



SPECIFICATION

DOCUMENT CLASSIFICATION
TITLE: TENDER FOR THE SUPPLY,
DELIVERY AND OFFLOADING OF RING
MAIN UNITS

CONTROLLED DISCLOSURE
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Technical schedules A and B and Deviation Schedule

1. SCOPE

This specification covers the requirements for the supply, delivery and off-loading at the CoT Supply Chain Management (SCM) Stores Depot of ring main units (RMU) required for provision of (MV) 11kV electricity supplies. RMUs are to be provided complete with prefabricated outdoor kiosk and plinth suitable for installation in locations with public accessibility.

The following RMUs and kiosks are required:

- Item 1: Outdoor metering RMU for supplying transformer loads of up to 4 MVA;
- Item 2: Outdoor non-metering RMU for supplying transformer loads of up to 500 kVA;
- Item 3: Indoor non-metering RMU for supplying transformer loads of up to 2 MVA;
- Item 4: Outdoor Three-way Switch;
- Item 5: Outdoor Four-way Switch;
- Item 6: Combination Outdoor Circuit breaker and Three-way switch;
- Item 7: Recover old ODS, install new ODS (item 2);
- Item 8: Recover old CLC, install new CLC (item 6).

2. NORMATIVE REFERENCES:

The most recent editions of the standards listed below apply.

SANS 1874: Switchgear - Metal-enclosed ring main units for rated a.c. voltages above 1 kV and up to and including 36 kV.

NRS 095: Pre-cast concrete plinths for cable connected equipment.

NRS 099: Bulk metering units for medium-voltage systems with rated a.c. voltages up to and including 24 KV.

3. DEFINITIONS AND ABBREVIATIONS

The definitions and abbreviations of SANS 1874 apply.

4 REQUIREMENTS (numbering of clauses corresponds to with SANS 1874. This specification has to be read in conjunction with SANS 1874.)

Summarized requirements have been stated in the Schedule A for the following equipment:

- i) RMU (SANS 1874);
- ii) Kiosks (SANS 62271-202);
- iii) Protection and metering module (SANS1874 and NRS099);
- iv) Cable terminations: air-insulated enclosures (SANS 876).

4.1 Service conditions The requirements of SANS 1874 and schedule A apply.

4.2 Ratings The requirements of SANS 1874 and schedule A apply.

4.3 General

- a) The requirements of SANS 1874, Schedule A and the following apply.
- b) After the contract is awarded, a prototype RMU/BMU and kiosk shall be manufactured and approved by the CoT Test Section before production of RMU can commence.

4.3.1.1 Design and construction The requirements of SANS 1874 and schedule A apply.

4.3.1.2 Outdoor units are required complete with plinths. Plinths shall comply with the requirements of NRS 095.

4.3.2 Extensible/non-extensible units

Non extensible RMUs are required (Refer Schedule A).

4.3.3 Degree of protection

The requirements of SANS 1874 apply. The degree of protection offered shall be stated in Schedule B.

4.3.4 Configuration

The general arrangement of the RMUs and kiosks required for items 1 to 6 shall comprise of the following:

4.3.4.1 Item 1 is for a MV bulk metering unit BMU required for the provision of bulk electricity supplies. The BMU shall comprise of:

- i)_MV RMU (SD, CB and SD) compartment.
- ii)_MV metering compartment.
- iii)_MV customer compartment.
- iv)_Plinth – details as indicated in drawing C.1 and C.4 of NRS 099 (also refer NRS095: Drawing A.11 – Precast concrete plinth for BMU).

4.3.4.1 BMU MV metering compartment
Requirements for CTs and VTs are stated in Annex A, schedule A and B.

4.3.4.2 Item 2 is for a non-metering RMU (SD, CB and SD), meter cabinet (complete with white phase current metering facility, indicating and thermal maximum demand MDI ammeter), required for supplying distribution transformer loads of up to 500kVA.

4.3.4.3 Item 3 is for a non-metering RMU (SD, CB and SD), meter cabinet (complete with white phase current metering facility, indicating and thermal maximum demand MDI ammeter), **without kiosk and plinth**. This unit is required to supply indoor transformer of up to 1 MVA.

- 4.3.4.4 Item 4 and 5 are for a three (SD, SD and SD) and four-way (SD, SD, SD and SD) switches (T3 and T4).
- 4.3.4.5 Item 6 is for a non-metering RMU (SD, SD, SD and CB), meter cabinet (complete with indicating and thermal maximum demand ammeters), required for supplying transformer loads of up to 500kVA.
- 4.3.4.6 Type C bushings: A set of three unscreened separable connectors (USC) comprising of a cable plug with bolted contact must be supplied with each SD and CB.
- 4.3.5 Cable test facility** The requirements of SANS 1874, Schedule A and the following apply.
 - 4.3.5.1 Integral cable test facilities that are accessible from the front of the RMU and independent of the cable termination enclosure shall be provided for the SD and CB.
 - 4.3.5.2 Connection of cable test equipment: The requirements of SANS 1874 apply.
 - 4.3.5.3 Detail of the cable test facility offered shall be stated in Schedule B.
 - 4.3.5.4 Interlocking of cable test equipment: The requirements of SANS 1874 apply.
 - 4.3.5.5 The requirements of SANS 1874 apply.
 - 4.3.5.6 Audible alarm operating in association with the cable earthing switch in the event of a cable being alive is required: Detail of the alarm system offered shall be stated in Schedule A.
 - 4.3.5.7 The requirements of SANS 1874 apply.
- 4.3.6 Earthing facility** The requirements of SANS 1874 apply.
- 4.3.7 Padlocking** (SD, CB) the requirements of SANS 1874 apply.
- 4.3.8 General interlocks** The requirements of SANS 1874 apply.
- 4.3.9 Interlocks with remote equipment** Not required.
- 4.3.10 Insulating and interrupting media** The requirements of SANS 1874 apply. The insulating media shall be SF6. Detail of the interrupting media (SF6 or Vacuum) offered shall be stated in Schedule B.
- 4.3.11 Design** The requirements of SANS 1874 apply.
- 4.3.12 Service continuity category** The requirements of SANS 1874 apply.
- 4.3.13 Partition class** The requirements of SANS 1874 apply.
- 4.3.14 Internal arc classification (IAC)** The requirements of SANS 1874 apply. (Indoor: AFL; Outdoor: A-B).
- 4.4 Switch disconnectors for rings and tee-offs:** The requirements of SANS 1874 and schedule A apply (SD current rating 630A).

4.4.2 Operation The requirements of SANS 1874 apply.

4.5 Switch-fuse combinations for tee-offs are not required.

4.5.2 Transformer application

The requirements of SANS 1874 and schedule A apply (1 MVA max).

4.5.3 Fuse-links (SF): not required.

4.5.4 SF Interlocks: not required.

4.6 Circuit breakers for tee-offs

4.6.1 General: The requirements of SANS 1874 and Schedule A apply (required CB current rating 200A).

4.6.2 Protection

The requirements of SANS 1874, Schedule A, and the following apply (required CT ratio: 200/100/1A, class 10P10).

4.6.2.6 a) and b): The requirements of SANS 1874 and schedule A apply.

4.6.3 Operation The requirements of SANS 1874 and schedule A apply.

4.7 Busbars The requirements of SANS 1874 and schedule A apply.

4.8 Cable termination enclosures and terminations

4.8.1_Air filled termination enclosure: The requirements of SANS 1874 apply.

4.8.2_Maximum size of cables terminated: The requirements of SANS 1874 and Schedule A apply (maximum cable size: Belted PILC SWA 70/3core, SANS 97).

4.8.3 Type of termination required:

Type C bushings: Unscreened separable connector (USC) comprising of a cable plug with bolted contact.

Type A bushings: Screened separable connector (SSC) comprising of a cable plug with bolted contact.

4.8.4_Bushings required: SANS 876-Type 3.

4.8.5_LV CTs: The requirements of SANS 1874 (SANS 876) apply.

4.8.6 Internal MV connections and terminations

4.8.6.1: Internal connections from the transformer to the RMU: Screened XLPE single core cables required.

4.8.6.2: Transformer and RMU equipped with type C bushing: The type of termination required shall be type 4 where a XLPE cable is installed accordance with SANS 876.

4.9 Automation requirements (not applicable)

4.10 Additional requirements for SF6-filled switchgear: The requirements of

SANS 1874 and schedule A apply (quantity of gas and service requirements to be stated in Schedule B).

4.11 Earthing The requirements of SANS 1874 and Schedule A apply (Maximum earth current: 10kA).

4.12 Live circuit indication The requirements of SANS 1874 and schedule B apply. (State whether VIPS and VDS comply with SANS).

4.13 Earth fault indication The requirements of SANS 1874 and schedule A apply together with the following:

4.13.1 Earth fault indicator shall be provided with each RMU.

4.14 Kiosks The requirements of SANS 1874 and Schedule A apply. (IAC classification: Outdoor A-B in accordance with SANS62271-202).

4.14.1 to 4.14.13: The requirements of SANS 1874 apply.

4.14.6 A lock protection facility shall be provided in accordance with figure C.5 of SANS1029 (Schedule A).

4.15 Raising base The requirements of SANS 1874 and schedule A apply.

4.15.1 RMU raised base requirements: state in Schedule B.

4.15.2 RMU gland plate requirements: state in Schedule B.

4.15.2 RMU height of raised base: state in Schedule B.

4.16 Accessories The requirements of SANS 1874, schedule A and the following apply.

4.16.1 The overall length and width of the metering RMU (item 1), shall be such that the RMU and enclosure fits on plinth detailed in figure A.11 of NRS095:2012.

4.16.2 The overall length and width of the non-metering RMU (item 2, 4, 5 and 6), shall be such that the RMU and enclosure fit on the RMU plinth as detailed in NRS095.

4.16.3 The minimum height of the concrete plinth shall be 300mm.

4.16.4 Please note Installation of items 1-6 on terrain (within CoT) is required only when an official order is issued. The contractor will be required to recover the existing outdoor substation unit and install the new unit in its place, supply, install, test and commission three cable terminations and transport the recovered unit to the CoT store.

4.17 Rating plates The requirements of SANS 1874 and schedule A apply (method of attaching rating plate).

4.18 Marking and labelling The requirements of SANS 1874 and schedule A apply (method of attaching labels).

4.18.5 Other labels and signs: Labelling of kiosks

A label depicting "Treatment and Full First Aid Instructions" shall be permanently attached to the inside of the kiosk compartment main access door.

The letters MV must be displayed clearly and indelibly in red on the inside of the door of the kiosk.

External Chromadek electrical symbolic warning signs (WW7, Table 2 of SABS 1186 and mounted on a 190 mm x 190 mm square) with the words "No Unauthorized Entry Allowed" (in English, Afrikaans and Zulu) shall be permanently attached to all the doors.

Item 2, 3 and 6: MV termination on RMU tee off: Termination having screened tails only can be used.

4.19 Protection and corrosion The requirements of SANS 1874 and schedule A apply.

4.20 Packaging, transport and delivery The requirements of SANS 1874 and schedule A apply.

5 TESTS

5.1 The requirements of SANS 1874 and schedule B apply together with the following:
5.2

The INSPECTION AND TESTING form, Annex C, must be completed by the manufacturer before Test Section is invited for the factory inspection.

5.1 General The requirements of SANS 1874 and schedule B apply together with the following:

5.2 Type tests: The requirements of SANS 1874, schedule A and the following apply.

5.2.1 Type test certificates shall be submitted with the tender documents.

Provide detail in Schedule B, the ILAC approved laboratory where the RMU was type tested, proof of accreditation and list of type test certificates.

5.2.3 IAC requirements for indoor RMU: The required IAC is AFL. Detail of room dimensions must be stated in Schedule B.

5.3 Routine tests The requirements of SANS 1874, schedule A and the following apply.

5.3.1 Routine test certificates shall be provided with the RMU supplied. Original manufacturer's test certificates/reports for bought-out (out-sourced) equipment shall be provided with the equipment supplied.

5.4 Test on painted surfaces The requirements of SANS 1874 and schedule A apply.

6 Recommended spares The requirements of SANS 1874 and schedule A apply.

7 Documentation

7.1 Required documentation The requirements of SANS 1874, schedule A and the following apply.

Technical Schedule B and the Deviation Schedule shall be completed by the bidder.

7.2 Documentation to be supplied with each tender.

The requirements of SANS 1874 and schedule A apply

7.3 Documentation to be supplied with each tender The requirements of SANS 1874 and schedule A apply.

8 TRAINING

8.1 The following certified training courses shall be offered free of charge:

- 1) Safe and correct handling;
- 2) Storage, transport, installation and;
- 3) Operation of the RMU and kiosk.

Annexure A

ITEM 1 to 6

The clauses listed below refer to the sub clauses of specification SANS 1874

Schedule A: Purchaser's specific requirements

Schedule B: Particulars of equipment to be supplied (to be completed by tenderer)

Clause 1874	Description	Schedule A	Schedule B
	RMU manufacturer?	XXXXXX	
	Make, model and catalogue number?	XXXXXX	
4.2.1	Rated voltage kV	12	XXXXXX
4.3.1.5	Is an indoor or outdoor unit required?	Outdoor	XXXXXX
4.3.2	Extensible or non-extensible unit	Non-extensible	XXXXXX
4.3.3.3	Degree of protection of unit offered?	XXXXXX	
4.3.4	Required configuration item 1, 2 and 3; Item 4 Item 5 Item 6	SD,CB,SD SD,SD,SD SD,SD,SD,SD CB,SD,SD,SD	XXXXXX
4.3.5.1	Separate integral cable test facility required for SD	required	XXXXXX
4.3.5.1	Separate integral cable test facility required for CD	required	XXXXXX
4.3.5.4	Cable test facility offered shall be interlocked with associated earth switch and padlock.	required	XXXXXX
4.3.10.2	Insulating medium of CB required.	XXXXXX	SF6
4.3.10.2	Specify interrupting medium of CB?	XXXXXX	
4.3.10.3	Insulating medium of SD required.	XXXXXX	SF6
4.3.10.3	Specify interrupting medium of SD?	XXXXXX	
4.3.14.1	IAC classification of RMU and kiosk indoor and outdoor?	XXXXXX	
4.4.1.3	Rated normal current of a switch disconnecter A	630	XXXXXX
4.5.2.1	Transformer load to be protected?	1 MVA	XXXXXX
4.6.1.3	Rated normal current of the circuit breaker A	200	XXXXXX
4.6.2.4	Type of protection tripping of circuit breaker required	10P10	XXXXXX

4.6.2.7	Detail of protection relays (Overcurrent and earthfault)	OC/EF	XXXXX
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Annexure A

The clauses listed below refer to the sub clauses of specification SANS 1874

Schedule A: Purchaser's specific requirements

Schedule B: Particulars of equipment to be supplied (to be completed by bidder)

4.6.2.12	EF pickup independent of CT?	XXXXXX	
4.7.1	Busbar rating?	XXXXXX	
4.7.5	Insulation medium of busbar?	XXXXXX	
4.8.2	Cable type Maximum size(s)	PILC SWA /SANS 97 Belted Table 18. 70mm ² copper	XXXXXX XXXXXX
4.8.3	Type of termination required (USC plug bolted connection)	SANS 876-type 3	XXXXXX
4.10.6	Detail of SF6 recovery and replenishment?	XXXXXX	
4.11.1	Maximum earth fault current kA	10	XXXXXX
4.12.1	Detail of voltage presence detection system (VPIS)?	XXXXXX	
4.13.1	Earth fault indication	Required	XXXXXX
4.13.1	Earth fault indication offered?	XXXXXX	
4.14.1	Kiosk required	IAC A-B	XXXXXX
4.14.6	Padlock facility required on kiosk	Refer 4.14.6	XXXXXX
4.15.1-3	Steel raised base, height and gland plate required?	XXXXXX	
4.16.4	Recommended tools?	XXXXXX	
4.17	Method of attaching rating plate?	XXXXXX	
4.18	Marking and labeling: method of attaching labels?	XXXXXX	
4.19.9	State type of material offered and corrosion protection provided for the RMU kiosk?	XXXXXX	
5.1.3	Quantity already installed in South Africa?	XXXXXX	
5.2.1	State details of ILAC accrediting test facility and proof of certification?	XXXXXX	
5.2.3	Indoor RMU: IAC: comply with AFL SANS62271-200?	XXXXXX	
5.2.4	Outdoor RMU: IAC: comply with SANS62271-202?	XXXXXX	

6.1	List of recommended spares?	XXXXXX	
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Annexure A

The clauses listed below refer to the sub clauses of specification SANS 1874

Schedule A: Purchaser's specific requirements

Schedule B: Particulars of equipment to be supplied (to be completed by bidder)

7.2(g)(h)	Completed type tests with report numbers and relevant test standard numbers?	XXXXXX	
7.2(i)	Proof of test laboratory accreditation?	XXXXXX	
7.2(j)	Copy of RMU factory routine test.	required	XXXXXX
7.2(l)	Copy of technical catalogue.	required	XXXXXX
7.2(m)	Number of sets of installation operation and maintenance manuals required	Three sets.	XXXXXX

Annexure A

ITEM 1, 2, 3 and 6

The clauses listed below refer to the relevant sub clauses of the SANS 1874 specification (for the BMU see 4.8.3 of NRS099).

METERING CURRENT TRANSFORMERS

Clause	Description	Schedule A	Schedule B
4.8.2	Number of current transformers required for: Metering	2	xxxxxxx
4.8.3	Requirements for each current transformer application: a) Class b) Burden VA c) Tap ratios : Item 1 Item 2 Item 3	0,5 10 200/100/5 50/5 100/50/5	xxxxxxx xxxxxxx xxxxxxx
4.8.4	State for each application the following on the current transformer offered: a) Type of offered? b) Encapsulation material? c) Class? d) Burden? VA e) Tap ratios? f) Tap points? g) Knee-point voltage V h) Secondary resistance Ω i) Excitation current at knee-point voltage mA	xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx	
4.8.11	Permission is required for metering current transformers when used for other instruments	Yes	xxxxxxx
4.8.14	Details of terminal block/rail mounted terminals offered for current transformers?	xxxxxxx

Annexure A

(Continued)

Protection current transformers Item 1

4.8.2	Number of current transformers required for: Protection	3	xxxxxxx
4.8.3	Requirements for each current transformer application: Class Burden Tap ratios: item 1, 2 and 3.	10P10 15 200/100/5; 50/5; 100/50/5	xxxxxxx xxxxxxx xxxxxxx
4.8.4	State for each application the following on the protection current transformer offered: a) Type of offered? b) Encapsulation material? c) Class? d) Burden? VA e) Tap ratios? f) Tap points? g) Knee-point voltage? V h) Secondary resistance? Ω i) Excitation current at knee-point voltage? mA	xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx	
4.8.14	Details of terminal block/rail mounted terminals offered for current transformers?	xxxxxxx

Annexure A (Continued)

Voltage transformer Item 1

4.9.3	Information on voltage transformers required:		
	a) One or three-phase	3	xxxxxxx
	b) Ratio	11000/110	xxxxxxx
	c) Class	0,5	xxxxxxx
	d) Burden VA	100	xxxxxxx
	e) Voltage factor (SABS IEC 60044-2, Table 2)	1,9	xxxxxxx
	f) Location of test block	xxxxxxx
	g) Fuse link current rating A	3.15	xxxxxxx
	h) Fuse link length mm	195	xxxxxxx
4.9.4	Information on voltage transformers offered:		
	a) Name of manufacturer?	xxxxxxx	
	b) Withdrawable or non-withdrawable?	xxxxxxx	
	c) Ratio?	xxxxxxx	
	d) Class?	xxxxxxx	
	e) Burden? VA	xxxxxxx	
	f) Voltage factor?	xxxxxxx	
	g) Location of fuses?	xxxxxxx	
	h) Location of test blocks?	xxxxxxx	
	i) Number of limbs?	xxxxxxx	
	j) Primary connection at busbar or circuit side?	xxxxxxx	
4.9.11	Required location of fuses, MCCB or links	xxxxxxx	
4.9.12	Are test blocks required?	Yes	xxxxxxx
	If yes, type required?	xxxxxxx	
	Type of test blocks offered?	xxxxxxx	
	Details of instruments offered?	xxxxxxx	
	Details of transducers offered?	xxxxxxx	
	Details of metering equipment offered?	xxxxxxx	

Annexure A

The clauses below refer to the relevant clauses of NRS 012:2011 Cable terminations and live conductors within an insulated enclosure for rated a.c. voltages of 7.2kV and up to and 36kV

Schedule A: Purchaser's specific requirements

Schedule B: Particulars of equipment to be supplied (to be completed by tenderer)

Sub-clause	Description	Schedule A	Schedule B
4.2.2.2	Minimum specific creepage distance.	20mm	XXXXXX
4.2.3.5	Dimension of separable connector for type 3 termination using USC (see figure C.4).	Table 5	XXXXXX
4.3.1.1	Cable enclosure for termination in air and attached to:	RMU	XXXXXX
4.3.1.2	Type of cable termination required?	Type 3	XXXXXX
4.3.1.4©	Pollution condition	medium	XXXXXX
4.3.1.5a	Rated voltage kV	12	XXXXXX
4.3.1.5b	Rated current A	630	XXXXXX
4.3.1.5c	Number of poles	Three	XXXXXX
4.3.1.5d	Number of cable glands	one	XXXXXX
4.3.1.5d	Size of cable glands	70-150/3c	XXXXXX
4.3.1.5d	Number of cables to be terminated	One	XXXXXX
4.3.1.5d	The type of cable (Table 18 of SABS 97)	PILCSWA	XXXXXX
4.3.1.5d	Size of cable	70/3c copper	XXXXXX
4.3.1.5e	System fault level: three-phase fault phase to earth-fault	13kA 10kA	XXXXXX
4.3.1.5e	Maximum protection operating time	1s	XXXXXX
4.3.1.5f	Type of bushing or post insulator to be used	Type C	XXXXXX
4.3.1.5g	Earthing method required	Earth terminal	XXXXXX
4.3.1.5h	The list of the lightning impulse voltage	List 2	XXXXXX
4.3.1.9	Particulars of enclosures for ease of access?	XXXXXX	
4.3.1.11	Cable support clamp required : polypropylene	fig C.11	XXXXXX
4.3.1.11	Type of cable support clamp offered?	XXXXXX	

Annexure A

The clauses below refer to the relevant clauses of NRS 012:2011 Cable terminations and live conductors within an insulated enclosure for rated a.c. voltages of 7.2kV and up to and 36kV

Schedule A: Purchaser's specific requirements

Schedule B: Particulars of equipment to be supplied (to be completed by tenderer)

Sub-clause	Description	Schedule A	Schedule B
4.3.1.24	Current transformers to be mounted in the enclosure: item 2, 3 and 6.	1XLV CT white-phase	XXXXX
4.3.1.24	Current transformer rated voltage volt	1000	XXXXX
4.3.1.24	Dimensions of current transformer?	LV ring CT	XXXXX
4.3.2.5	Are bushings to be supplied by manufacturer?	yes	XXXXX
4.4.1	Rating plate required	required	XXXXX
5.1.2	Internal arc test required on air filled enclosure to SANS 62271-202?	required	XXXXX
5.4	Tests on painted surfaces are required in accordance with SANS1874.	required	XXXXX

ANNEX C

INSPECTION AND TESTING OF A BMU/RMU

Date :

Project / Township :

Serial no. :

Dept. no. :

Manufacturer :

kVA :

Item	DESCRIPTION	COMENTS									
		Old (O) / New (N)	Category	Factory	Test Section FAT	Electrical Tests (Test Section)	Material Engineering (Store)	Substations (Depot)	Test Section SAT	Cables (Depot)	System Control
1.	GENERAL										
1.1	Positioned in accordance with the drawing		B								
1.2	A clean area of 2m around RMU		B								
1.3	Minimum depth of 250mm below ground level (Average gradient 200mm)		A								
1.4	Maximum switching - height is 1500mm		A								
1.5	Danger signs (190 x 190mm)		A								
1.6	Paintwork satisfactory		B								
1.7	Red - locks on HT door		A								
1.8	Green - locks on metering door		A								
1.9	Does all the doors fit		A								
1.10	RMU clean inside.		A								
1.11	RMU fixed to the base by means of bolts.		A								
1.12	Roof fixed to the framework by means of bolts.		A								
1.13	Installed level and parallel to the side of the road.		A								
1.14	50mm Cement floor inside RM6 and on top of switching-platform.		A								
1.15	No holes or cracks in the foundation.		A								
1.16	Cable end boxes correct size. Only dry ends. Termination kit & boot's for cable end		A								

Item		COMENTS									
		Old (O) / New (N)	Category	Factory	Test Section FAT	Electrical Tests (Test Section)	Material Engineering (Store)	Substations (Depot)	Test Section SAT	Cables (Depot)	System Control
	DESCRIPTION										
1.17	Depot no. plate.		A								
1.18	Test certificate (white plate)		A								
2.	HT COMPARTMENT										
2.1	Does the switchgear fit properly		A								
2.2	Nameplate behind the door		B								
2.3	11kV (MV/S) behind the door		A								
2.4	Does the interlock function properly		A								
2.5	Switch lever		A								
2.6	Does the switchgear operate properly		A								
2.7	Gas Pressure		A								
2.8	Wooden blocks for cable end		A								
2.9	ON/OFF/EARTHED positions indicated on switchgear		A								
2.10	Cable testing points marked and function properly		A								
2.11	Cable end box, phase colors indicated.		A								
2.12	Does ammeter function properly? / CT Ratio		A								
2.13	Cables marked in accordance with the drawing		A								
3.14	Two (2) crimping cable lugs on a bolt are not permissible, earth connections two (2) crimping cable lugs back-to-back.		A								
2.15	Bolts of current transformers tightened properly.		A								
3.	ELECTRICAL TESTS										
3.1	CT test		A								
3.2	Relay test and settings		A								
3.3	Pressure test		A								

[illegible]

ANNEXURE B

DEVIATION SCHEDULE

SPECIFICATION FOR RING MAIN UNITS: All items

Deviations from this specification shall be listed below with the reasons for deviation.		
Item	Clause	Proposed deviation

FORM B

ITEM	DESCRIPTION	UNIT	QTY	RATE	Amount
1	Outdoor metering type RMU for supplying transformer loads of up to 4 MVA. SAP number: 100000000698	each	20		
2	Outdoor non-metering type RMU (ODS) for supplying transformer loads. SAP number: 100000020843	each	150		
3	Non-metering type RMU (indoor) for supplying transformer loads of up to 2 MVA. SAP number: 100000010494	each	10		
4	MV Three-way switch. SAP number: 100000000837	each	20		
5	MV Four-way switch. SAP number: 100000000840	each	20		
6	Circuit breaker and three-way switch (CLC). SAP number: 100000000703	each	10		
7	Recover old ODS, install new ODS (item 2) , supply and install MV terminations, MV cable joint, excavation (+/-3 m3), repair paving (2 m) and transport recovered ODS to store. SAP service number: 3007551.	each	220		
8	Recover old CLC, install new CLC (item 6), supply and install MV terminations, MV cable joint, excavation (+/-3 m3), repair paving (2 m) and transport recovered CLC to store. SAP service number: 3017064	each	10		

CONTRACT	ITEM NO.	SERVICE NUMBER	UOM	MAT GROUP	SHORT TEXT
CB32 2011	1	100000000698		39120000	RMU METERING OUTDOOR 4MVA
CB32 2011	2	100000020843		39120000	RMU NON-METERING OUTDOOR 500KVA
CB32 2011	3	100000010494		39120000	RMU NON-METERING INDOOR 2MVA
CB32 2011	4	100000000837		39120000	SWITCH MV OUTDOOR 3WAY
CB32 2011	5	100000000840		39120000	SWITCH MV OUTDOOR 4WAY
CB32 2011	6	100000000703		39120000	CIRCUIT BREAKER 3WAY SWITCH OUTDOOR COMB
CB32 2011	7	3007551		72100000	ODS INSTALL TERMINATION RECOVER TO STORE
CB32 2011	8	3017064		72100000	CLC INSTALL TERMINATION RECOVER TO STORE