOR ASSEMBLY		5	A41	6	--
			7	EXC-L	3	--
	GLASS DISC		8	--	--	66
	LINE CLAMP		9	ETC-P	3	--
			4A	ETC-U	3	--
			--	--	--	--
			6B	EXC-Q	3	--
			6C	EXC-R	3	--
			--	--	--	
			7	EXC-L	3	--
	L-SHAPED EARTH STUD ADAPTOR (TYPE B)		10	--	6	--
	COPPER EARTHING STUD, 20kA		11	--	18	--

(EX) INDICATES EXISTING
(N) INDICATES NEW
NB: SUBSTATION DIMENSIONS ORIGINALLY EMPLOYED THE IMPERIAL MEASUREMENT SYSTEM. UNLESS OTHERWISE STATED ALL DIMENSIONS ON THIS DRAWING ARE NOW CONVERTED TO mm: TO CO-INCIDE WITH THE METRIC MEASUREMENT SYSTEM

ARROW INDICATES ORIENTATION OF THIS ARRGT WHEN LINED UP WITH SIMILAR ARROW ON FOUNDATION LAYOUT

Wφ LT REMOVED. REMAINING EXISTING FOUNDATIONS ONLY

REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
1	GEORGE DALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): 1. REPLACE ALL ISOLATORS, CT's & SURG ARR's AS SHOWN.				03/08/2020
0	GEORGE DALE REFURBISHMENT PROJECT: 1. REPLACE CT ONLY AS SHOWN.	A. LG	S. B	S. Z	5/9/2019

Eskom Holdings
SOC Limited
REG No. 2002/015527/30

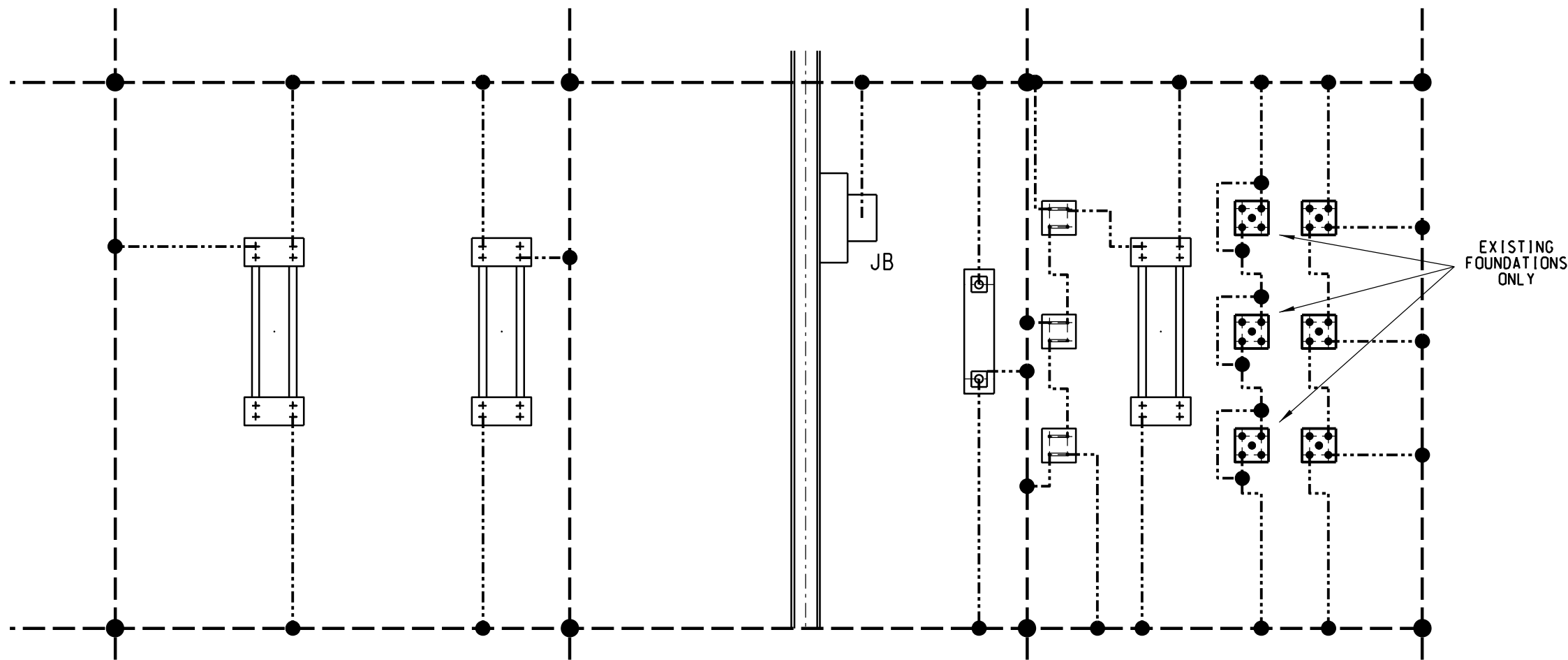
GEORGE DALE
132kV FEEDER 2 BAY

EGE012P02-SE-E13

SHEET NUMBER
21

REVISION
1

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 21A REV 0



DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

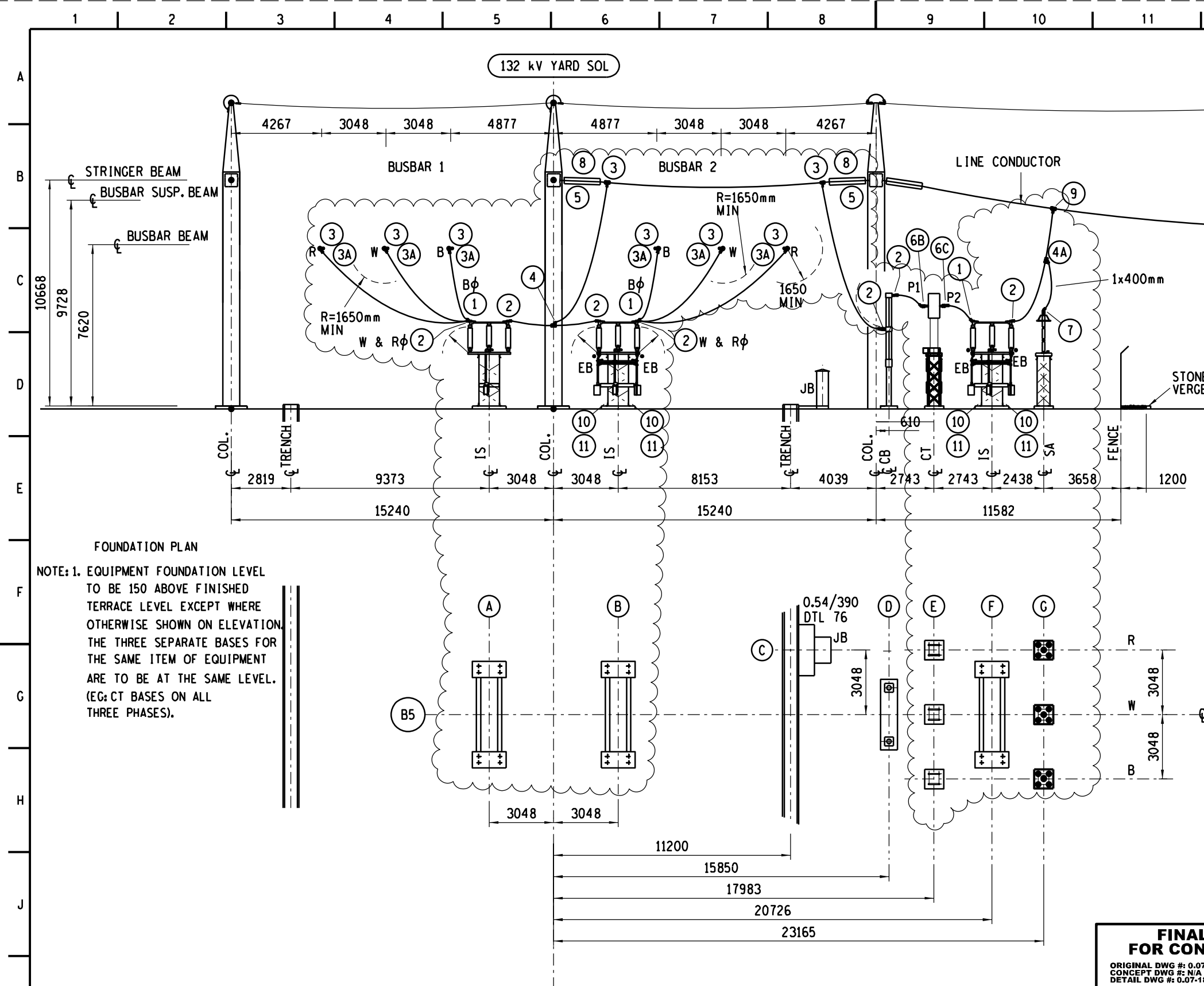
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	58
0.54/393 SHT C6 (ea)	31
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	290

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT: 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV FEEDER 2 EARTHING					
©		SHEET NUMBER		REVISION	
EGEO12P02-SE-E13		21A		1	



CONDUCTOR AND HARDWARE SCHEDULE			BAY DESIGNATION		
			132kV FEEDER 5		
			SIZE	QTY (N)	QTY (EX)
CONDUCTOR	BUSBAR	2x800mm ²	—		
	CONDUCTOR (Al)	1x800mm ²	148	--	
	CONDUCTOR (Al)	1x400mm ²	9	--	
	EQUIPMENT EARTHING	50x3Cu	37.5	--	
HARDWARE TO DRG No 0.54/412; CLAMPS SPECIFICATION(S): 240-53113927 AND 240-53113923	DESCRIPTION	MK	ITEM	QTY (N)	QTY (EX)
		1	EPC-E	5	--
		2	EPC-D	19	--
		3	ETC-K	12	--
		3A	ESC-B	6	--
		4	ETC-V	3	--
	INSULATOR ASSEMBLY	5	A41	6	--
		7	EXC-L	3	--
	GLASS DISC	8	--	--	66
	LINE CLAMP	9	ETC-P	3	--
		4A	ETC-U	3	--
		--	--	--	--
		6B	EXC-Q	3	--
		6C	EXC-R	3	--
		--	--	--	
		7	EXC-L	3	--
	L-SHAPED EARTH STUD ADAPTOR (TYPE B)	10	--	6	--
	COPPER EARTHING STUD, 20kA	11	--	18	--

(EX) INDICATES EXISTING
(N) INDICATES NEW
NB: SUBSTATION DIMENSIONS
ORIGINALLY EMPLOYED THE
IMPERIAL MEASUREMENT SYSTEM.
UNLESS OTHERWISE STATED ALL
DIMENSIONS ON THIS DRAWING
ARE NOW BEING CONVERTED TO mm:
TO CO-INCIDE WITH THE METRIC
MEASUREMENT SYSTEM

ARROW INDICATES
ORIENTATION OF THIS
ARRGT WHEN LINED
UP WITH SIMILAR
ARROW ON FOUNDATION
LAYOUT

**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-18082 SHT 25 REV 0
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 25 REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

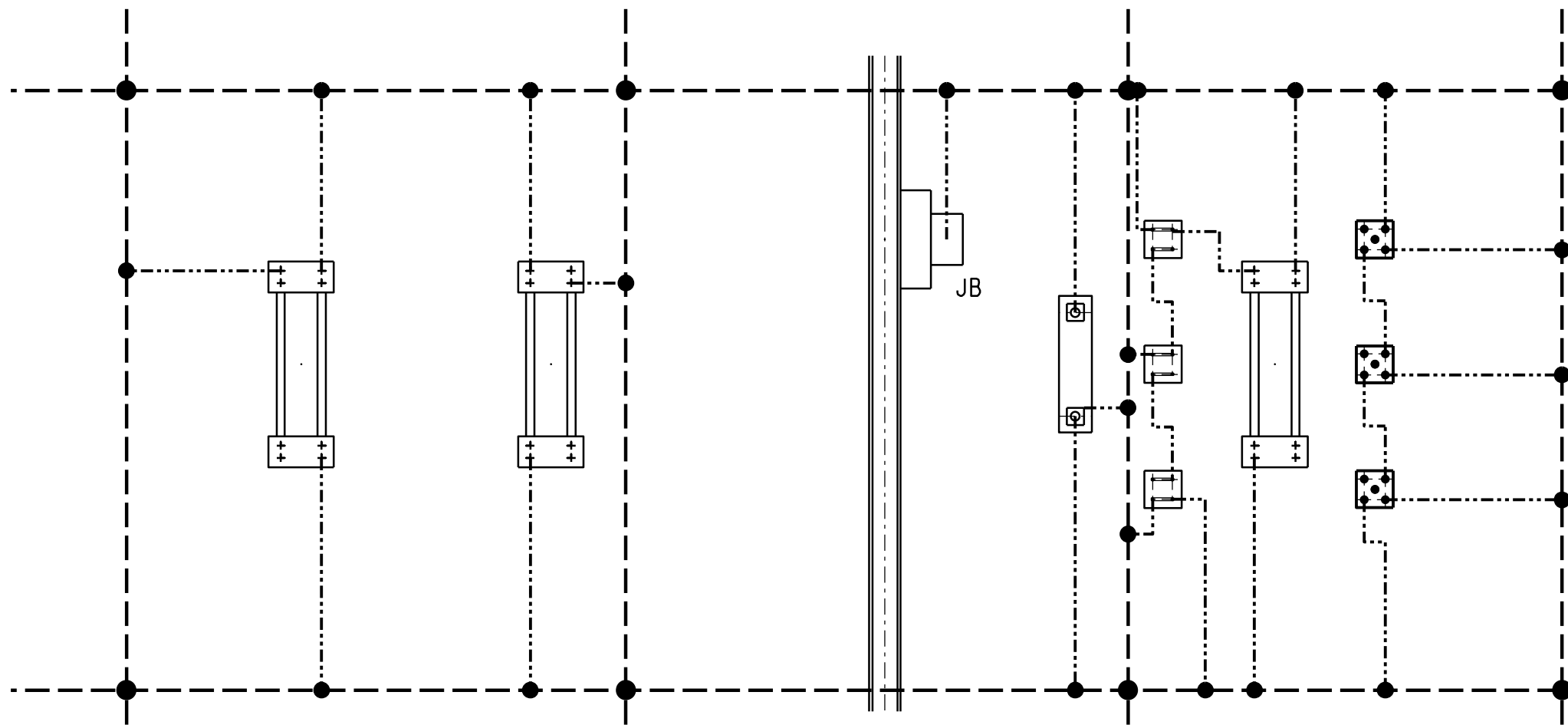
(EX) INDICATES EXISTING
(M) INDICATES MODIFY EXISTING
(S/M) INDICATES STEELWORK
SUPPLIED BY MANUFACTURER

CONTENTS OF THIS SHEET FROM
DRG 0.07/17230-0.

FOUNDATION	-A-	-B-	-C-	-D-	-E-	-F-	-G-
FOUNDATION DRG No	0.07/7042 (M)	0.07/7042 (M)	4713 (EX)	(EX)	0.07/7103 (M)	0.07/7042 (M)	308 (M)
EQUIPMENT	ISOL OES	ISOL 2ES	JB (EX)	CIR BKR (EX)	CT	ISOL 2ES	SURG ARR
EQUIPMENT RATING	AMPS 2500	2500	---	2500	2500	2500	---
	kA 40	40	---	31.5	40	40	---
EQUIPMENT STEM/PAD SIZE	8HHP	8HHP	---	8HHP	38mm DIA	8HHP	38mm DIA
MAKER	ACTOM	ACTOM	---	S&S	TRENCH	ACTOM	CPS
OUTLINE DRG No 0.54/	7616	7577	---	---	E180001	7577	8912
ESKOM NATIONAL CONTRACT	---	---	---	---	---	---	---
ORDER NUMBER	---	---	---	---	---	---	---
STEELWORK DRG No 0.54/	SUPPORT 7701 (S/M)	(S/M)	---	---	306	(S/M)	---
	CAP	---	---	---	302	---	306 / 6326

1	GEORGE DALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): 1. REPLACE ALL ISOLATORS, CT's & SURG ARR's AS SHOWN. THIS REVISION SUPERSEDES REV 0 - SCOPE MUST NOT BE DUPLICATED	12 A. LG				03/08/2020
0	GEORGE DALE REFURBISHMENT PROJECT: 1. REPLACE CT ONLY AS SHOWN.	A. LG	S. B	S. Z		5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE	
		Eskom Holdings SOC Limited REG No. 2002/015527/30				
GEORGE DALE 132kV FEEDER 5 BAY						
©						
EGE012P02-SE-E13			SHEET NUMBER		REVISION	
			24		1	

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 26A REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

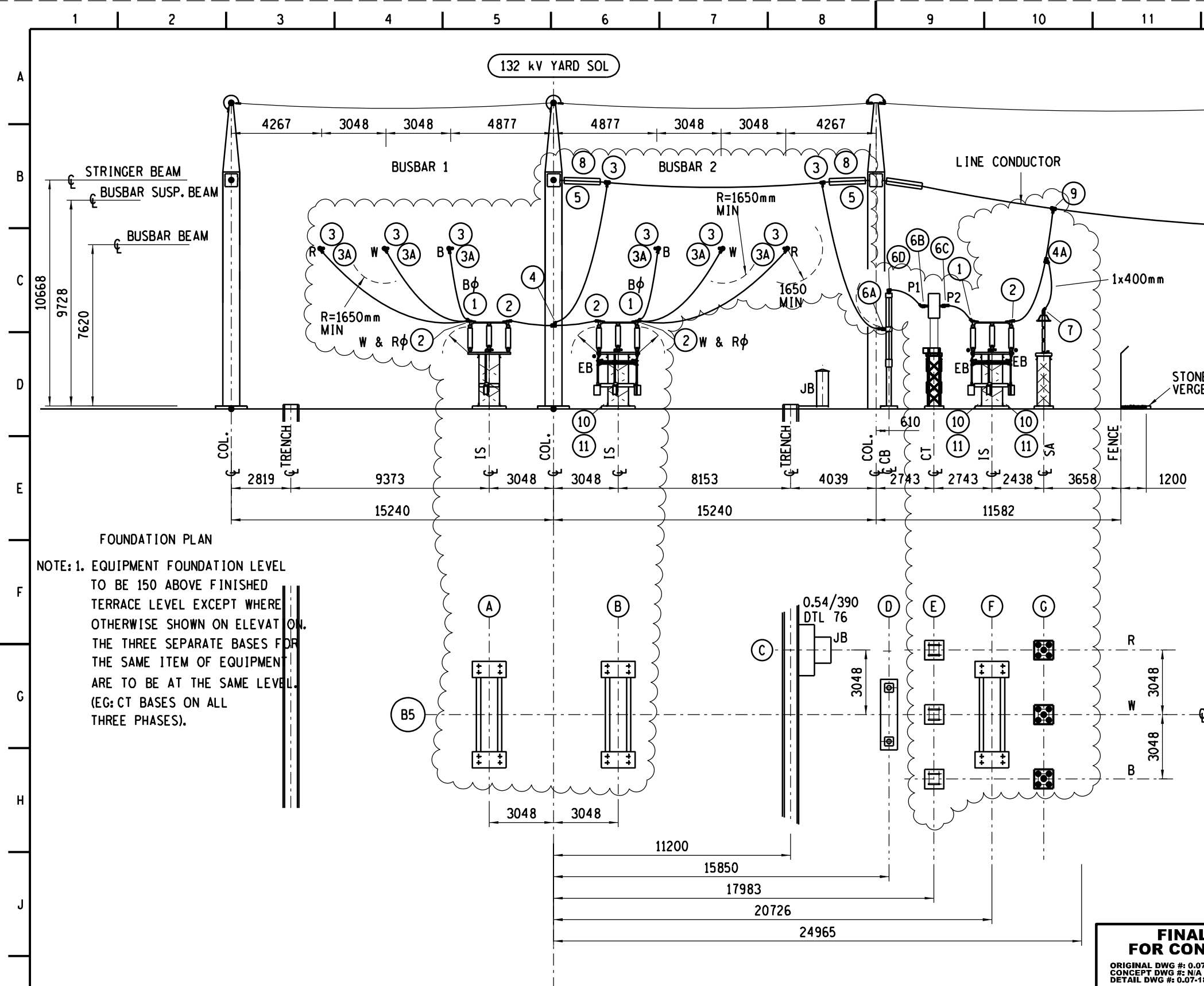
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	42
0.54/393 SHT C6 (ea)	31
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	246

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	15/10/20	[Signature]	[Signature]	03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT: 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV FEEDER 5 EARTHING					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
		24A		1	



FOUNDATION PLAN

NOTE: 1. EQUIPMENT FOUNDATION LEVEL TO BE 150 ABOVE FINISHED TERRACE LEVEL EXCEPT WHERE OTHERWISE SHOWN ON ELEVATION. THE THREE SEPARATE BASES FOR THE SAME ITEM OF EQUIPMENT ARE TO BE AT THE SAME LEVEL (EG: CT BASES ON ALL THREE PHASES).

FOUNDATION		-A-	-B-	-C-	-D-	-E-	-F-	-G-
FOUNDATION DRG No		0.07/7042 (M)	0.07/7042 (M)	4713 (EX)	(EX)	0.07/7103 (M)	0.07/7042 (M)	308 (M)
EQUIPMENT		ISOL OES	ISOL LH/ES	JB (EX)	CIR BKR (EX)	CT	ISOL 2ES	SURG ARR
EQUIPMENT RATING	AMPS	2500	2500	--	2500	2500	2500	--
	kA	40	40	--	31.5	40	40	--
EQUIPMENT STEM/PAD SIZE		8HHP	8HHP	--	38mm DIA	38mm DIA	8HHP	38mm DIA
MAKER		ACTOM	ACTOM	--	S&S	TRENCH	ACTOM	CPS
OUTLINE DRG No 0.54/		7616	7595	--	--	E180001	7577	8912
ESKOM NATIONAL CONTRACT		--	--	--	--	--	--	--
ORDER NUMBER		--	--	--	--	--	--	--
STEELWORK DRG No 0.54/	SUPPORT	7701 (S/M)	7705 (S/M)	--	--	306	(S/M)	--
	CAP	--	--	--	--	302	--	306 / 6326

CONDUCTOR AND HARDWARE SCHEDULE			BAY DESIGNATION			
			132kV FEEDER 5			
			SIZE	QTY (N)	QTY (EX)	
CONDUCTOR	BUSBAR		2x800mm ²	—		
	CONDUCTOR (Al)	1x800mm ²	800mm ²	148	--	
	CONDUCTOR (Al)	1x400mm ²	400mm ²	9	--	
	EQUIPMENT EARTHING		50x3Cu	37.5	--	
HARDWARE TO DRG No 0.54/412; CLAMPS SPECIFICATION(S): 240-53113927 AND 240-53113923	DESCRIPTION		MK	ITEM	QTY (N)	QTY (EX)
			1	EPC-E	5	--
			2	EPC-D	13	--
			3	ETC-K	12	--
			3A	ESC-B	6	--
			4	ETC-V	3	--
	INSULATOR ASSEMBLY		5	A41	6	--
			7	EXC-L	3	--
	GLASS DISC		8	--	--	66
	LINE CLAMP		9	ETC-P	3	--
			4A	ETC-U	3	--
			6A	EXC-C	3	--
			6B	EXC-Q	3	--
			6C	EXC-R	3	--
			6D	EXC-E	3	
			7	EXC-L	3	--
	L-SHAPED EARTH STUD ADAPTOR (TYPE B)		10	--	6	--
COPPER EARTHING STUD, 20kA		11	--	18	--	

(EX) INDICATES EXISTING
(N) INDICATES NEW

NB: SUBSTATION DIMENSIONS ORIGINALLY EMPLOYED THE IMPERIAL MEASUREMENT SYSTEM. UNLESS OTHERWISE STATED ALL DIMENSIONS ON THIS DRAWING ARE NOW CONVERTED TO mm: TO CO-INCIDE WITH THE METRIC MEASUREMENT SYSTEM


ARROW INDICATES ORIENTATION OF THIS ARRGT WHEN LINED UP WITH SIMILAR ARROW ON FOUNDATION LAYOUT

FINAL DESIGN FOR CONSTRUCTION
ORIGINAL DWG #: 0.07-18082 SHT 25 REV 0
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 25 REV 0

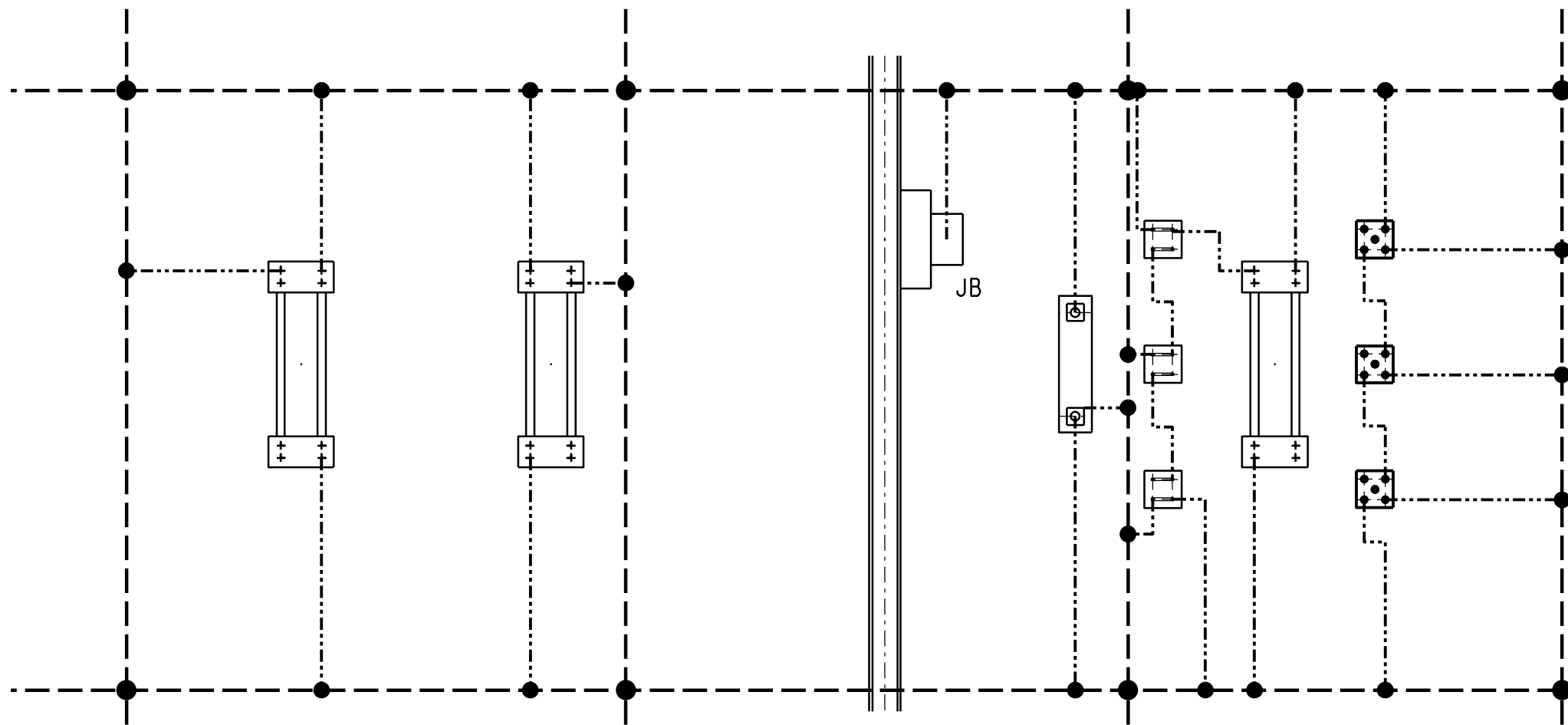
DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

(EX) INDICATES EXISTING
(M) INDICATES MODIFY EXISTING
(S/M) INDICATES STEELWORK SUPPLIED BY MANUFACTURER

CONTENTS OF THIS SHEET FROM
DRG 0.07/17230-0.

1	GEORGE DALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): 1. REPLACE ALL ISOLATORS, CT's & SURG ARR's AS SHOWN. THIS REVISION SUPERSEDES REV 0 - SCOPE MUST NOT BE DUPLICATED	A. LG	S. B	S. Z	03/08/2020
0	GEORGE DALE REFURBISHMENT PROJECT: 1. REPLACE CT ONLY AS SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
		Eskom Holdings SOC Limited REG No. 2002/015527/30			
<div>GEORGE DALE</div> <div>132kV FEEDER 6 BAY</div>					
©		SHEET NUMBER		REVISION	
EGE012P02-SE-E13		25		1	

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	42
0.54/393 SHT C6 (ea)	31
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	246

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 26A REV 0

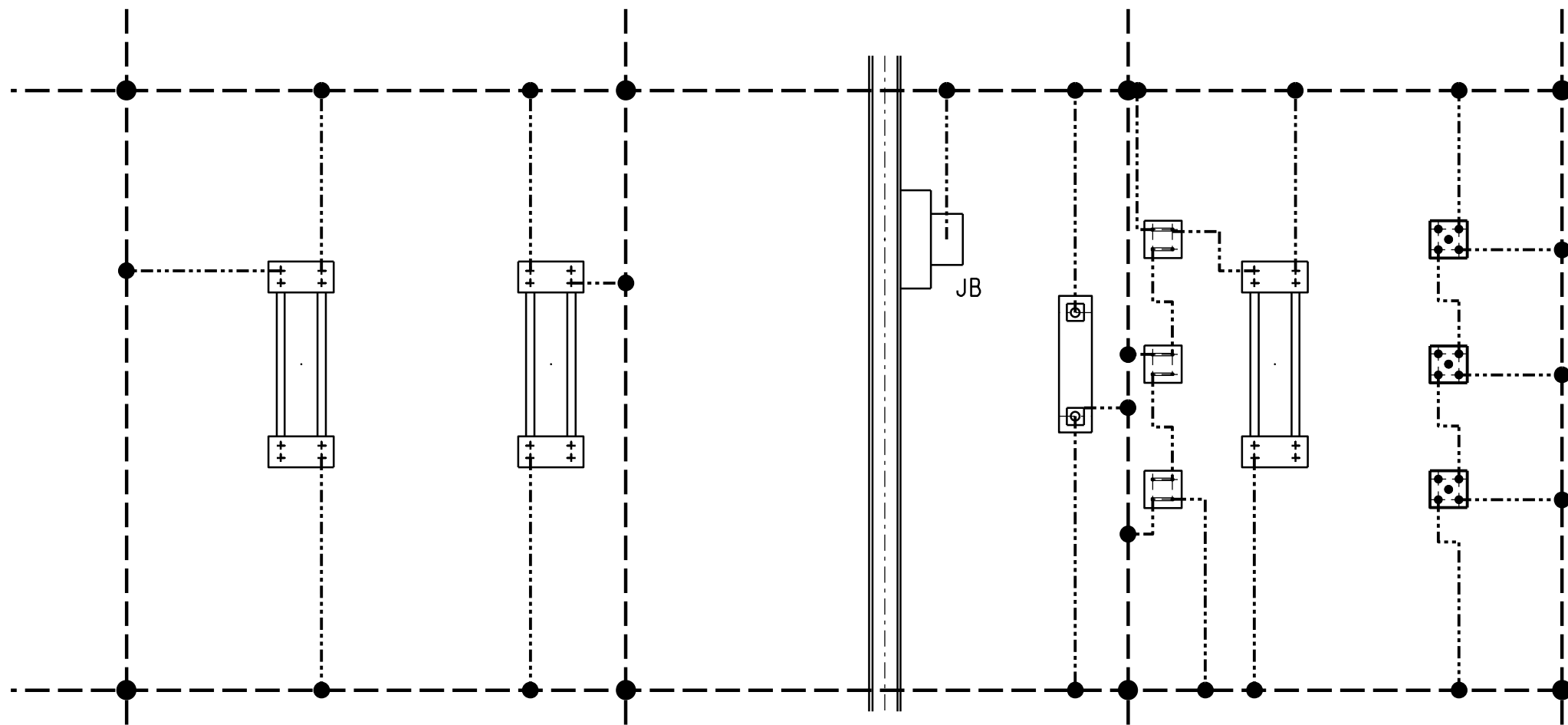
DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- +
+ INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	<i>ALG</i>	<i>S.B.</i>	<i>S.Z.</i>	03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT: 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV FEEDER 6 EARTHING					
©					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
		25A		1	

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 26A REV 0



DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

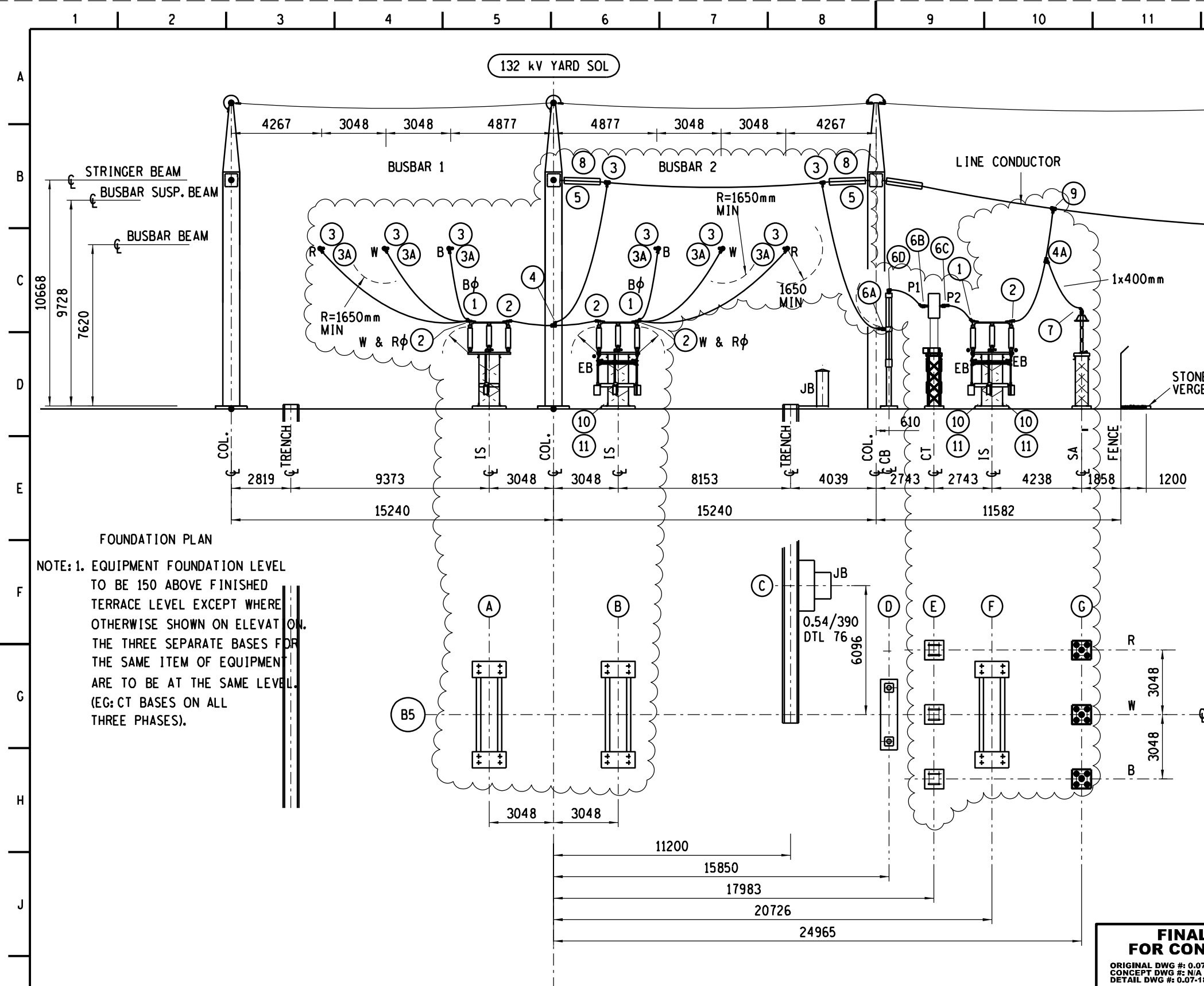
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	42
0.54/393 SHT C6 (ea)	31
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	235

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT; 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV FEEDER 7 EARTHING					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
		26A		1	



FOUNDATION PLAN

NOTE: 1. EQUIPMENT FOUNDATION LEVEL TO BE 150 ABOVE FINISHED TERRACE LEVEL EXCEPT WHERE OTHERWISE SHOWN ON ELEVATION. THE THREE SEPARATE BASES FOR THE SAME ITEM OF EQUIPMENT ARE TO BE AT THE SAME LEVEL (EG: CT BASES ON ALL THREE PHASES).

FOUNDATION		-A-	-B-	-C-	-D-	-E-	-F-	-G-
FOUNDATION DRG No		0.07/7042 (M)	0.07/7042 (M)	4713 (EX)	(EX)	0.07/7103 (M)	0.07/7042 (M)	308 (M)
EQUIPMENT		ISOL OES	ISOL LH/ES	JB (EX)	CIR BKR (EX)	CT	ISOL 2ES	SURG ARR
EQUIPMENT RATING	AMPS	2500	2500	--	2500	2500	2500	--
	kA	40	40	--	31.5	40	40	--
EQUIPMENT STEM/PAD SIZE		8HHP	8HHP	--	38mm DIA	38mm DIA	8HHP	38mm DIA
MAKER		ACTOM	ACTOM	--	S&S	TRENCH	ACTOM	CPS
OUTLINE DRG No 0.54/		7616	7595	--	--	E180001	7577	8912
ESKOM NATIONAL CONTRACT		--	--	--	--	--	--	--
ORDER NUMBER		--	--	--	--	--	--	--
STEELWORK DRG No 0.54/	SUPPORT	7701 (S/M)	7705 (S/M)	--	--	306	(S/M)	--
	CAP	--	--	--	--	302	--	306 / 6326

CONDUCTOR AND HARDWARE SCHEDULE			BAY DESIGNATION			
			132kV FEEDER 5			
			SIZE	QTY (N)	QTY (EX)	
CONDUCTOR	BUSBAR		2x800mm ²	—		
	CONDUCTOR (AL)	1x800mm ²	800mm ²	148	--	
	CONDUCTOR (AL)	1x400mm ²	400mm ²	9	--	
	EQUIPMENT EARTHING		50x3Cu	37.5	--	
HARDWARE TO DRC No 0.54/412; CLAMPS SPECIFICATIONS: 240-53113927 AND 240-53113923	DESCRIPTION		MK	ITEM	QTY (N)	QTY (EX)
			1	EPC-E	5	--
			2	EPC-D	13	--
			3	ETC-K	12	--
			3A	ESC-B	6	--
			4	ETC-V	3	--
	INSULATOR ASSEMBLY		5	A41	6	--
			7	EXC-L	3	--
	GLASS DISC		8	--	--	66
	LINE CLAMP		9	ETC-P	3	--
			4A	ETC-U	3	--
			6A	EXC-C	3	--
			6B	EXC-Q	3	--
			6C	EXC-R	3	--
			6D	EXC-E	3	
			7	EXC-L	3	--
	L-SHAPED EARTH STUD ADAPTOR (TYPE B)		10	--	6	--
COPPER EARTHING STUD, 20kA		11	--	18	--	

ARROW INDICATES ORIENTATION OF THIS ARRGT WHEN LINED UP WITH SIMILAR ARROW ON FOUNDATION LAYOUT

(EX) INDICATES EXISTING
(N) INDICATES NEW
NB: SUBSTATION DIMENSIONS ORIGINALLY EMPLOYED THE IMPERIAL MEASUREMENT SYSTEM. UNLESS OTHERWISE STATED ALL DIMENSIONS ON THIS DRAWING ARE NOW BEING CONVERTED TO mm: TO CO-INCIDE WITH THE METRIC MEASUREMENT SYSTEM

FINAL DESIGN FOR CONSTRUCTION
ORIGINAL DWG #: 0.07-18082 SHT 27 REV 0
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 27 REV 0

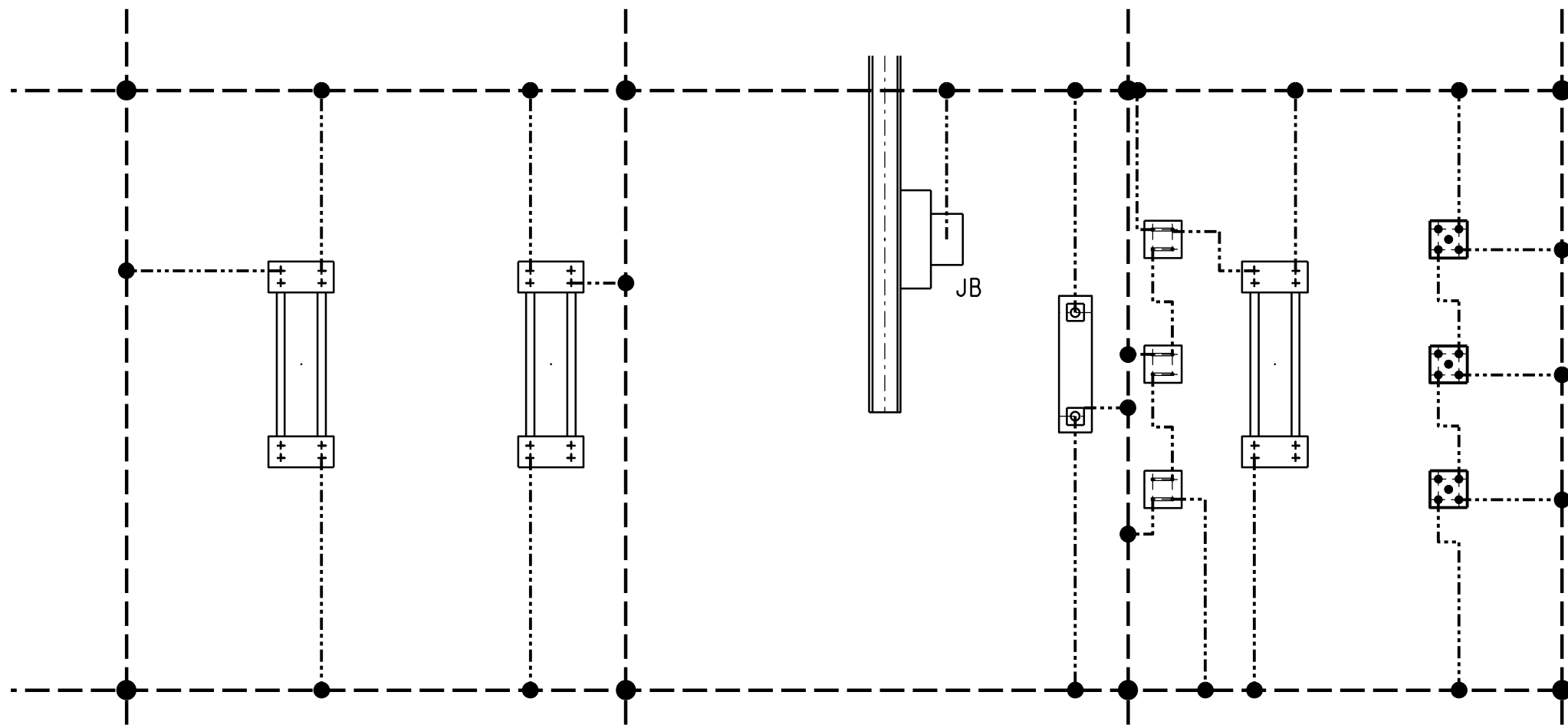
DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

(EX) INDICATES EXISTING
(M) INDICATES MODIFY EXISTING
(S/M) INDICATES STEELWORK SUPPLIED BY MANUFACTURER

CONTENTS OF THIS SHEET FROM
DRG 0.07/17230-0.

1	GEORGE DALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): 1. REPLACE ALL ISOLATORS, CT'S & SURG ARR'S AS SHOWN. THIS REVISION SUPERSEDES REV 0 - SCOPE MUST NOT BE DUPLICATED				03/08/2020
0	GEORGE DALE REFURBISHMENT PROJECT: 1. REPLACE CT ONLY AS SHOWN.	A. L.G	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGE DALE 132kV FEEDER 8 BAY					
©					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		27		1	

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 27A REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

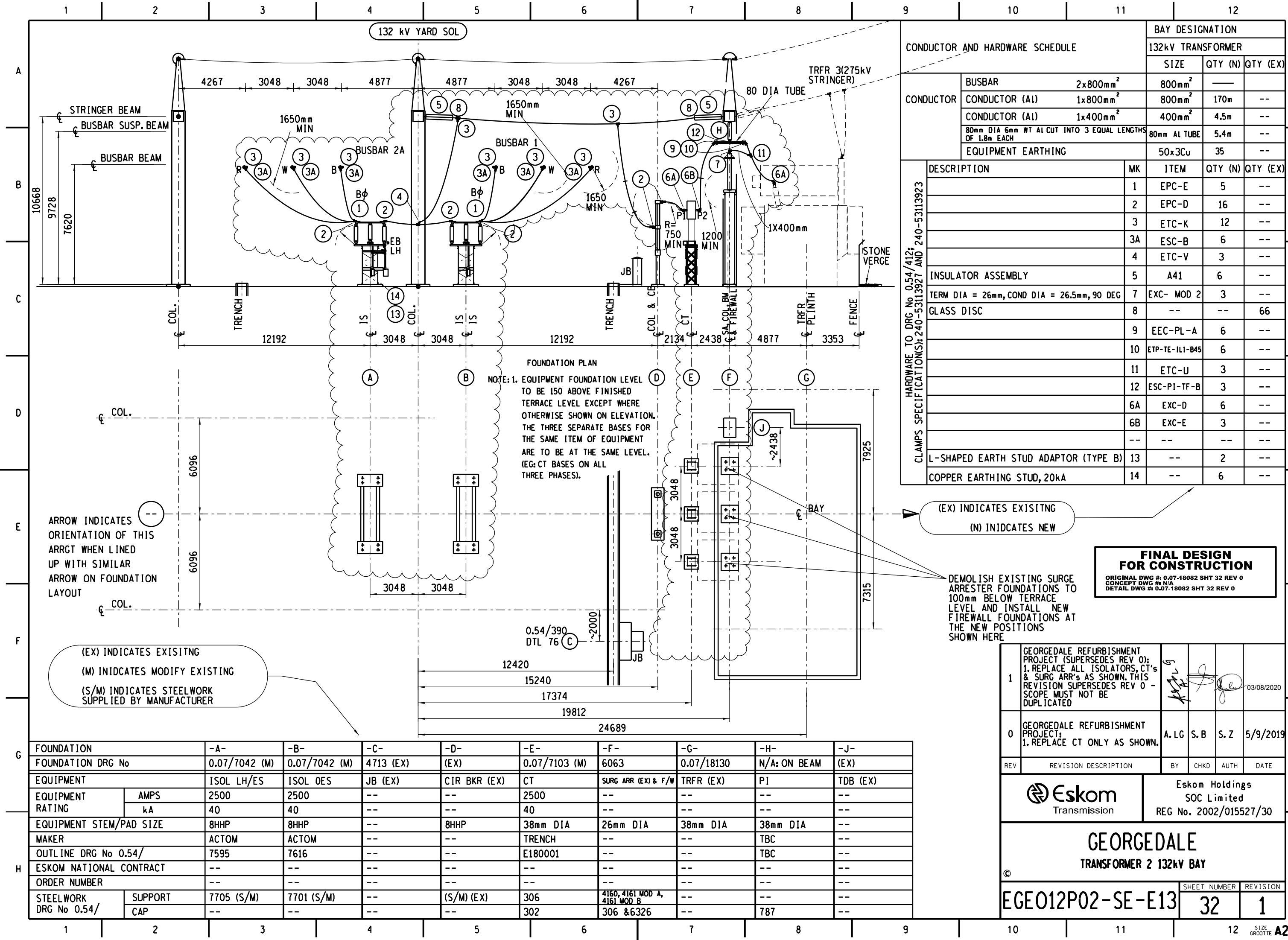
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	42
0.54/393 SHT C6 (ea)	31
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	235

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	6/2/20			03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT: 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV FEEDER 8 EARTHING					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
		27A		1	



CONDUCTOR AND HARDWARE SCHEDULE			BAY DESIGNATION			
			132kV TRANSFORMER			
			SIZE	QTY (N)	QTY (EX)	
CONDUCTOR	BUSBAR	2x800mm ²	800mm ²	—		
	CONDUCTOR (Al)	1x800mm ²	800mm ²	170m	--	
	CONDUCTOR (Al)	1x400mm ²	400mm ²	4.5m	--	
	80mm DIA 6mm WT AL CUT INTO 3 EQUAL LENGTHS OF 1.8m EACH		80mm AL TUBE	5.4m	--	
	EQUIPMENT EARTHING		50x3Cu	35	--	
CLAMPS SPECIFICATION(S): 240-53113927 AND 240-53113923 HARDWARE TO DRG. No. 0.54/412;	DESCRIPTION		MK	ITEM	QTY (N)	QTY (EX)
			1	EPC-E	5	--
			2	EPC-D	16	--
			3	ETC-K	12	--
			3A	ESC-B	6	--
			4	ETC-V	3	--
	INSULATOR ASSEMBLY		5	A41	6	--
	TERM DIA = 26mm, COND DIA = 26.5mm, 90 DEG		7	EXC- MOD 2	3	--
	GLASS DISC		8	--	--	66
			9	EEC-PL-A	6	--
			10	ETP-TE-IL1-B45	6	--
			11	ETC-U	3	--
			12	ESC-PI-TF-B	3	--
			6A	EXC-D	6	--
			6B	EXC-E	3	--
			--	--	--	--
	L-SHAPED EARTH STUD ADAPTOR (TYPE B)		13	--	2	--
COPPER EARTHING STUD, 20kA		14	--	6	--	

(EX) INDICATES EXISTING
(N) INDICATES NEW

DEMOLISH EXISTING SURGE ARRESTER FOUNDATIONS TO 100mm BELOW TERRACE LEVEL AND INSTALL NEW FIREWALL FOUNDATIONS AT THE NEW POSITIONS SHOWN HERE

FINAL DESIGN FOR CONSTRUCTION
ORIGINAL DWG #: 0.07-18082 SHT 32 REV 0
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 32 REV 0

FOUNDATION		-A-	-B-	-C-	-D-	-E-	-F-	-G-	-H-	-J-
FOUNDATION DRG No		0.07/7042 (M)	0.07/7042 (M)	4713 (EX)	(EX)	0.07/7103 (M)	6063	0.07/18130	N/A: ON BEAM	(EX)
EQUIPMENT		ISOL LH/ES	ISOL OES	JB (EX)	CIR BKR (EX)	CT	SURG ARR (EX) & F/W	TRFR (EX)	PI	TDB (EX)
EQUIPMENT RATING	AMPS	2500	2500	--	--	2500	--	--	--	--
	kA	40	40	--	--	40	--	--	--	--
EQUIPMENT STEM/PAD SIZE		8HHP	8HHP	--	8HHP	38mm DIA	26mm DIA	38mm DIA	38mm DIA	--
MAKER		ACTOM	ACTOM	--	--	TRENCH	--	--	TBC	--
OUTLINE DRG No 0.54/		7595	7616	--	--	E180001	--	--	TBC	--
ESKOM NATIONAL CONTRACT		--	--	--	--	--	--	--	--	--
ORDER NUMBER		--	--	--	--	--	--	--	--	--
STEELWORK DRG No 0.54/	SUPPORT	7705 (S/M)	7701 (S/M)	--	(S/M) (EX)	306	4160, 4161 MOD A, 4161 MOD B	--	--	--
	CAP	--	--	--	--	302	306 & 6326	--	787	--

GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0):
1. REPLACE ALL ISOLATORS, CT's & SURG ARR's AS SHOWN. THIS REVISION SUPERSEDES REV 0 - SCOPE MUST NOT BE DUPLICATED

GEORGEDALE REFURBISHMENT PROJECT:
1. REPLACE CT ONLY AS SHOWN.

REV 1

REV 0

BY A.L.G. S.B. S.Z.

CHKD

AUTH

DATE 03/08/2020

DATE 5/9/2019

ESKOM Transmission

ESKOM Holdings SOC Limited

REG No. 2002/015527/30

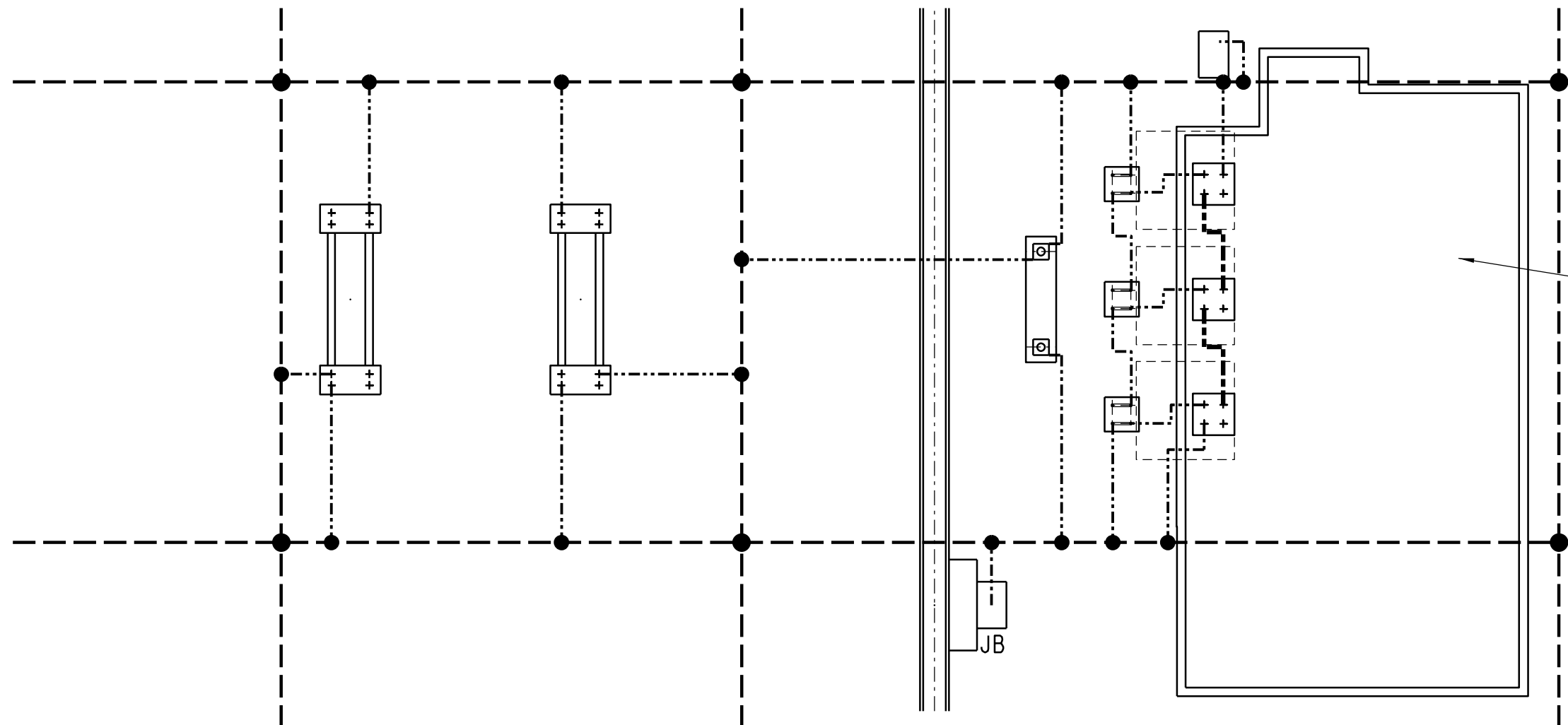
GEORGEDALE TRANSFORMER 2 132kV BAY

EGEO12P02-SE-E13

SHEET NUMBER 32

REVISION 1

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 32A REV 0





DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

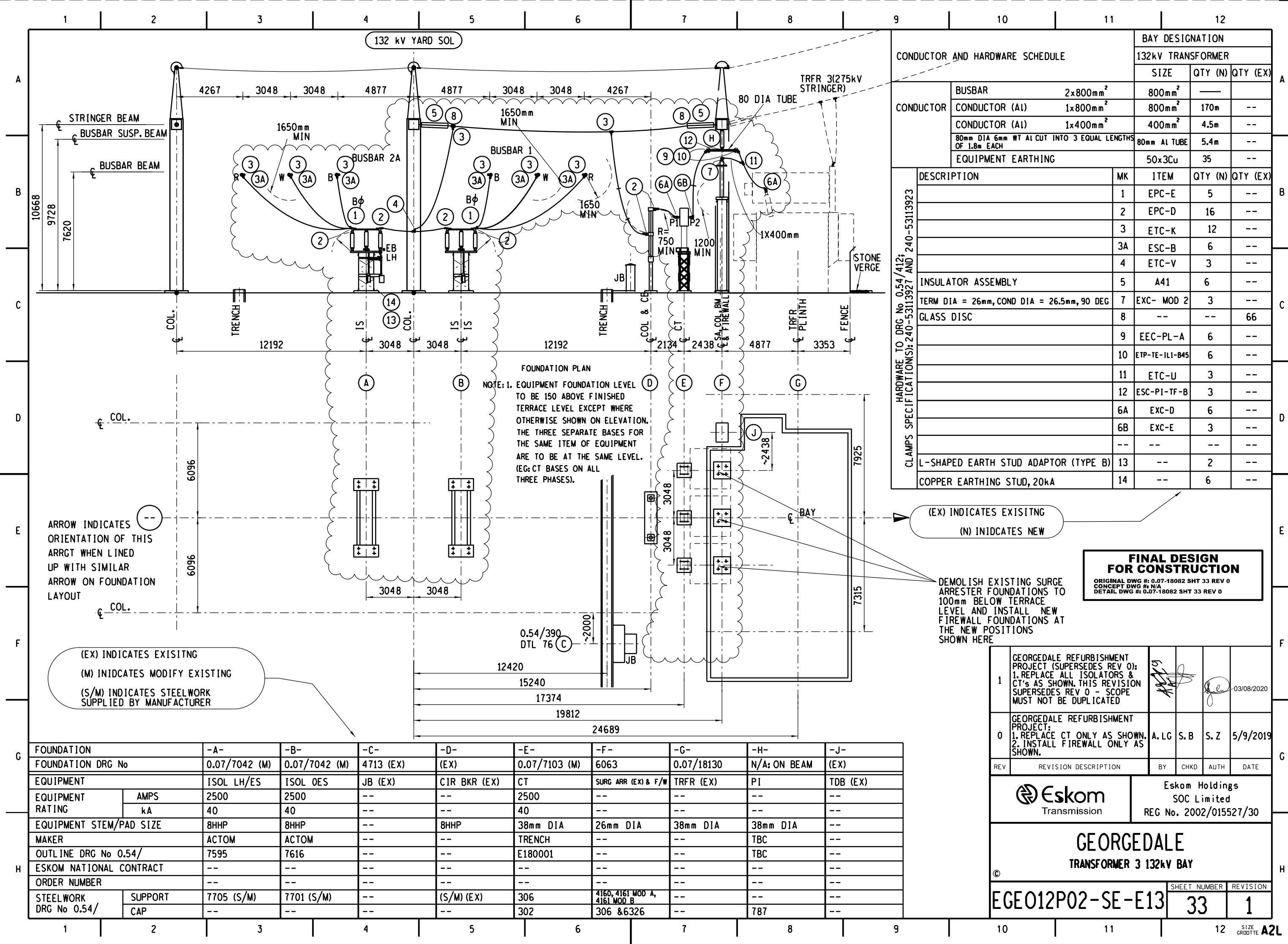
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	26
0.54/393 SHT C6 (ea)	25
50x3 Cu (m)	7
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	4
10mm DIA Cu ROD (m)	133

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT; 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV TRANSFORMER 2 BAY EARTHING					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		32A		1	



CONDUCTOR AND HARDWARE SCHEDULE			BAY DESIGNATION			
			132kV TRANSFORMER			
			SIZE	QTY (N)	QTY (EX)	
CONDUCTOR	BUSBAR	2x800mm ²	800mm ²	—		
	CONDUCTOR (Al)	1x800mm ²	800mm ²	170m	--	
	CONDUCTOR (Al)	1x400mm ²	400mm ²	4.5m	--	
	80mm DIA 6mm WT AL CUT INTO 3 EQUAL LENGTHS OF 1.8m EACH		80mm AL TUBE	5.4m	--	
	EQUIPMENT EARTHING		50x3Cu	35	--	
CLAMPS SPECIFICATION(S): 240-53113927 AND 240-53113923 HARDWARE TO DRG. No. 0.54/412;	DESCRIPTION		MK	ITEM	QTY (N)	QTY (EX)
			1	EPC-E	5	--
			2	EPC-D	16	--
			3	ETC-K	12	--
			3A	ESC-B	6	--
			4	ETC-V	3	--
	INSULATOR ASSEMBLY		5	A41	6	--
	TERM DIA = 26mm, COND DIA = 26.5mm, 90 DEG		7	EXC- MOD 2	3	--
	GLASS DISC		8	--	--	66
			9	EEC-PL-A	6	--
			10	ETP-TE-IL1-B45	6	--
			11	ETC-U	3	--
			12	ESC-PI-TF-B	3	--
			6A	EXC-D	6	--
			6B	EXC-E	3	--
			--	--	--	--
	L-SHAPED EARTH STUD ADAPTOR (TYPE B)		13	--	2	--
	COPPER EARTHING STUD, 20kA		14	--	6	--

(EX) INDICATES EXISTING
(N) INDICATES NEW


FINAL DESIGN FOR CONSTRUCTION
ORIGINAL DWG #: 0.07-18082 SHT 33 REV 0
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 33 REV 0

DEMOLISH EXISTING SURGE ARRESTER FOUNDATIONS TO 100mm BELOW TERRACE LEVEL AND INSTALL NEW FIREWALL FOUNDATIONS AT THE NEW POSITIONS SHOWN HERE

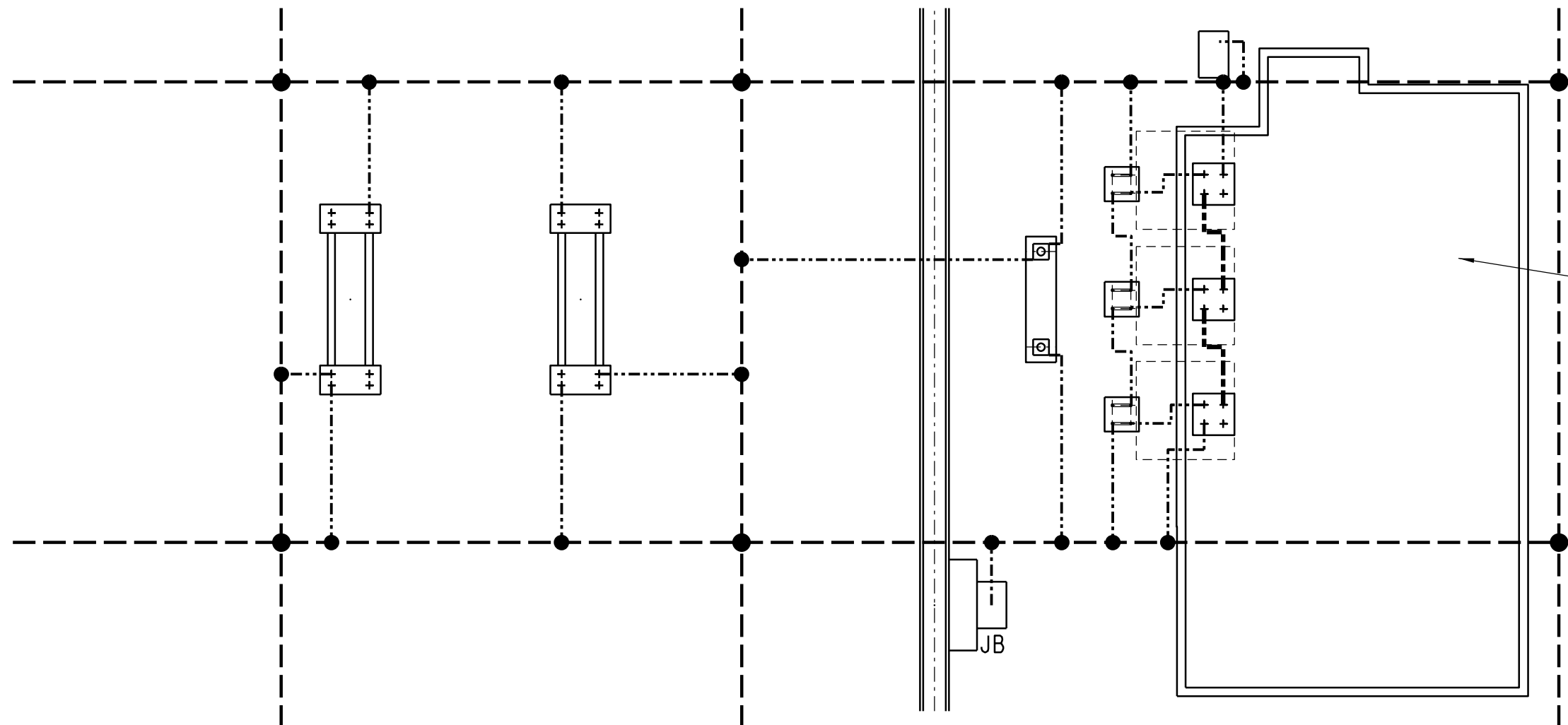
ARROW INDICATES ORIENTATION OF THIS ARRGT WHEN LINED UP WITH SIMILAR ARROW ON FOUNDATION LAYOUT

(EX) INDICATES EXISTING
(M) INDICATES MODIFY EXISTING
(S/M) INDICATES STEELWORK SUPPLIED BY MANUFACTURER

FOUNDATION		-A-	-B-	-C-	-D-	-E-	-F-	-G-	-H-	-J-
FOUNDATION DRG No		0.07/7042 (M)	0.07/7042 (M)	4713 (EX)	(EX)	0.07/7103 (M)	6063	0.07/18130	N/A: ON BEAM	(EX)
EQUIPMENT		ISOL LH/ES	ISOL OES	JB (EX)	CIR BKR (EX)	CT	SURG ARR (EX) & F/W	TRFR (EX)	PI	TDB (EX)
EQUIPMENT RATING	AMPS	2500	2500	--	--	2500	--	--	--	--
	kA	40	40	--	--	40	--	--	--	--
EQUIPMENT STEM/PAD SIZE		8HHP	8HHP	--	8HHP	38mm DIA	26mm DIA	38mm DIA	38mm DIA	--
MAKER		ACTOM	ACTOM	--	--	TRENCH	--	--	TBC	--
OUTLINE DRG No 0.54/		7595	7616	--	--	E180001	--	--	TBC	--
ESKOM NATIONAL CONTRACT		--	--	--	--	--	--	--	--	--
ORDER NUMBER		--	--	--	--	--	--	--	--	--
STEELWORK DRG No 0.54/	SUPPORT	7705 (S/M)	7701 (S/M)	--	(S/M) (EX)	306	4160, 4161 MOD A, 4161 MOD B	--	--	--
	CAP	--	--	--	--	302	306 & 6326	--	787	--

1	GEORGE DALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): 1. REPLACE ALL ISOLATORS & CT'S AS SHOWN. THIS REVISION SUPERSEDES REV 0 - SCOPE MUST NOT BE DUPLICATED	6/2/19			03/08/2020
0	GEORGE DALE REFURBISHMENT PROJECT: 1. REPLACE CT ONLY AS SHOWN. 2. INSTALL FIREWALL ONLY AS SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGE DALE TRANSFORMER 3 132kV BAY					
©					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		33		1	

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA CU OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



FOR EXISTING TRFR
PLINTH EARTHING -
REFER TO RELEVANT
PLINTH EARTHING
LAYOUT

**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 33A REV 0


DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

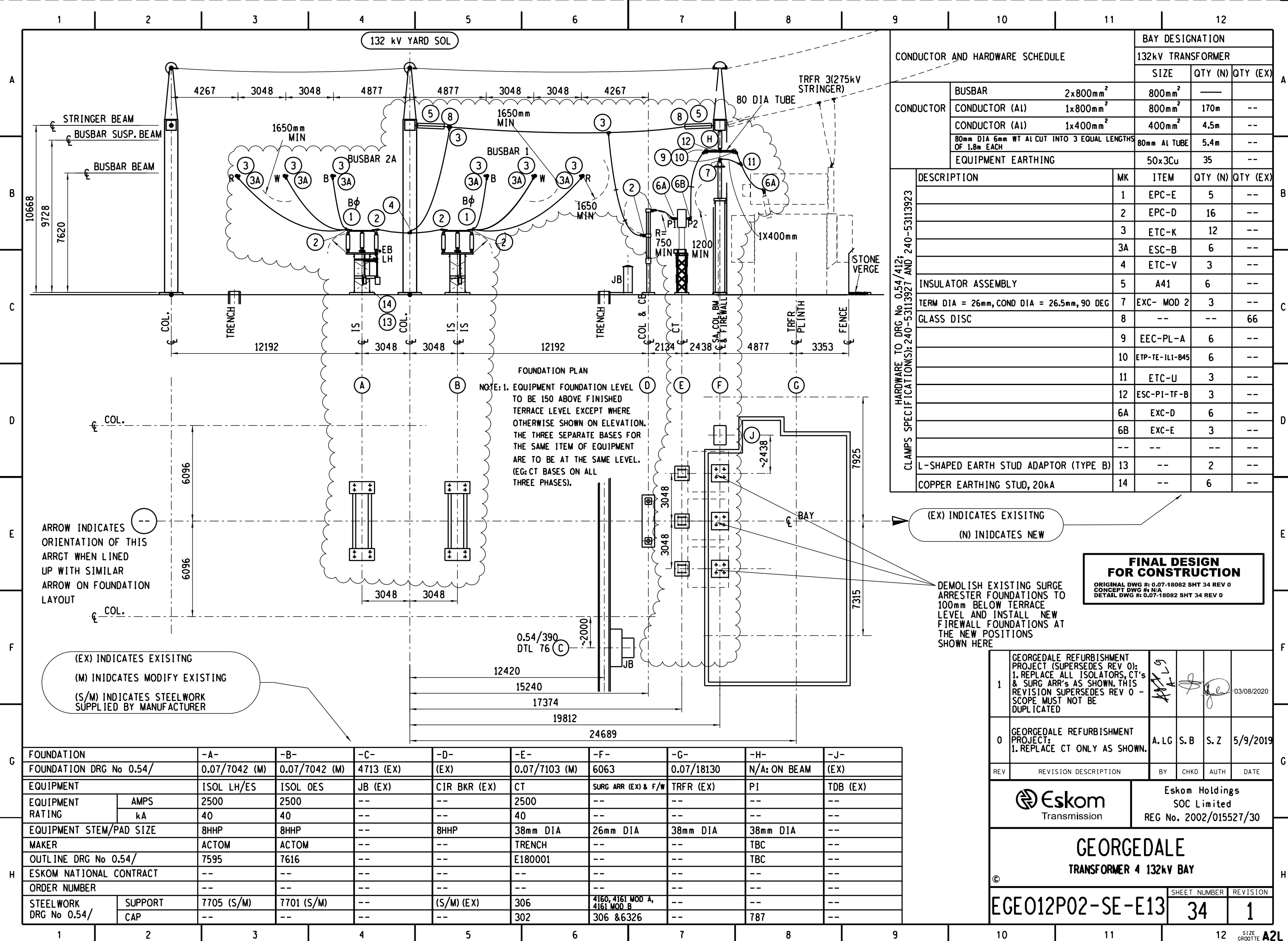
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	26
0.54/393 SHT C6 (ea)	25
50x3 Cu (m)	7
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	4
10mm DIA Cu ROD (m)	133

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE
DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

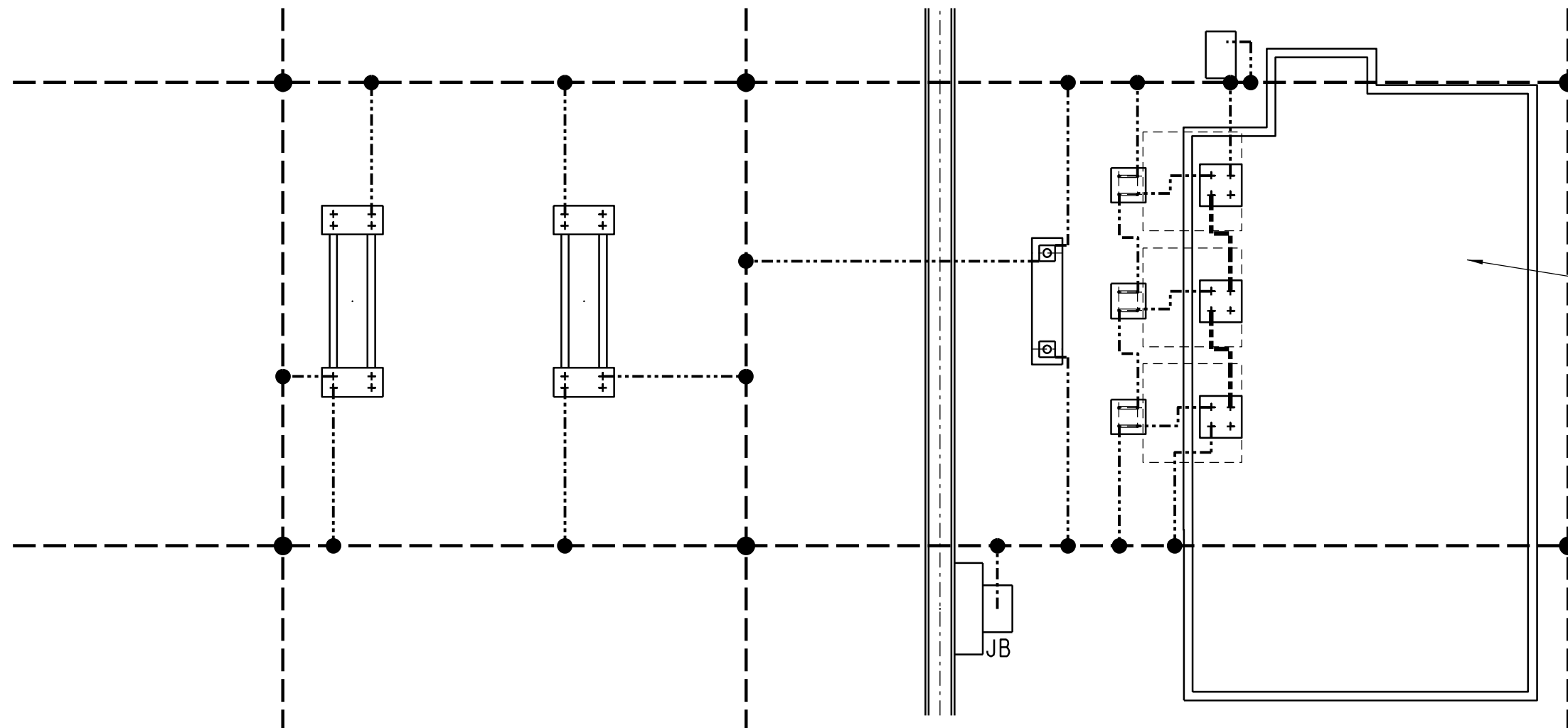
COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	Handwritten initials	Handwritten initials	Handwritten initials	03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT: 1. FIREWALL INSTALATION & CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	6/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV TRANSFORMER 3 BAY EARTHING					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
		33A		1	



NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING Cu CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING Cu SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 Cu CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 34A REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

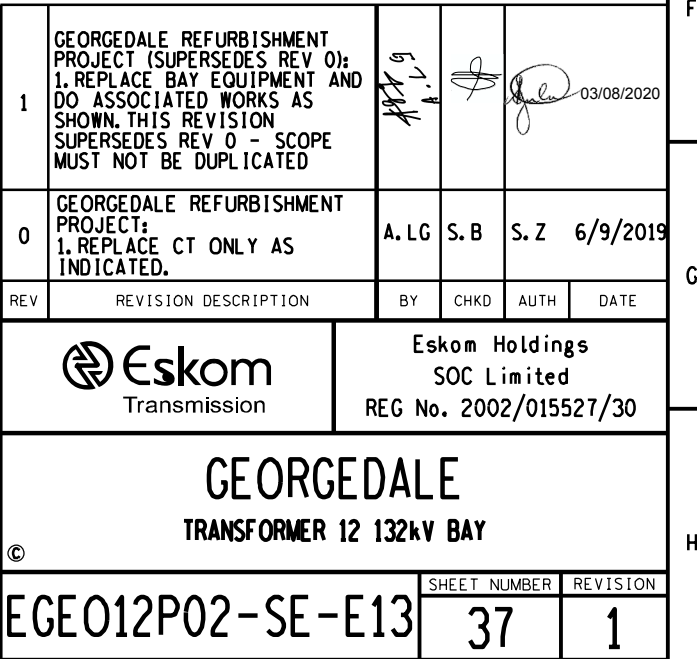
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	26
0.54/393 SHT C6 (ea)	25
50x3 Cu (m)	7
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	4
10mm DIA Cu ROD (m)	133

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

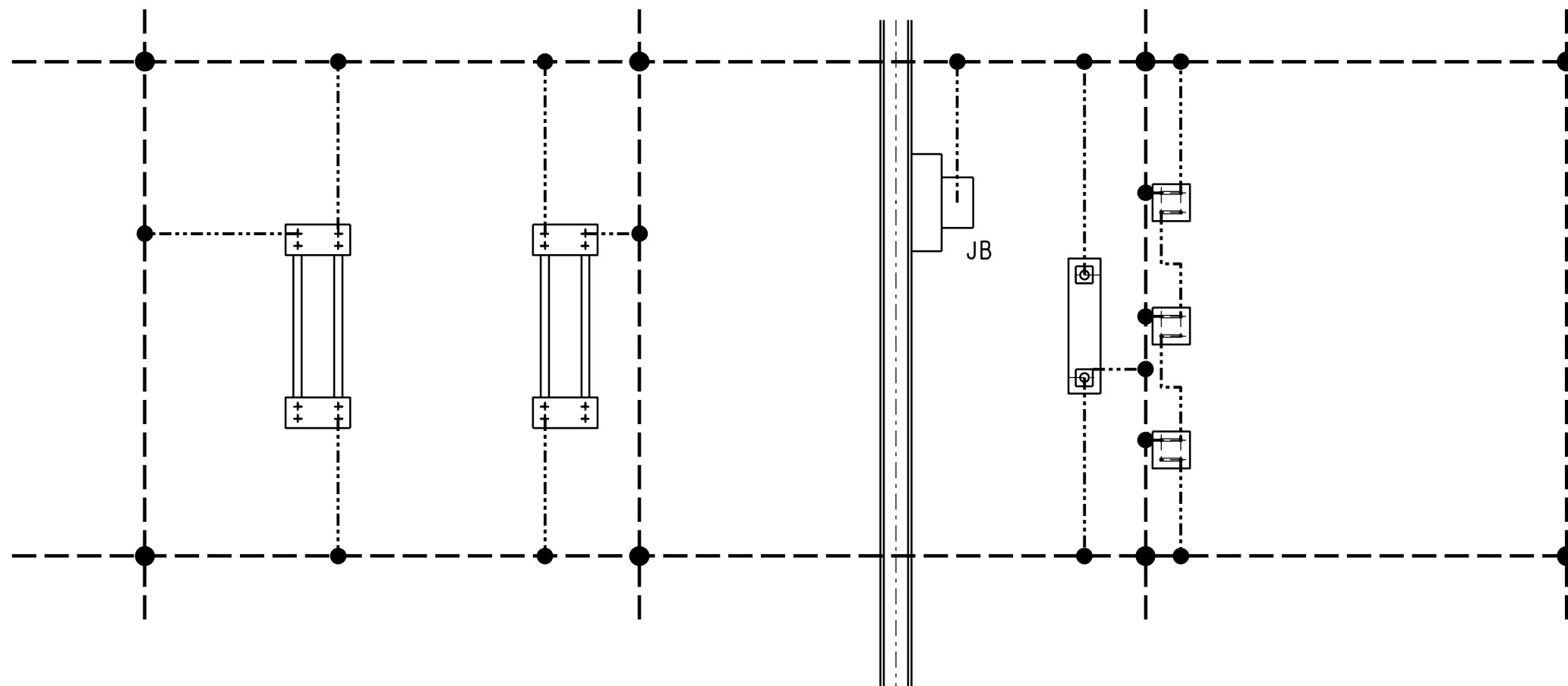
COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	Handwritten initials	Handwritten signature	03/08/2020	
0	GEORGEDALE REFURBISHMENT PROJECT: 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV TRANSFORMER 4 BAY EARTHING					
©		SHEET NUMBER		REVISION	
EGEO12P02-SE-E13		34A		1	



NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 33A REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

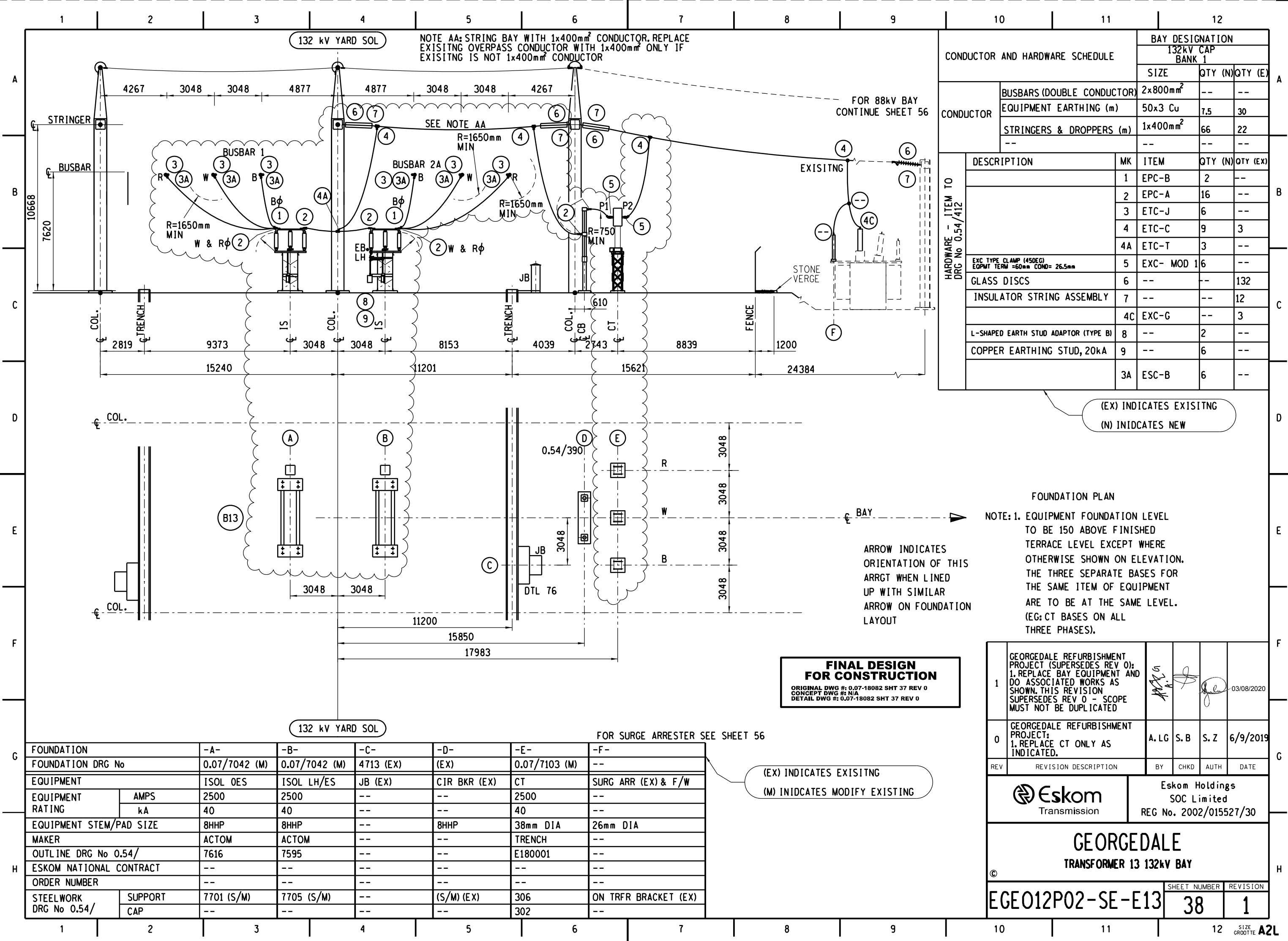
COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

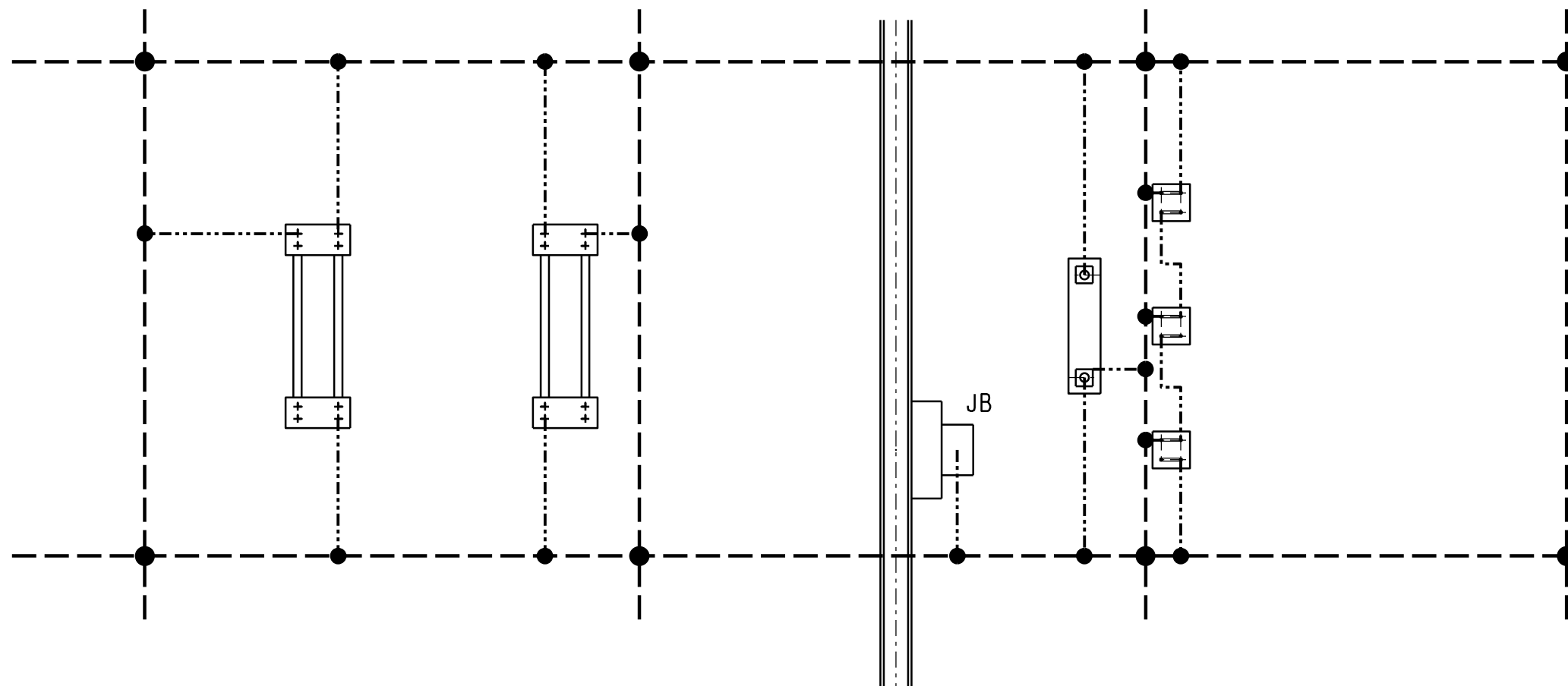
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	30
0.54/393 SHT C6 (ea)	19
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	92

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE
DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT: 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE TRANSFORMER 12 132kV EARTHING BAY					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		37A		1	



NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 33A REV 0




DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

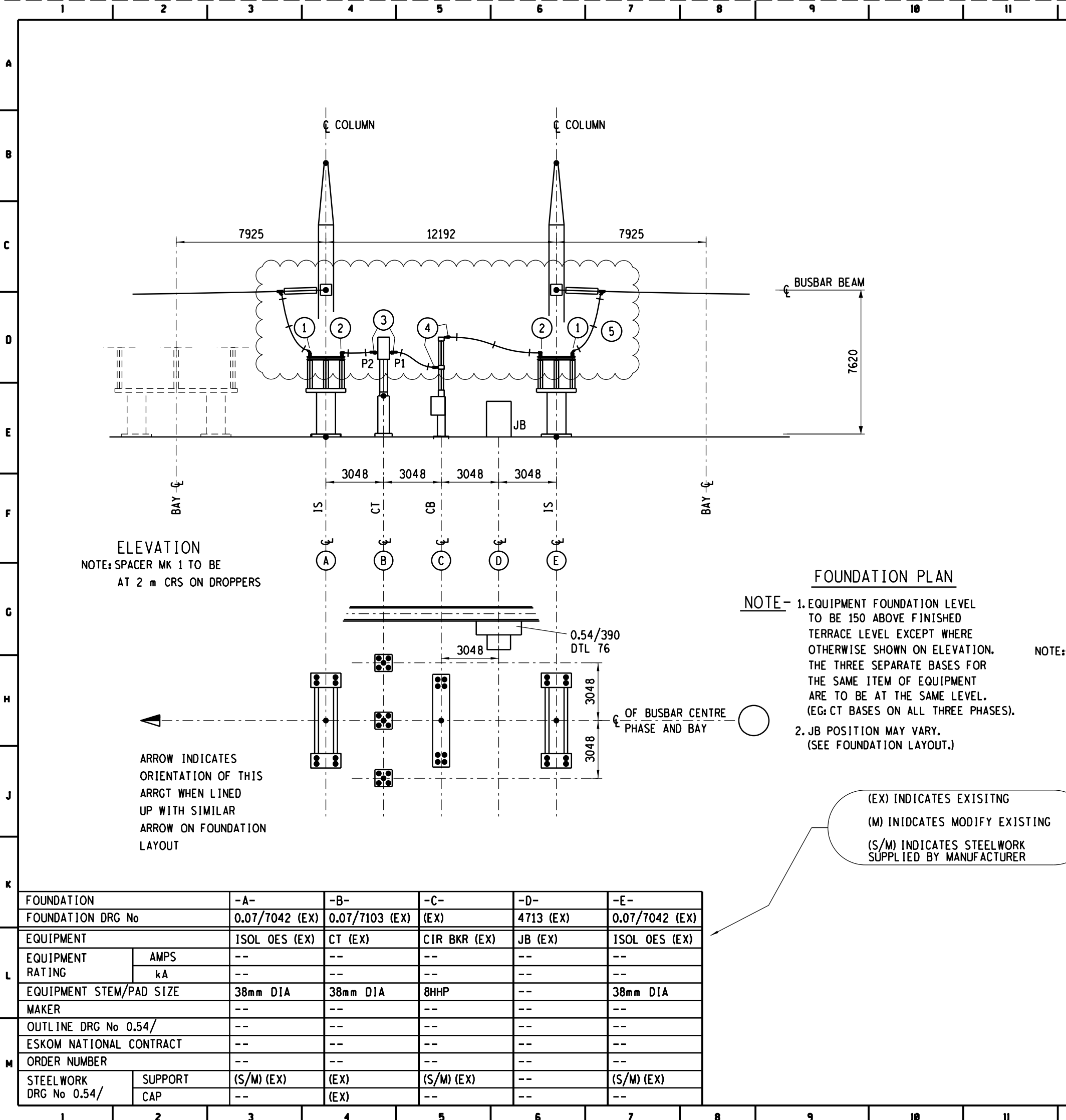
COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	30
0.54/393 SHT C6 (ea)	19
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	92

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT; 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE TRANSFORMER 13 132kV EARTHING BAY					
©					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		38A		1	



CONDUCTOR AND HARDWARE SCHEDULE				BAY DESIGNATION	
				132kV FEEDER 5	
				SIZE	QTY (N) QTY (EX)
CONDUCTOR	BUSBAR			2x800mm ²	---
	CONDUCTOR (AL) 2x800mm ²			800mm ²	93 --
	CONDUCTOR (AL)			400mm ²	-- --
	EQUIPMENT EARTHING			50x3Cu	-- 7.5
HARDWARE TO DRG No 0.54/412; CLAMPS SPECIFICATION(S): 240-53113927 AND 240-53113923	DESCRIPTION	MK	ITEM	QTY (N)	QTY (EX)
	INSULATOR ASSEMBLY	1	EYC-D	6	--
		2	EYC-F	6	--
		3	EYC-G	6	--
		4	EYC-B	6	--
		5	ES-B	39	--
		6	--	--	--
		7	--	--	--
		8	--	--	--
		--	--	--	--
		--	--	--	--
		--	--	--	--
		--	--	--	--
		--	--	--	--
		--	--	--	--

(EX) INDICATES EXISITNG
(N) INIDCATES NEW

NOTE:- BUSBAR CONDUCTOR AND INSULATOR STRING ASSEMBLIES SCHEDULED ON EQUIPMENT SCHEDULE SHEET 2 (STATION CONDUCTOR & HARDWARE)

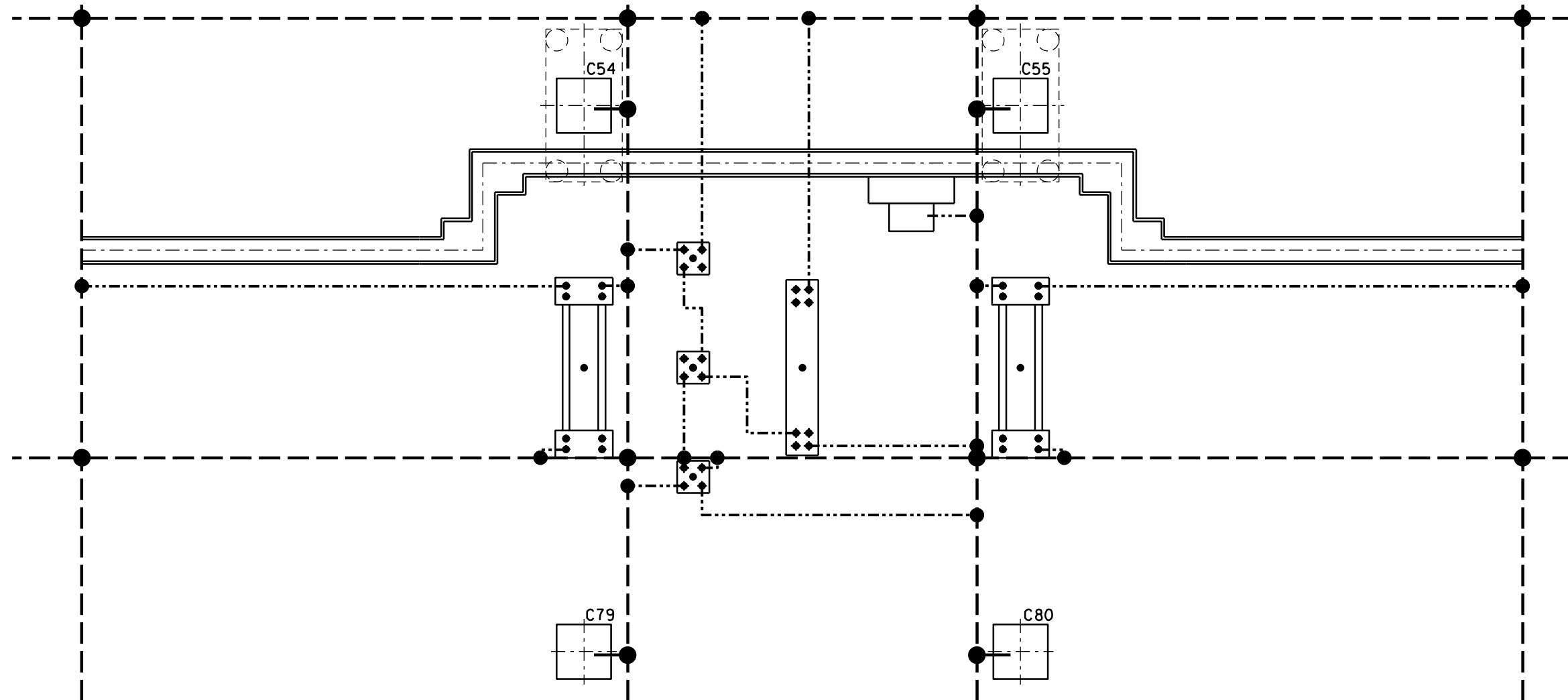
FINAL DESIGN FOR CONSTRUCTION
ORIGINAL DWG #: RECORD NOT FOUND AT THE TIME
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

0	GEORGEDALE REFURBISHMENT PROJECT: 1. REPLACE BAY CONDUCTOR TO INTERCONNECT NEW TWIN BULL BUSBAR AS SHOWN.	03/08/2020
REV	REVISION DESCRIPTION	BY CHKD AUTH DATE
		Eskom Holdings SOC Limited REG No. 2002/015527/30
GEORGEDALE 132kV BUSBAR 2 BUS SECTION 1		
EGEO12P02-SE-E13		SHEET NUMBER 39 REVISION 0

SH 39 REV 10
SKELETON MASTER 0.54/686

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07/6721
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	30
0.54/393 SHT C6 (ea)	19
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	92

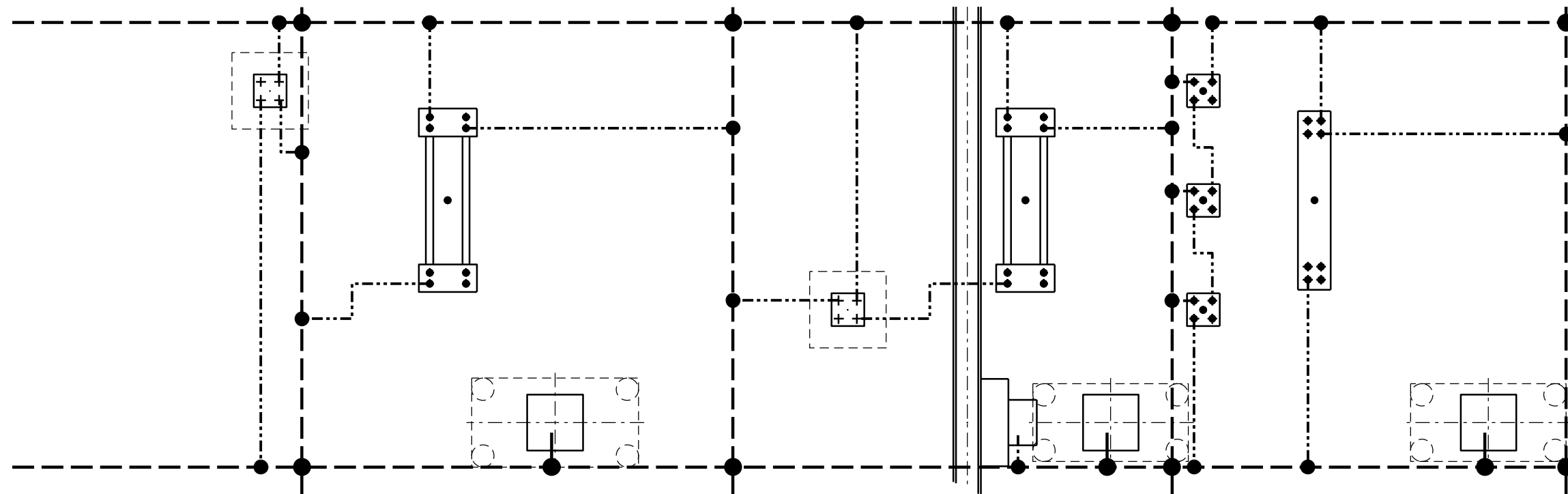
THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 X ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

0	GEORGEDALE REFURBISHMENT PROJECT: ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	03/08/2020			
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
Eskom Holdings SOC Limited REG No. 2002/015527/30					
GEORGEDALE 132kV BUSBAR 2 BUS SECTION 1 EARTHING BAY					
EGE012P02-SE-E13		SHEET NUMBER 39A		REVISION 0	

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA CU OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07/6721
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

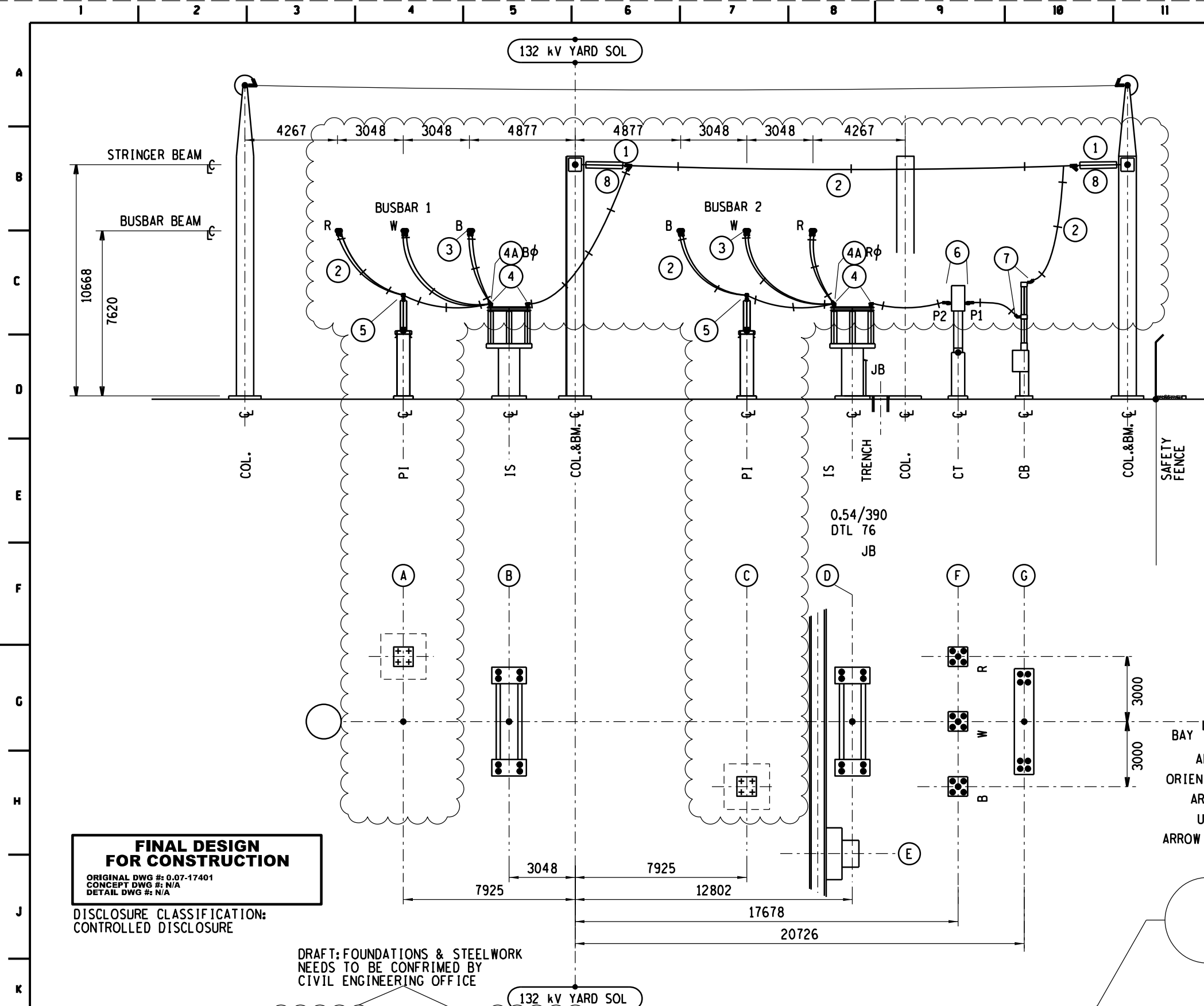
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	38
0.54/393 SHT C6 (ea)	25
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	154

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

0	GEORGEDALE REFURBISHMENT PROJECT: ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	6/1/20			03/08/2020
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV BUS COUPLER A EARTHING BAY					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
		41A		0	



CONDUCTOR AND HARDWARE SCHEDULE				BAY DESIGNATION	
				132kV FEEDER 5	
				SIZE	QTY (N) QTY (EX)
CONDUCTOR	BUSBAR		2x800mm ²	---	---
	CONDUCTOR (AL) 1x800mm ²		800mm ²	320	---
	CONDUCTOR (AL) 1x400mm ²		400mm ²	---	---
	EQUIPMENT EARTHING		50x3Cu	7.5	---
HARDWARE TO DRG No 0.54/412; CLAMPS SPECIFICATION(S): 240-53113927 AND 240-53113923	DESCRIPTION		MK	ITEM	QTY (N) QTY (EX)
	INSULATOR ASSEMBLY		1	B44	6 ---
			2	ES-B	67 ---
			3	ETC-K	12 ---
			4	EYC-F	10 ---
			4A	EYC-D	2 ---
			5	EY-B	2 ---
			6	EYC-B	6 ---
	GLASS DISC		8	---	66 ---
			7	EYC-S	6 ---
			---	---	---
			---	---	---
			---	---	---
			---	---	---

FINAL DESIGN FOR CONSTRUCTION
ORIGINAL DWG #: 0.07-17401
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

DRAFT: FOUNDATIONS & STEELWORK
NEEDS TO BE CONFIRMED BY
CIVIL ENGINEERING OFFICE

FOUNDATION		-A-	-B-	-C-	-D-	-E-	-F-	-G-
FOUNDATION DRG No		4358	0.07/7042 (EX)	4358	0.07/7042 (EX)	4713 (EX)	0.07/7103 (EX)	(EX)
EQUIPMENT		PI	ISOL OES (EX)	PI	ISOL OES (EX)	JB (EX)	CT (EX)	CIR BKR (EX)
EQUIPMENT RATING	AMPS	--	--	--	--	--	--	--
	kA	--	--	--	--	--	--	--
EQUIPMENT STEM/PAD SIZE		38mm DIA	38mm DIA	38mm DIA	38mm DIA	--	38mm DIA	8HHP
MAKER		TBC	--	TBC	--	--	--	--
OUTLINE DRG No 0.54/		TBC	--	TBC	--	--	--	--
ESKOM NATIONAL CONTRACT		--	--	--	--	--	--	--
ORDER NUMBER		--	--	--	--	--	--	--
STEELWORK DRG No 0.54/	SUPPORT	303	(S/M) (EX)	303	(S/M) (EX)	--	(EX)	(S/M) (EX)
	CAP	3512	--	3512	--	--	(EX)	--

(EX) INDICATES EXISTING
(N) INDICATES NEW

ARROW INDICATES
ORIENTATION OF THIS
ARRGT WHEN LINED
UP WITH SIMILAR
ARROW ON FOUNDATION
LAYOUT

(EX) INDICATES EXISTING
(M) INDICATES MODIFY EXISTING
(S/M) INDICATES STEELWORK
SUPPLIED BY MANUFACTURER

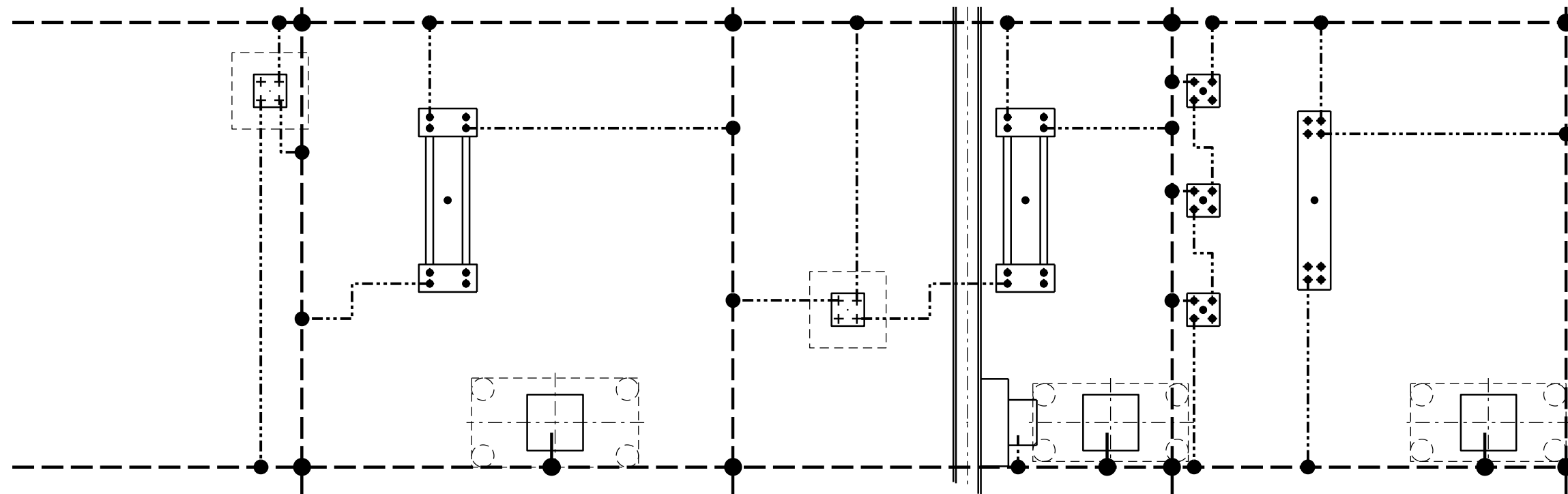
FOUNDATION PLAN

NOTE: 1. EQUIPMENT FOUNDATION LEVEL
TO BE 150 ABOVE FINISHED
TERRACE LEVEL EXCEPT WHERE
OTHERWISE SHOWN ON ELEVATION.
THE THREE SEPARATE BASES FOR
THE SAME ITEM OF EQUIPMENT
ARE TO BE AT THE SAME LEVEL.
(EG: CT BASES ON ALL
THREE PHASES).

0		GEORGE DALE REFURBISHMENT PROJECT: 1. REPLACE BAY CONDUCTOR TO INTERCONNECT NEW TWIN BULL BUSBAR AND INSTALL PI's AS SHOWN.		03/08/2020				
REV	REVISION DESCRIPTION		BY	CHKD	AUTH	DATE		
			Eskom Holdings SOC Limited REG No. 2002/015527/30					
GEORGE DALE 132kV BUS COUPLER B								
EGEO12P02-SE-E13				SHEET NUMBER	REVISION			
				42	0			

SH 38 REV 2
SKELETON MASTER 0.54/686

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07/6721
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

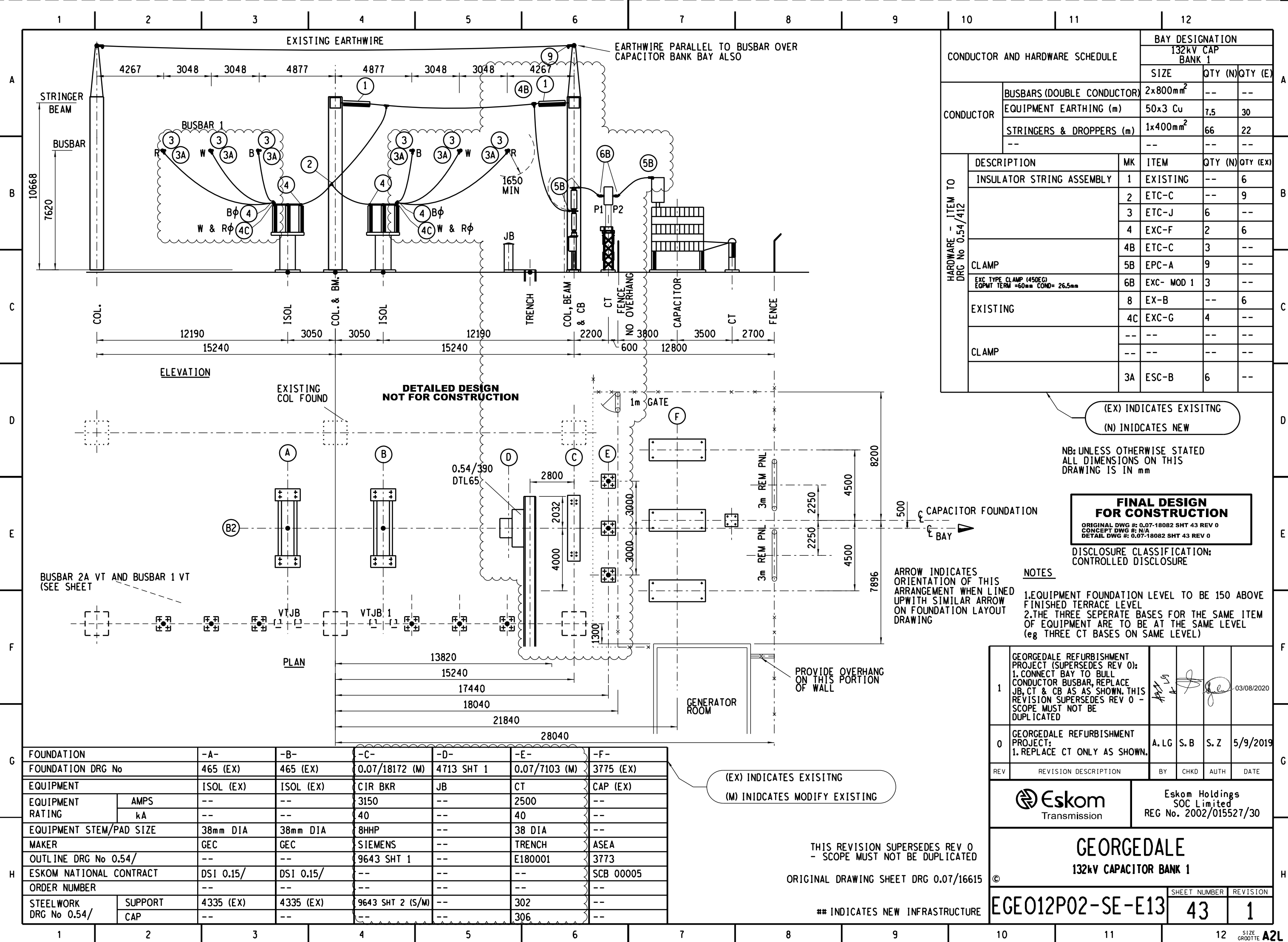
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	38
0.54/393 SHT C6 (ea)	25
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	154

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

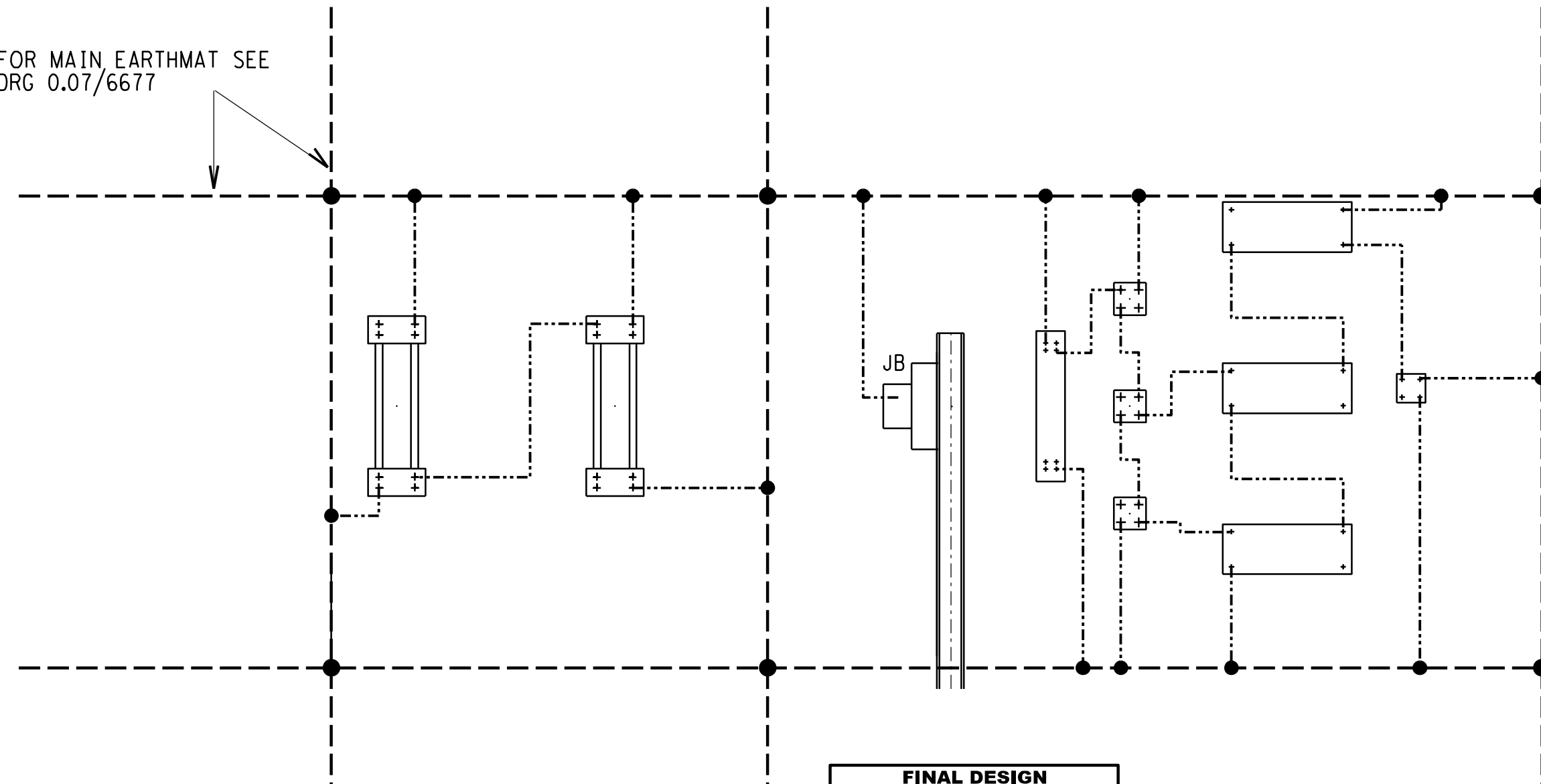
- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

0	GEORGEDALE REFURBISHMENT PROJECT: ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	03/08/2020			
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV BUS COUPLER B EARTHING BAY					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
42A		0			



NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING Cu CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING Cu SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 Cu CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.

FOR MAIN EARTH MAT SEE
DRG 0.07/6677



**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 43A REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

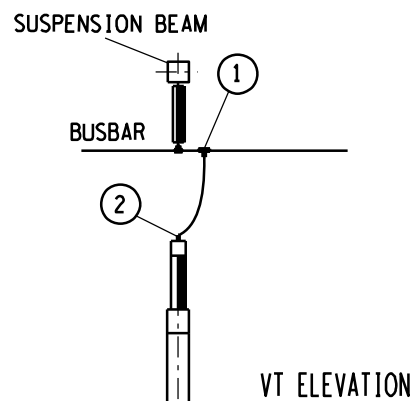
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	26
0.54/393 SHT C6 (ea)	31
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	255

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE
DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

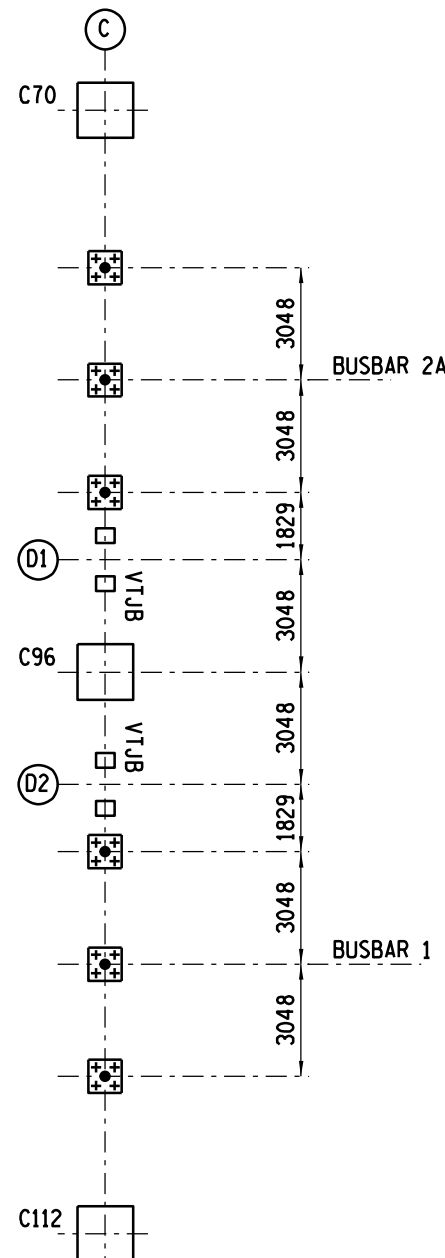
1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT; 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV CAPICITOR BANK 1 EARTHING BAY					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		43A		1	



(EX) INDICATES EXISTING
(N) INDICATES NEW

**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07-18082 SHT 57 REV 0
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 57 REV 0

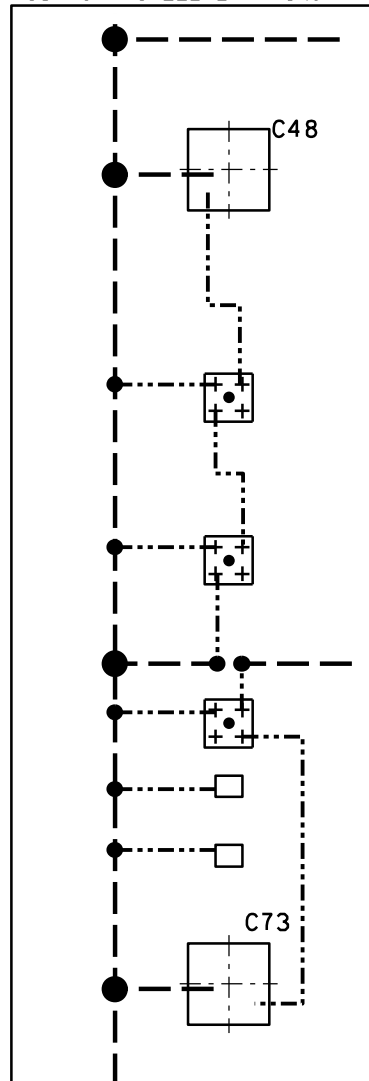


(EX) INDICATES EXISTING
(M) INDICATES MODIFY EXISTING

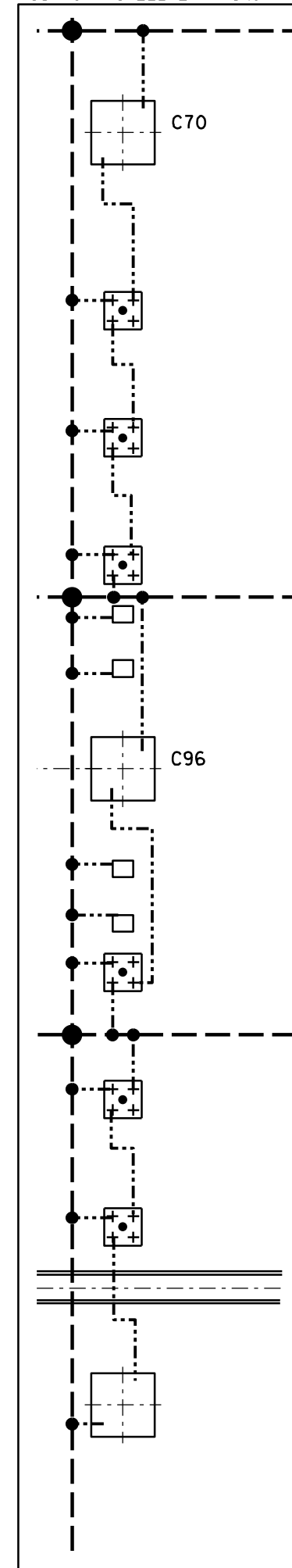
SIZE **A1**

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 132kV 1 ϕ FAULT LEVEL = 19.76kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 31.5kA - THUS A MINIMUM 3 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE. ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 3 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA CU OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.

132kV BUSBAR 2B VT
SUPPORT STEEL EARTHING



132kV BUSBAR 1, BUSBAR 2A VT
SUPPORT STEEL EARTHING



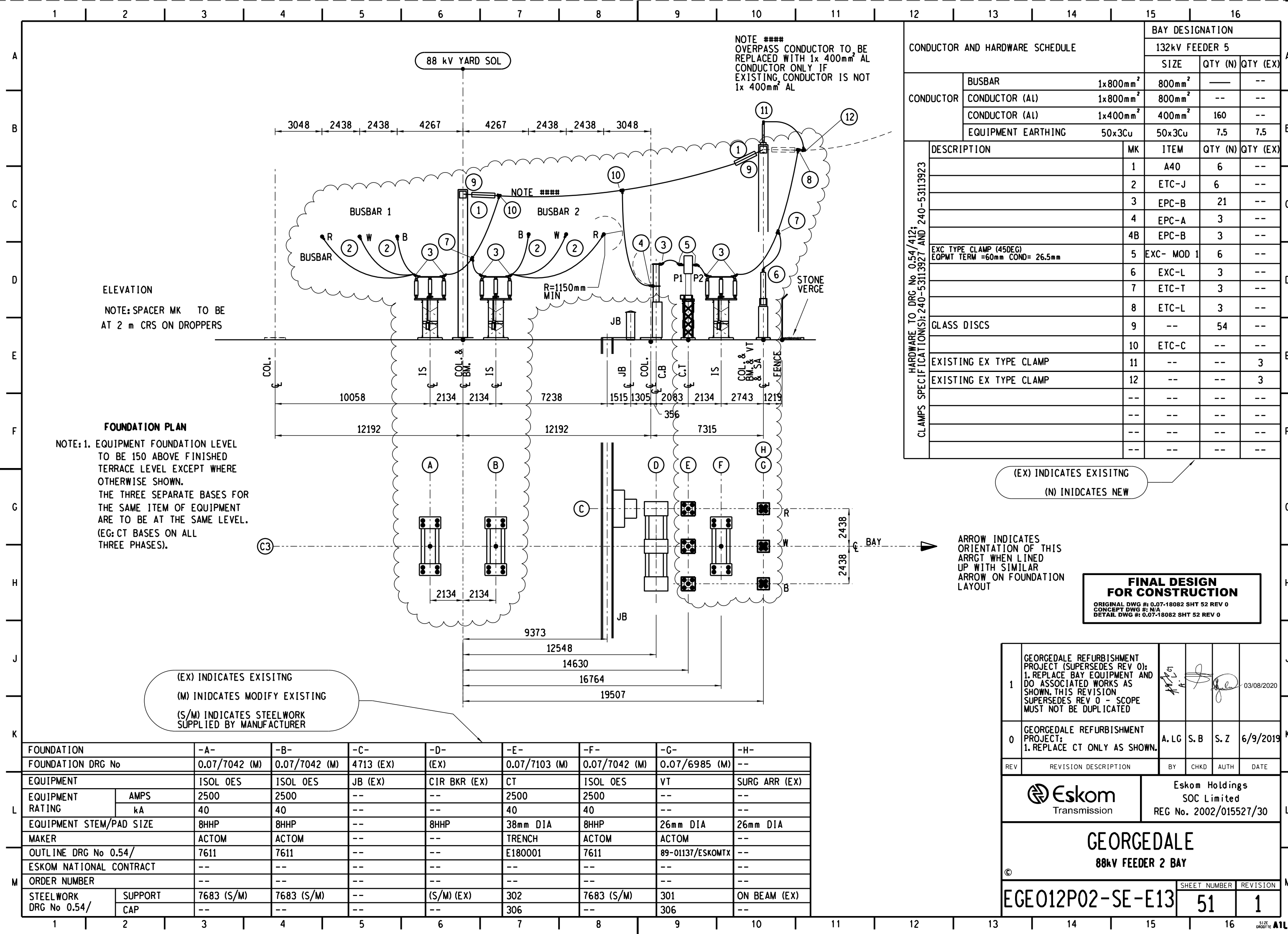
**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07-6721
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 33A REV 0
DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

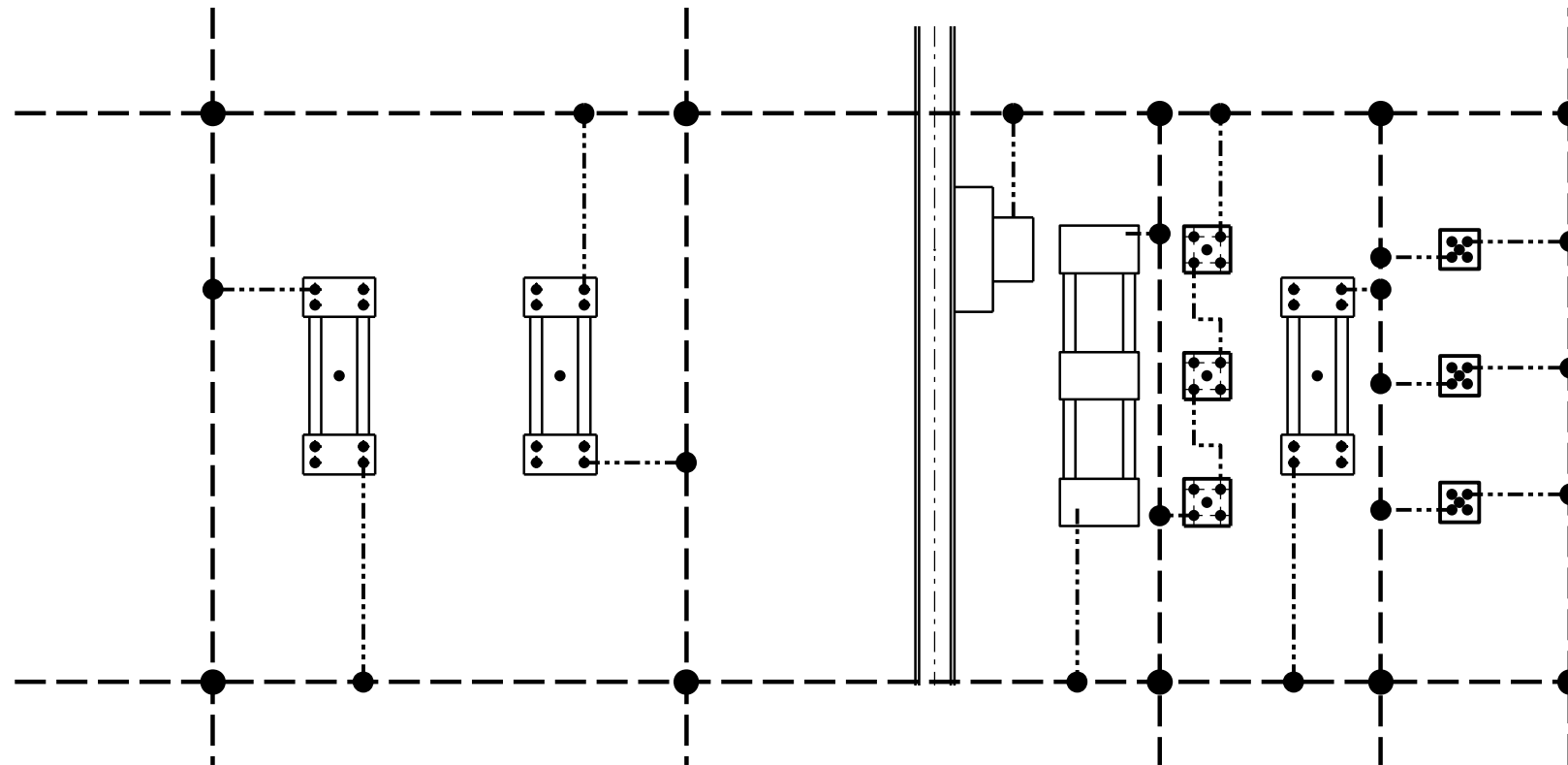
- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 X ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	46
0.54/393 SHT C6 (ea)	37
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	186

0	GEORGEDALE REFURBISHMENT PROJECT: ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	5			03/08/2020
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 132kV BUSBAR 1, BUSBAR 2A & BUSBAR 2B VT BAYS EARTHING					
EGEO12P02-SE-E13		SHEET NUMBER 44A		REVISION 0	



NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 88kV 1 ϕ FAULT LEVEL = 5.87kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 25kA - THUS A MINIMUM 2 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 2 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA CU OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**

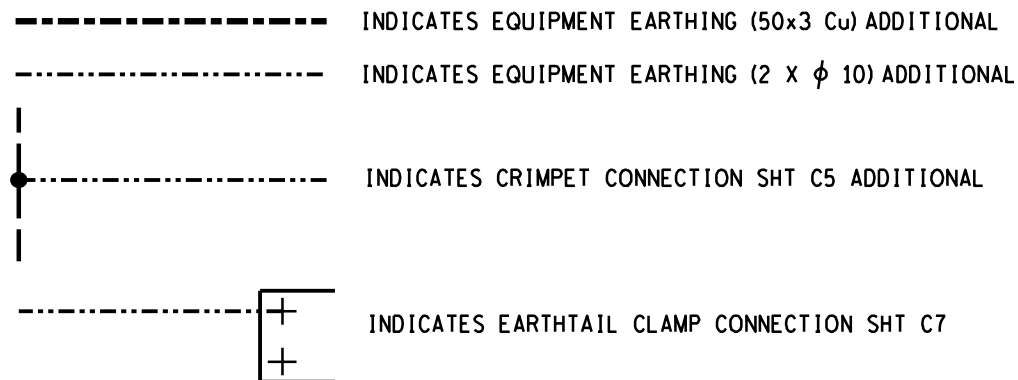
ORIGINAL DWG #: 0.07/6722
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	34
0.54/393 SHT C6 (ea)	21
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	78

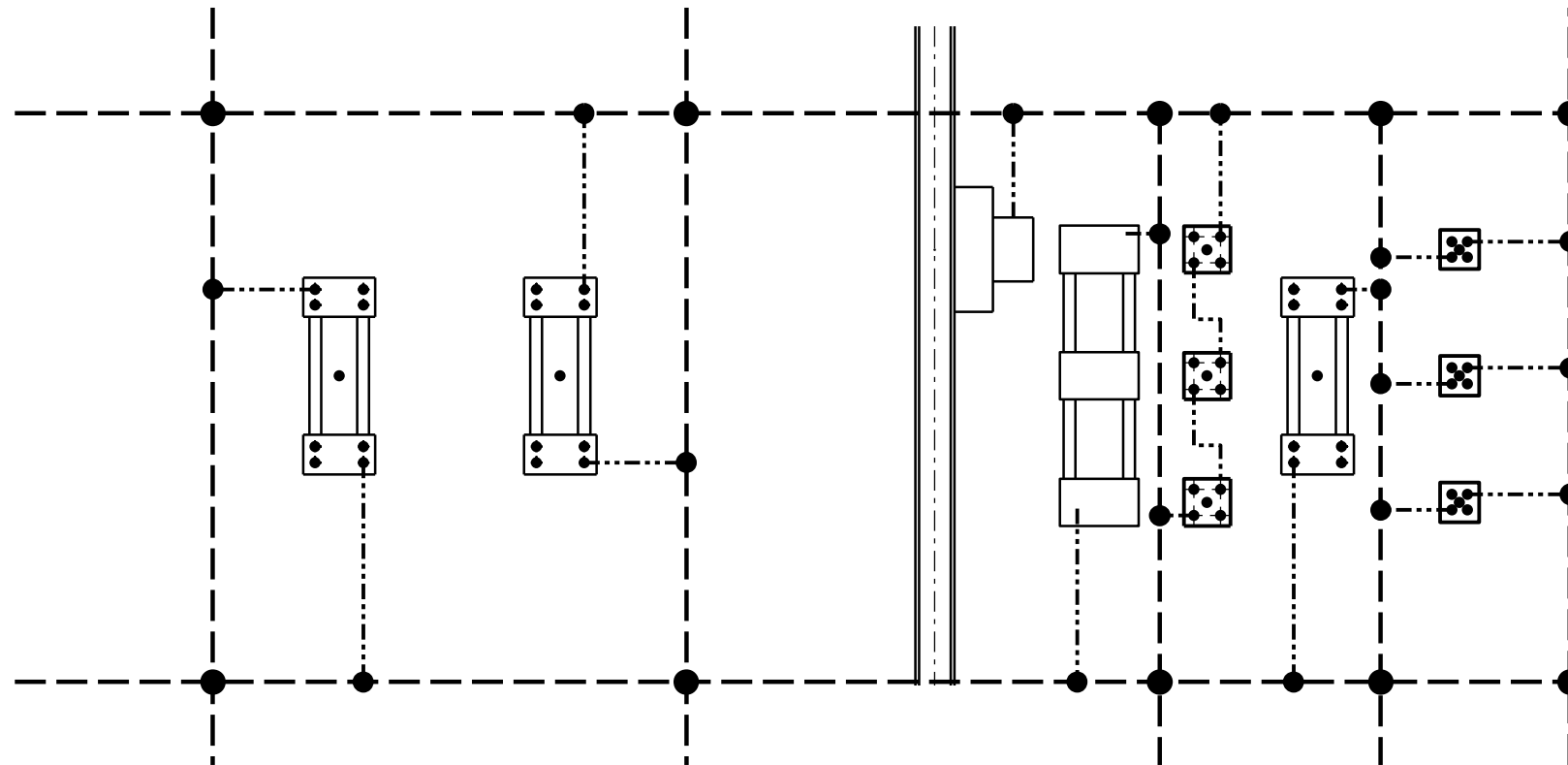
THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393



1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT; 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 88kV FEEDER 2 BAY EARTHING					
©					
EGEO12P02-SE-E13			SHEET NUMBER		REVISION
			51A		0

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 88kV 1 ϕ FAULT LEVEL = 5.87kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 25kA - THUS A MINIMUM 2 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 2 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA CU OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07/6722
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

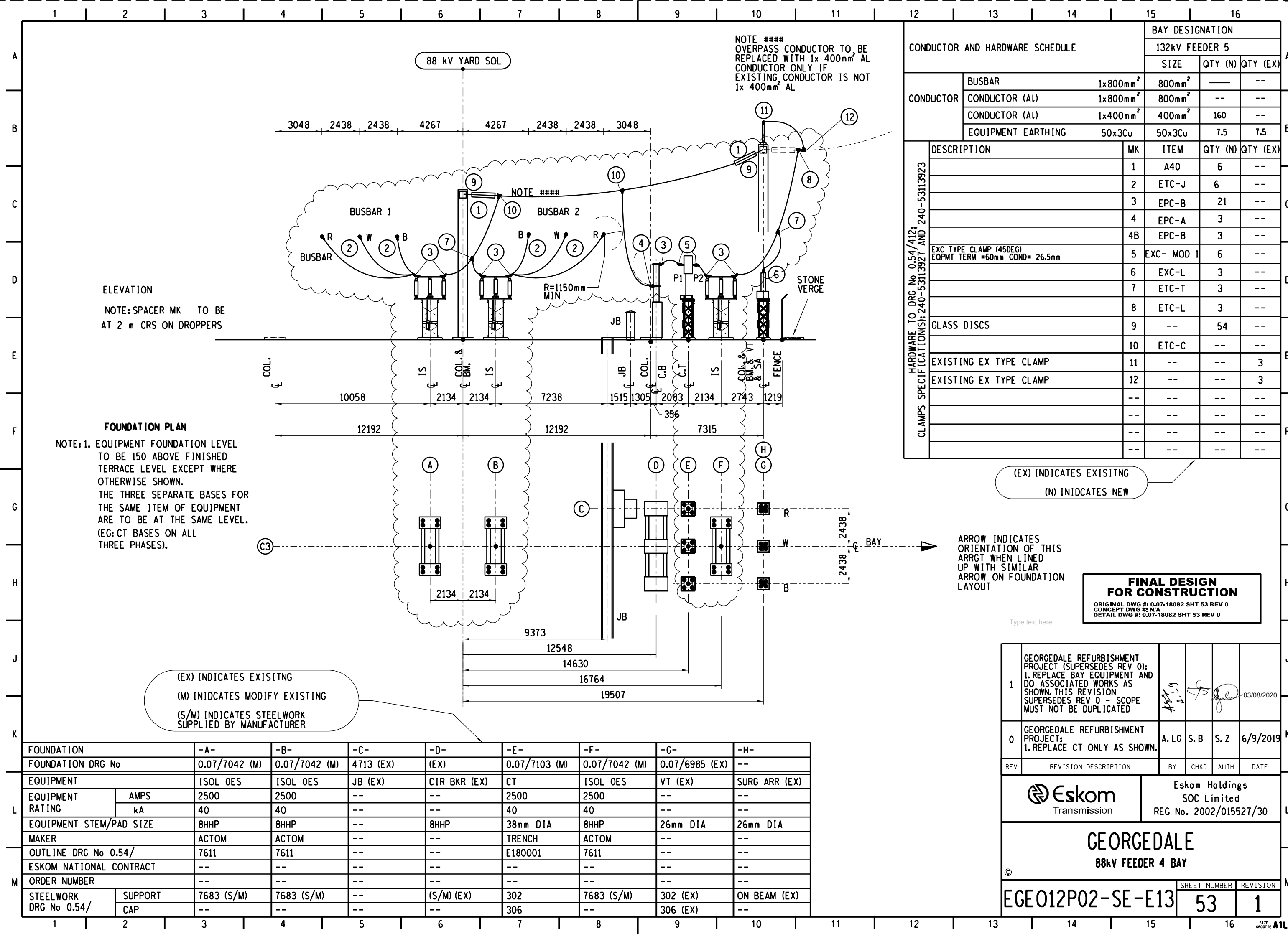
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	34
0.54/393 SHT C6 (ea)	21
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	78

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE
DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

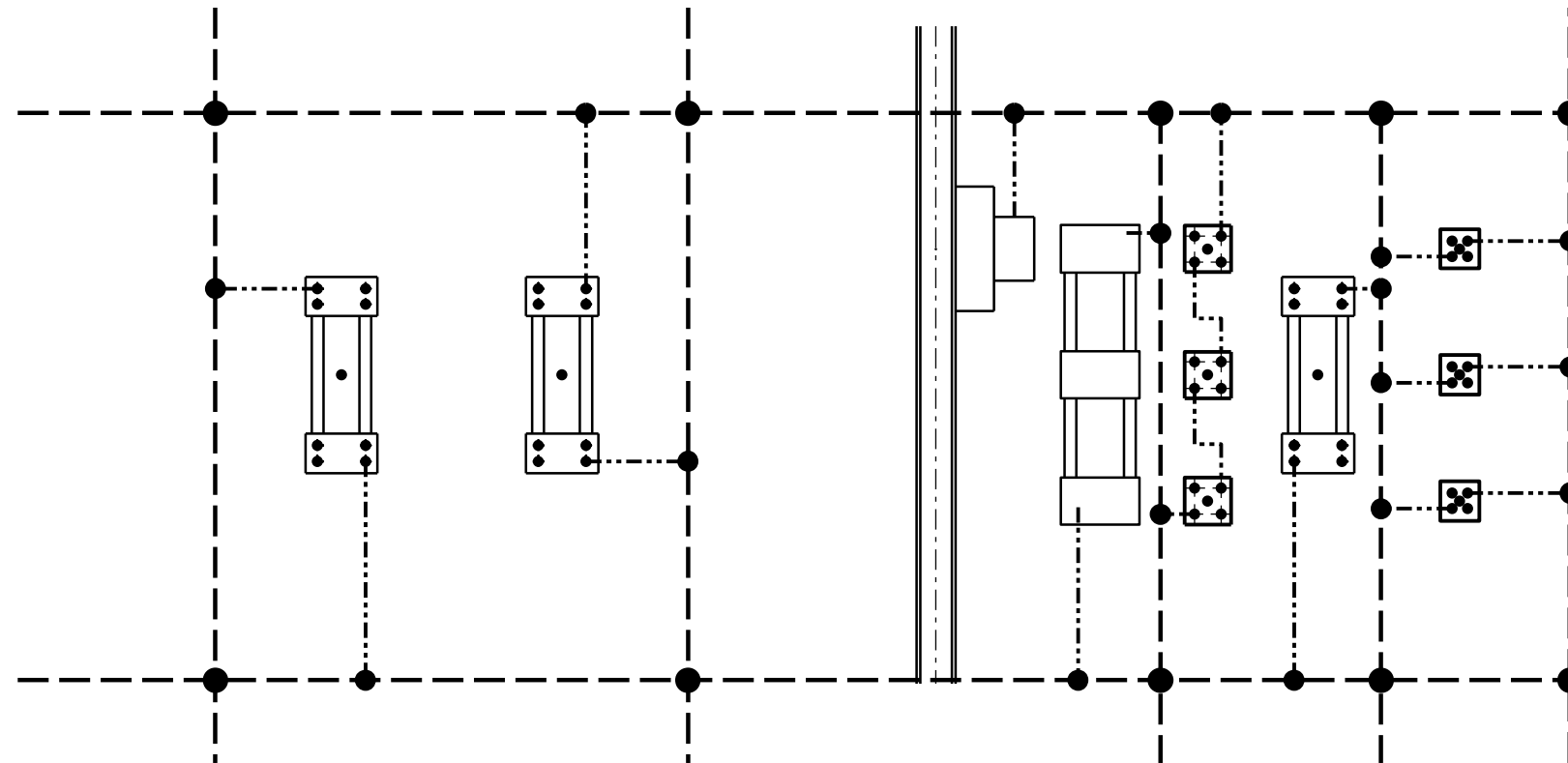
COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	16.1 A			03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT; 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 88kV FEEDER 3 BAY EARTHING					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		52A		1	



NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 88kV 1 ϕ FAULT LEVEL = 5.87kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 25kA - THUS A MINIMUM 2 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING CU CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 2 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING CU SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA CU OR 50x3 CU CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07/6722
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

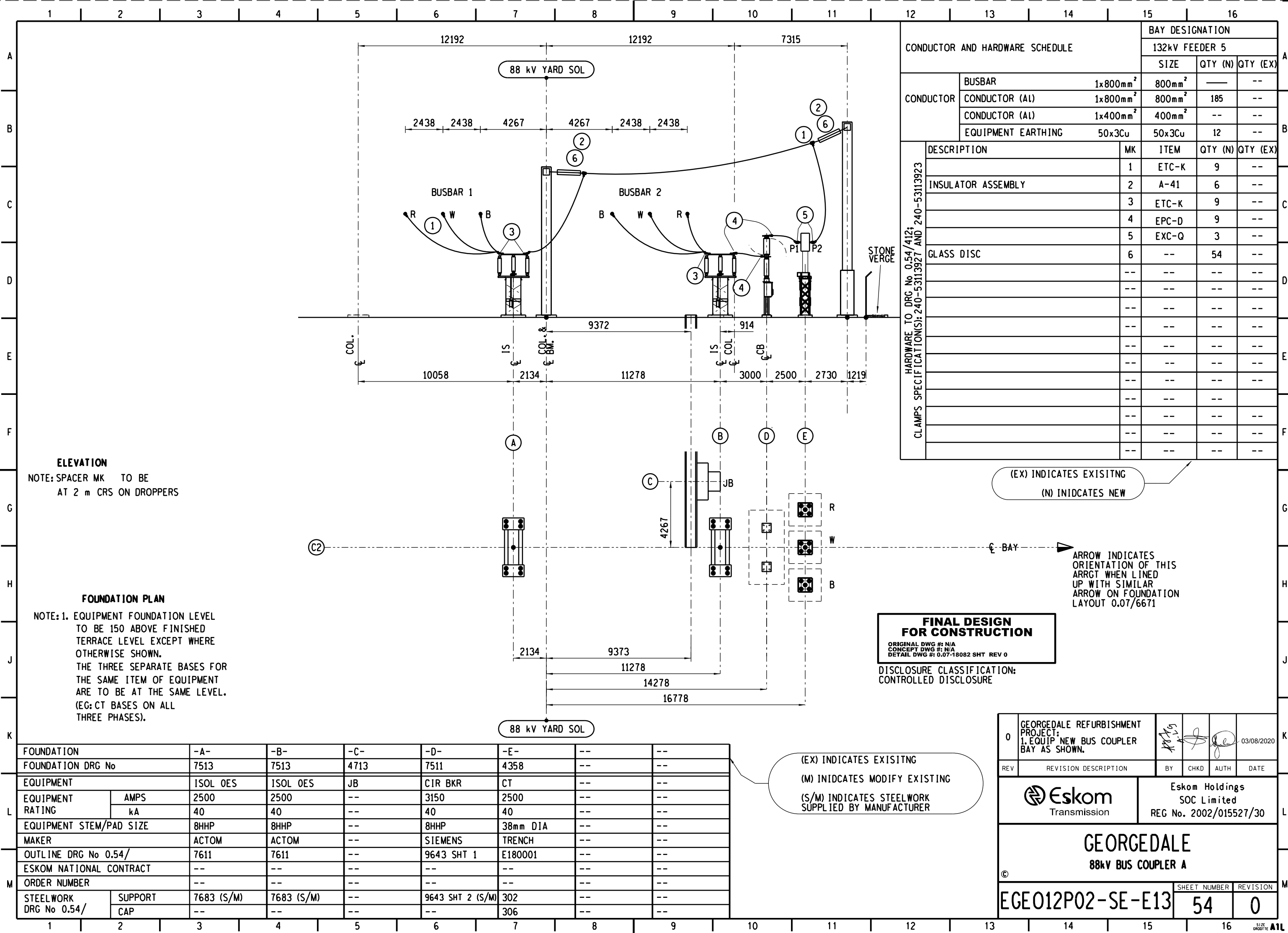
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	34
0.54/393 SHT C6 (ea)	21
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	78

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE
DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

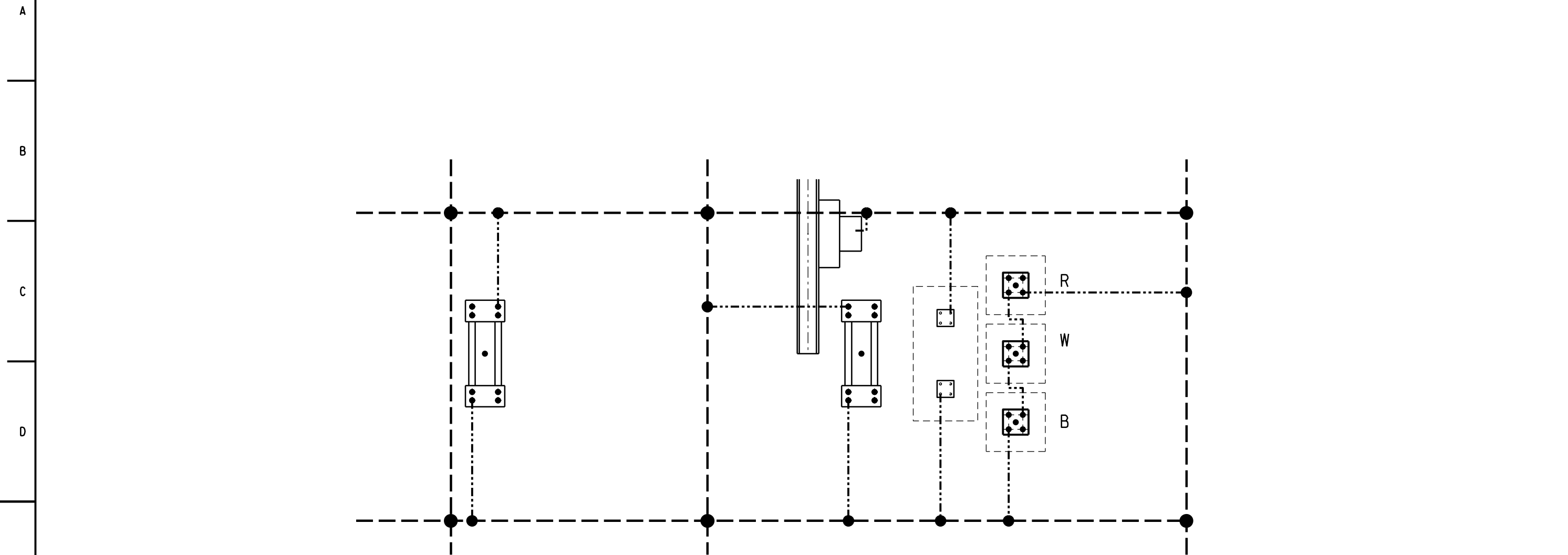
COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN	A. L. G	A. L. G			03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT: 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. L. G	S. B	S. Z		5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE	
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30				
GEORGEDALE 88kV FEEDER 4 BAY EARTHING						
EGE012P02-SE-E13		SHEET NUMBER		REVISION		
		53A		1		



NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 88kV 1ϕ FAULT LEVEL = 5.87kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 25kA - THUS A MINIMUM 2 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.



CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	18
0.54/393 SHT C6 (ea)	13
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	79

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

**FINAL DESIGN
FOR CONSTRUCTION**
ORIGINAL DWG #: 0.07/6722
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

0

GEORGEDALE REFURBISHMENT
PROJECT:
ENTIRE BAY EARTHING ASSOCIATED
WITH THIS PROJECT SHOWN

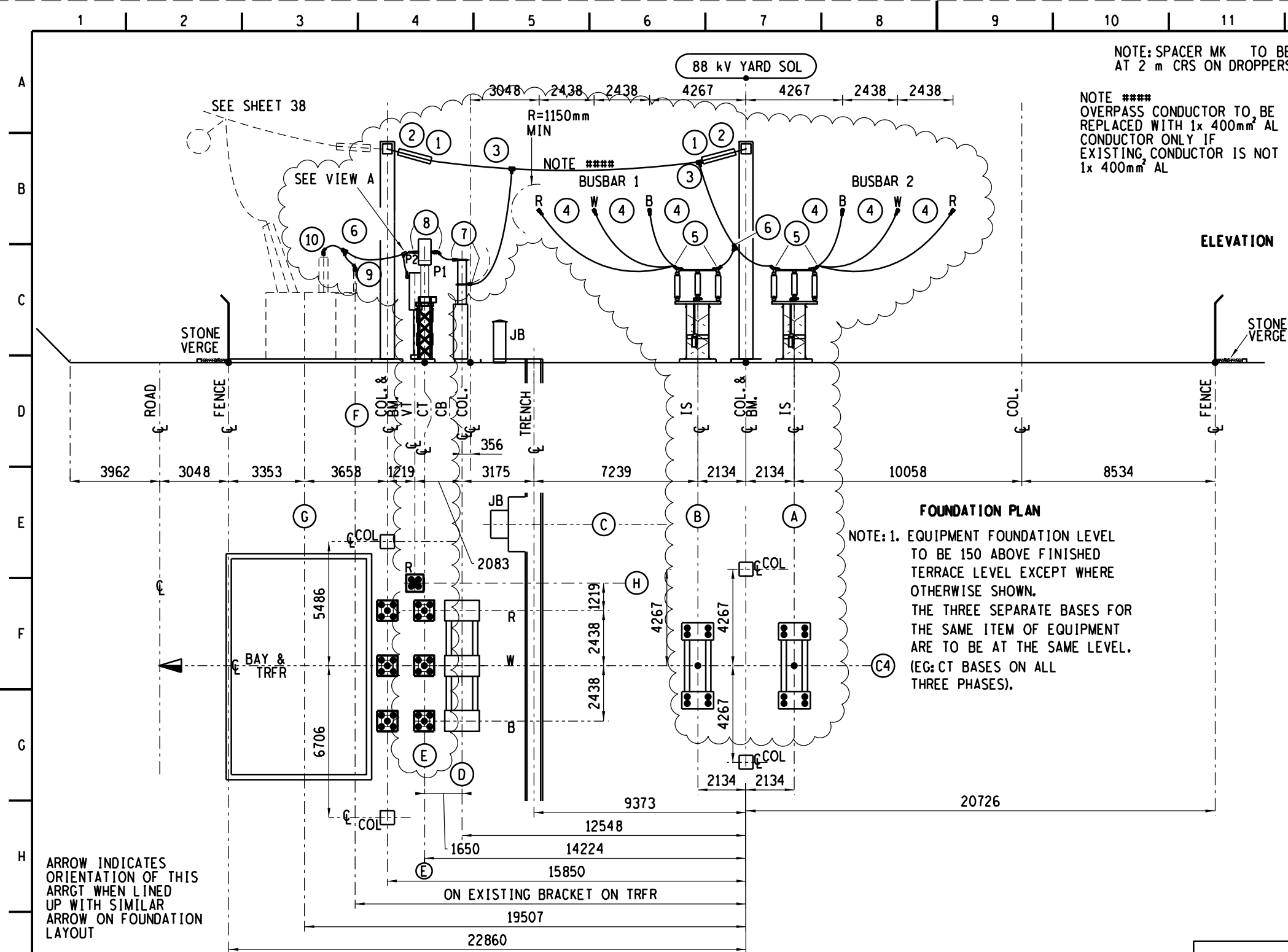
03/08/2020

REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
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Eskom Holdings
SOC Limited
REG No. 2002/015527/30

GEORGEDALE
132kV BUS COUPLER B EARTHING BAY

EGEO12P02-SE-E13	SHEET NUMBER 54A	REVISION 0
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NOTE: SPACER MK TO BE AT 2 m CRS ON DROPPERS

NOTE #### OVERPASS CONDUCTOR TO BE REPLACED WITH 1x 400mm² AL CONDUCTOR ONLY IF EXISTING CONDUCTOR IS NOT 1x 400mm² AL

CONDUCTOR AND HARDWARE SCHEDULE		BAY DESIGNATION			
		132kV FEEDER 5			
		SIZE	QTY (N)	QTY (EX)	
CONDUCTOR	BUSBAR	1x800mm ²	800mm ²	---	--
	CONDUCTOR (AL)	1x800mm ²	800mm ²	--	--
	CONDUCTOR (AL)	1x400mm ²	400mm ²	118	--
	EQUIPMENT EARTHING	50x3Cu	50x3Cu	7.5	2.5
CLAMPS SPECIFICATIONS: 240-5313927 AND 240-5313923	DESCRIPTION	MK	ITEM	QTY (N)	QTY (EX)
		1	A40	6	--
	GLASS DISCS	2	--	--	54
		3	ETC-C	7	--
		4	ETC-J	6	--
		5	EPC-B	3	--
		6	ETC-T	6	--
		7	EPC-A	6	--
	EXC TYPE CLAMP (450EG) EQPMT TERM =60mm COND= 26.5mm	8	EXC- MOD 1	6	--
		9	EXC-L	4	--
		10	EXC-F	3	--
		--	--	--	--
		--	--	--	--
		--	--	--	--
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		--	--	--	--

(EX) INDICATES EXISTING
(N) INDICATES NEW

FINAL DESIGN FOR CONSTRUCTION

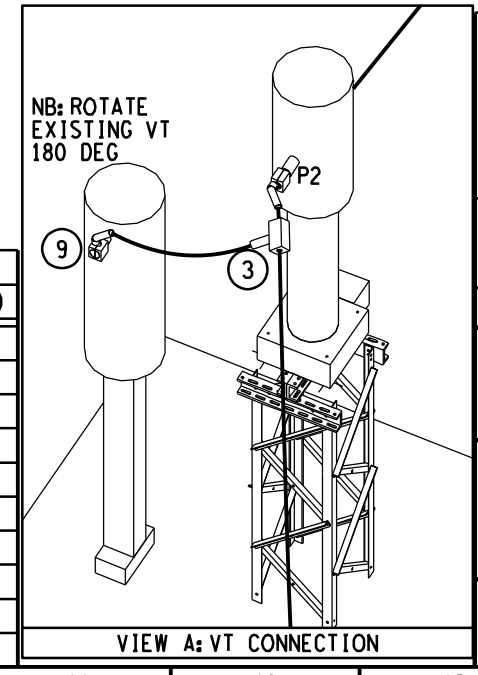
ORIGINAL DWG #: 0.07-18082 SHT 56 REV 0
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 56 REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

ARROW INDICATES ORIENTATION OF THIS ARRGT WHEN LINED UP WITH SIMILAR ARROW ON FOUNDATION LAYOUT

(EX) INDICATES EXISTING
(M) INDICATES MODIFY EXISTING
(S/M) INDICATES STEELWORK SUPPLIED BY MANUFACTURER

FOUNDATION		-A-	-B-	-C-	-D-	-E-	-F-	-G-	-H-
FOUNDATION DRG No		0.07/7042 (M)	0.07/7042 (M)	4713 (EX)	(EX)	0.07/7103 (M)	--	0.07/7244 (EX)	0.07/6985 (EX)
EQUIPMENT	ISOL OES	ISOL OES	JB (EX)	CIR BKR (EX)	CT	SURG ARR (EX)	TRFR (EX)	VT R φ (EX)	
	AMPS	2500	2500	--	--	2500	--	--	--
EQUIPMENT RATING	kA	40	40	--	--	40	--	--	--
EQUIPMENT STEM/PAD SIZE		8HHP	8HHP	--	8HHP	38mm DIA	26mm DIA	38mm DIA	26mm DIA
MAKER		ACTOM	ACTOM	--	--	TRENCH	--	--	--
OUTLINE DRG No 0.54/		7611	7611	--	--	E180001	--	--	--
ESKOM NATIONAL CONTRACT		--	--	--	--	--	--	--	--
ORDER NUMBER		--	--	--	--	--	--	--	--
STEELWORK DRG No 0.54/	SUPPORT	7683 (S/M)	7683 (S/M)	--	(S/M) (EX)	302	ON TRFR BRACKET (EX)	--	(EX)
	CAP	--	--	--	--	306	--	--	(EX)



1	GEORGE DALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): 1. REPLACE BAY EQUIPMENT AND DO ASSOCIATED WORKS AS SHOWN. THIS REVISION SUPERSEDES REV 0 - SCOPE MUST NOT BE DUPLICATED	A. LG	S. B	S. Z	6/9/2019
0	GEORGE DALE REFURBISHMENT PROJECT: 1. REPLACE CT ONLY AS SHOWN.				
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE

Eskom
Transmission

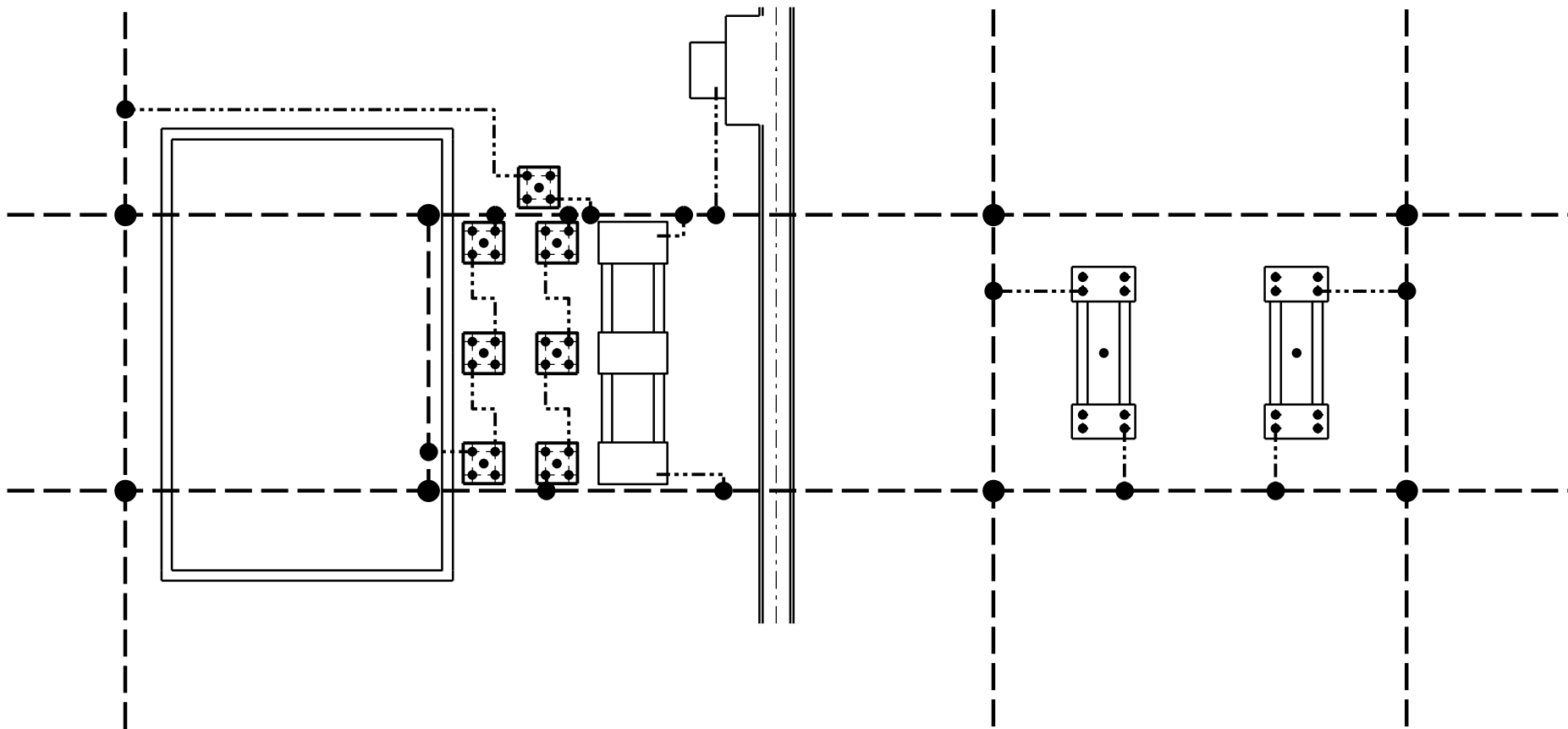
Eskom Holdings
SOC Limited
REG No. 2002/015527/30

GEORGE DALE
88kV TRANSFORMER 12 BAY

EGE012P02-SE-E13

SHEET NUMBER **56** REVISION **1**

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 88kV 1 ϕ FAULT LEVEL = 5.87kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 25kA - THUS A MINIMUM 2 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING Cu CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 2 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING Cu SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 Cu CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.



**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07/6722
CONCEPT DWG #: N/A
DETAIL DWG #: N/A


DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

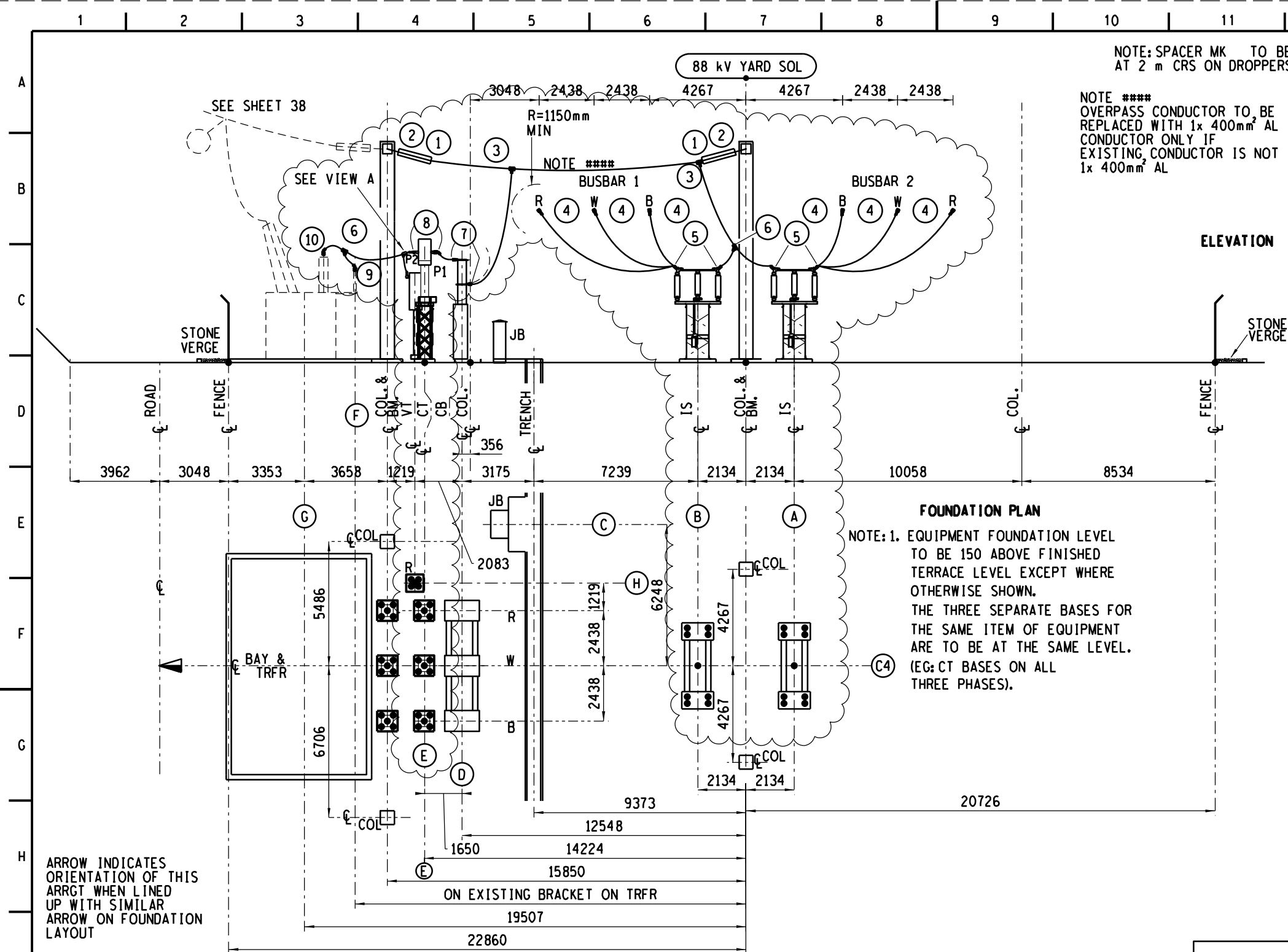
CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	26
0.54/393 SHT C6 (ea)	21
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	70

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE
DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT: 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 88kV TRANSFORMER 12 BAY EARTHING					
EGEO12P02-SE-E13		SHEET NUMBER 56A		REVISION 1	



NOTE: SPACER MK TO BE AT 2 m CRS ON DROPPERS

NOTE #####
OVERPASS CONDUCTOR TO BE REPLACED WITH 1x 400mm² AL CONDUCTOR ONLY IF EXISTING CONDUCTOR IS NOT 1x 400mm² AL

CONDUCTOR AND HARDWARE SCHEDULE			BAY DESIGNATION		
			132kV FEEDER 5		
			SIZE	QTY (N)	QTY (EX)
CONDUCTOR	BUSBAR	1x800mm ²	800mm ²	—	--
	CONDUCTOR (Al)	1x800mm ²	800mm ²	--	--
	CONDUCTOR (Al)	1x400mm ²	400mm ²	118	--
	EQUIPMENT EARTHING	50x3Cu	50x3Cu	7.5	2.5
HARDWARE TO DRG No 0.54/412; CLAMPS SPECIFICATION(S): 240-53113927 AND 240-53113923	DESCRIPTION	MK	ITEM	QTY (N)	QTY (EX)
		1	A40	6	--
	GLASS DISCS	2	--	--	54
		3	ETC-C	7	--
		4	ETC-J	6	--
		5	EPC-B	3	--
		6	ETC-T	6	--
		7	EPC-A	6	--
	EXC TYPE CLAMP (45DEG) EQPMT TERM =60mm COND= 26.5mm	8	EXC- MOD 1	6	--
		9	EXC-L	4	--
		10	EXC-F	3	--
		--	--	--	--
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(EX) INDICATES EXISTING
(N) INDICATES NEW

FINAL DESIGN FOR CONSTRUCTION

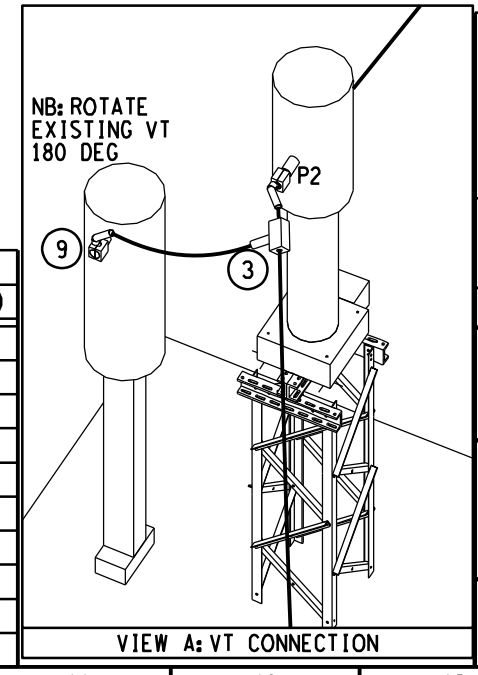
ORIGINAL DWG #: 0.07-18082 SHT 57 REV 0
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 57 REV 0

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

ARROW INDICATES ORIENTATION OF THIS ARRGT WHEN LINED UP WITH SIMILAR ARROW ON FOUNDATION LAYOUT

(EX) INDICATES EXISTING
(M) INDICATES MODIFY EXISTING
(S/M) INDICATES STEELWORK SUPPLIED BY MANUFACTURER

FOUNDATION		-A-	-B-	-C-	-D-	-E-	-F-	-G-	-H-
FOUNDATION DRG No		0.07/7042	0.07/7042 (M)	4713 (EX)	(EX)	0.07/7103 (M)	--	0.07/7244 (EX)	0.07/6985 (EX)
EQUIPMENT		ISOL OES	ISOL OES	JB (EX)	CIR BKR (EX)	CT	SURG ARR (EX)	TRFR (EX)	VT R φ (EX)
EQUIPMENT RATING	AMPS	2500	2500	--	--	2500	--	--	--
	kA	40	40	--	--	40	--	--	--
EQUIPMENT STEM/PAD SIZE		8HHP	8HHP	--	8HHP	38mm DIA	26mm DIA	38mm DIA	26mm DIA
MAKER		ACTOM	ACTOM	--	--	TRENCH	--	--	--
OUTLINE DRG No 0.54/		7611	7611	--	--	E180001	--	--	--
ESKOM NATIONAL CONTRACT		--	--	--	--	--	--	--	--
ORDER NUMBER		--	--	--	--	--	--	--	--
STEELWORK DRG No 0.54/	SUPPORT	7683 (S/M)	7683 (S/M)	--	(S/M) (EX)	302	ON TRFR BRACKET (EX)	(EX)	(EX)
	CAP	--	--	--	--	306	--	--	--



1	GEORGE DALE REFURBISHMENT PROJECT (SUPERSEDES REV 0): 1. REPLACE BAY EQUIPMENT AND DO ASSOCIATED WORKS AS SHOWN. THIS REVISION SUPERSEDES REV 0 - SCOPE MUST NOT BE DUPLICATED	A. LG	S. B	S. Z	03/08/2020
0	GEORGE DALE REFURBISHMENT PROJECT: 1. REPLACE CT ONLY AS SHOWN.	A. LG	S. B	S. Z	6/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE

Eskom
Transmission

Eskom Holdings
SOC Limited
REG No. 2002/015527/30

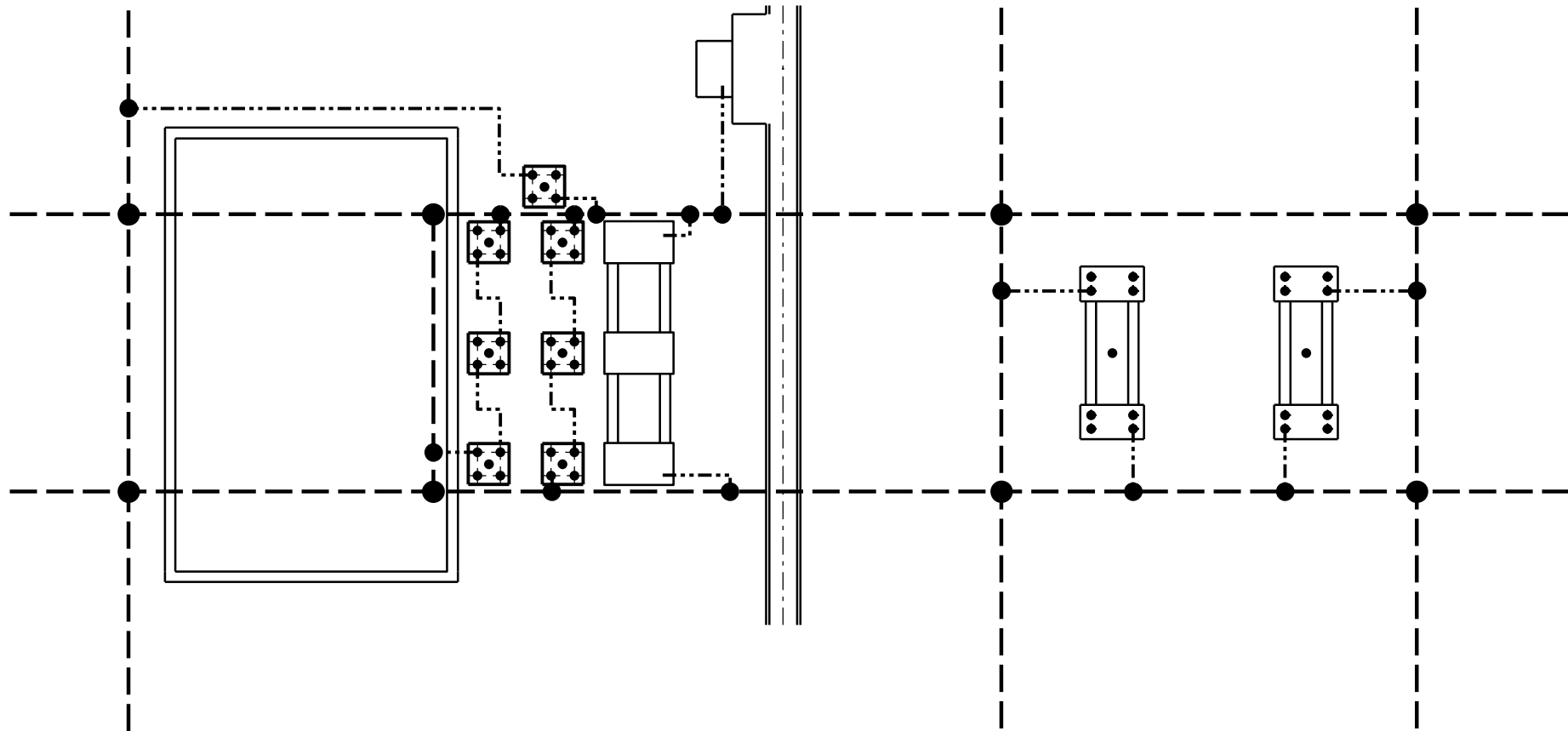
GEORGE DALE
88kV TRANSFORMER 13 BAY

EGE012P02-SE-E13

SHEET NUMBER
57

REVISION
1

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 88kV 1 ϕ FAULT LEVEL = 5.87kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 25kA - THUS A MINIMUM 2 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.
ACCORDING TO 0.07/6721 AND 0.07/6722, GEORGEDALE SUBSTATION'S EARTHING DATES BACK AS FAR AS THE EARLY 1960'S. THE POSSIBILITY OF ANY EXISTING BURIED SUPPORT EARTH CONDUCTOR/CONNECTION(S) BEING CORRODED TO SUCH A POINT REQUIRING REPLACEMENT OF AFFECTED EARTH CONDUCTORS IS A CONCERN. THE EARTHING LAYOUT AND QUANTITIES SHOWN HERE THUS ASSUMES THE WORST CASE, I.E NO EXISTING Cu CONDUCTOR/EARTH CONNECTION CAN BE REUSED DUE TO CORROSION AND THUS WHERE APPLICABLE, INSTALL NEW CONDUCTOR/CONNECTIONS AND REPLACE ALL EXISTING CONNECTIONS/CONDUCTOR TO FORM A 2 CONNECTION PER SUPPORT LAYOUT AS SHOWN HERE. IMPORTANT HOWEVER, WHERE POSSIBLE, ANY EXISTING Cu SUPPORT EARTHING CONNECTION/CONDUCTOR (WHETHER IT IS 2X10mm DIA Cu OR 50x3 Cu CONDUCTORS) MUST BE REUSED IF THE BURIED PORTION IS FOUND TO BE IN SUCH A CONDITION TO THAT IT MAY BE REUSED.

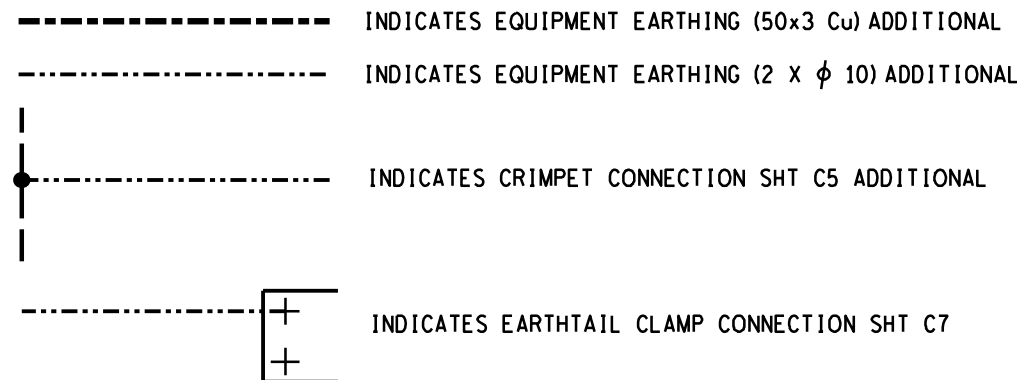


**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07/6722
CONCEPT DWG #: N/A
DETAIL DWG #: N/A





DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

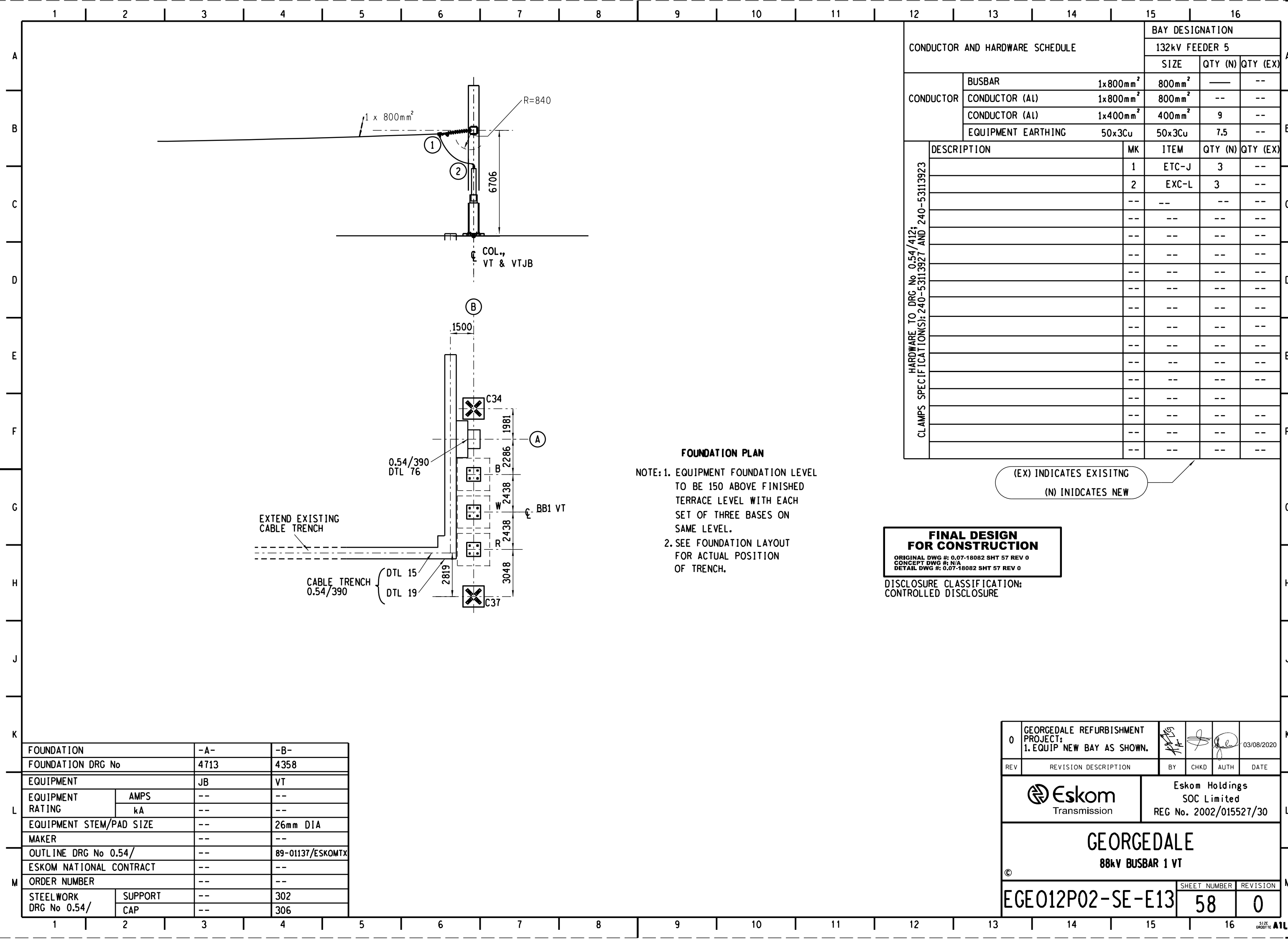
COPPER EARTHING
TO SPEC ON DRG NO 0.54/393



CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	26
0.54/393 SHT C6 (ea)	21
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	70

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE
DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

1	GEORGEDALE REFURBISHMENT PROJECT (SUPERSEDES REV 0); ENTIRE BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
0	GEORGEDALE REFURBISHMENT PROJECT; 1. CT REPLACEMENT - ASSOCIATED EARTHING SHOWN.	A. LG	S. B	S. Z	5/9/2019
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 88kV TRANSFORMER 13 BAY EARTHING					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		57A		1	



FOUNDATION PLAN

- NOTE: 1. EQUIPMENT FOUNDATION LEVEL TO BE 150 ABOVE FINISHED TERRACE LEVEL WITH EACH SET OF THREE BASES ON SAME LEVEL.
2. SEE FOUNDATION LAYOUT FOR ACTUAL POSITION OF TRENCH.

CONDUCTOR AND HARDWARE SCHEDULE				BAY DESIGNATION		
				132kV FEEDER 5		
				SIZE	QTY (N)	QTY (EX)
CONDUCTOR	BUSBAR	1x800mm ²	800mm ²	---	---	---
	CONDUCTOR (Al)	1x800mm ²	800mm ²	---	---	---
	CONDUCTOR (Al)	1x400mm ²	400mm ²	9	---	---
	EQUIPMENT EARTHING	50x3Cu	50x3Cu	7.5	---	---
HARDWARE TO DRG No 0.54/412: CLAMPS SPECIFICATIONS: 240-53113927 AND 240-53113923	DESCRIPTION	MK	ITEM	QTY (N)	QTY (EX)	
		1	ETC-J	3	---	
		2	EXC-L	3	---	
		---	---	---	---	
		---	---	---	---	
		---	---	---	---	
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(EX) INDICATES EXISTING
(N) INDICATES NEW

FINAL DESIGN
FOR CONSTRUCTION

ORIGINAL DWG #: 0.07-18082 SHT 57 REV 0
CONCEPT DWG #: N/A
DETAIL DWG #: 0.07-18082 SHT 57 REV 0

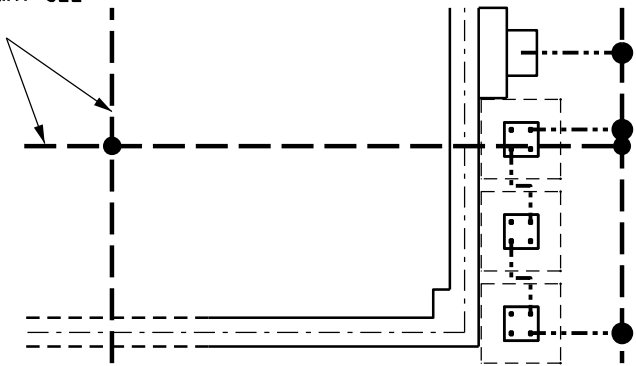
DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

FOUNDATION		-A-	-B-
FOUNDATION DRG No		4713	4358
EQUIPMENT		JB	VT
EQUIPMENT RATING	AMPS	---	---
	kA	---	---
EQUIPMENT STEM/PAD SIZE		---	26mm DIA
MAKER		---	---
OUTLINE DRG No 0.54/		---	89-01137/ESKOMTX
ESKOM NATIONAL CONTRACT		---	---
ORDER NUMBER		---	---
STEELWORK DRG No 0.54/	SUPPORT	---	302
	CAP	---	306

0	GEORGE DALE REFURBISHMENT PROJECT: 1. EQUIP NEW BAY AS SHOWN.				03/08/2020
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
 Eskom Transmission		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGE DALE 88kV BUSBAR 1 VT					
©					
EGE012P02-SE-E13		SHEET NUMBER		REVISION	
		58		0	

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 88kV 1ϕ FAULT LEVEL = 5.87kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 25kA - THUS A MINIMUM 2 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.

FOR MAIN EARTHMAT SEE
DRG 0.07/6677

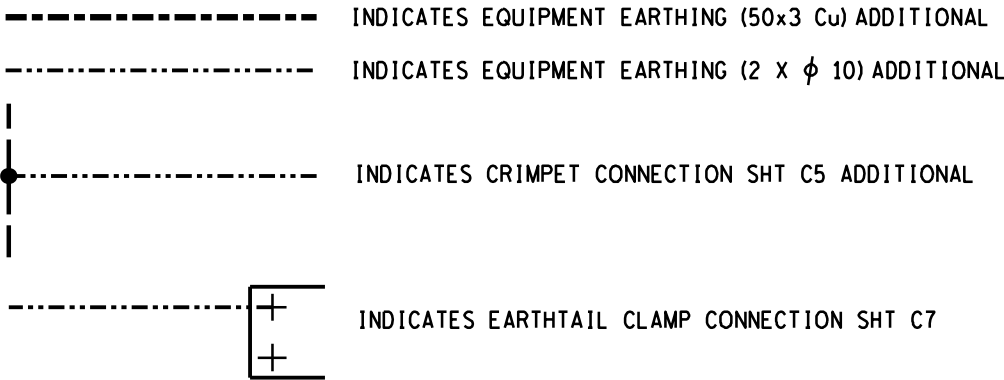


**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07/6722
CONCEPT DWG #: N/A
DETAIL DWG #: N/A

DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393



CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	18
0.54/393 SHT C6 (ea)	13
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	95

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE
DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

0	GEORGEDALE REFURBISHMENT PROJECT: BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 88kV BUSBAR VT 1 EARTHING BAY					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
		58A		0	

NB: ACCORDING TO DEC 2019 FAULT LEVEL REPORT 240-118802871: GEORGEDALE 88kV 1ϕ FAULT LEVEL = 5.87kA. AS PER 240-95773230 DESIGN FAULT LEVEL = 25kA - THUS A MINIMUM 2 EARTH CONNECTIONS PER SUPPORT ARE REQUIRED TO BE CONNECTED AS SHOWN HERE.

FOR MAIN EARTHMAT SEE
DRG 0.07/6677

**FINAL DESIGN
FOR CONSTRUCTION**

ORIGINAL DWG #: 0.07/6722
CONCEPT DWG #: N/A
DETAIL DWG #: N/A





DISCLOSURE CLASSIFICATION:
CONTROLLED DISCLOSURE

COPPER EARTHING
TO SPEC ON DRG NO 0.54/393

- INDICATES EQUIPMENT EARTHING (50x3 Cu) ADDITIONAL
- INDICATES EQUIPMENT EARTHING (2 x ϕ 10) ADDITIONAL
- INDICATES CRIMPET CONNECTION SHT C5 ADDITIONAL
- INDICATES EARTHTAIL CLAMP CONNECTION SHT C7

CRIMPET 0.54/393 NOTE 5 SHT 1 (ea)	18
0.54/393 SHT C6 (ea)	13
50x3 Cu (m)	--
50x3 Cu TO STEELWORK BOLTED CONNECTION (ea)	--
10mm DIA Cu ROD (m)	79

THIS REVISION SUPERSEDES REVISION 0. REVISION 0 IS TO BE
DISREGARDED - QUANTITIES MUST NOT BE DUPLICATED

0	GEORGEDALE REFURBISHMENT PROJECT: BAY EARTHING ASSOCIATED WITH THIS PROJECT SHOWN				03/08/2020
REV	REVISION DESCRIPTION	BY	CHKD	AUTH	DATE
		Eskom Holdings SOC Limited REG No. 2002/015527/30			
GEORGEDALE 88kV BUSBAR VT 2 EARTHING BAY					
EGEO12P02-SE-E13		SHEET NUMBER		REVISION	
		59A		0	