Eskom	Scope Of Work	GROOTVLEI

Title: **Supply and Delivery of electrical cables on "as and when required" at Grootvlei Power Station.**

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1. INTRODUCTION

Grootvlei Power Station is a coal fired power station located in Grootvlei, Mpumalanga, South Africa. The station is made up of six units, with three units which are currently in service which is Unit (1-3) and three units which are on cold reserve which is unit (4-6). The three units generate approximately 585 MW to Eskom national grid. The ability to generate electricity is made possible by the electrical reticulation network within the station.

The contract is for the supply and Delivery of various Electrical power cables at Grootvlei Power Station for as an when required for a period of 5 years. They are used to supply electrical power in various plant areas.

2. SUPPORTING CLAUSES

2.1 SCOPE

This document provides the scope of work for the electrical cabling contract at Grootvlei Power Station.

2.1.1 Purpose

The purpose of the document is to formally capture all the relevant information pertaining to the electrical cabling contract.

2.1.2 Applicability

This document is applicable to Grootvlei Power Station.

2.2 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.2.1 Normative

[1] ISO 9000: Quality Management Systems.

[2] Occupational Health and Safety Act and Regulations (Osh Act; Act 85 of 93)

[3] 240-114967625 Operating regulations for high voltage systems in Eskom.

[4] 240-150642762 Generation Plant Safety Regulations.

[5] ISO 14001 Safety Management Systems

[6] 240-56356396 Earthing and Lighting Protection Standard

[7] 240-56227443 Requirements for Control and Power Cables for Power Station Standard

[8] 0.00/1310 Standard Power and Control Cable

[9] 32-345 Eskom Vehicle Safety specification

[10] SANS 97 Impregnated-paper-insulated metal-sheathed cables for rated voltages from 3.3/3.3 kV up to 19/33 kV.

[11] SANS 1339 Electric Cables–Cross-linked polyethylene (XLPE) insulated cables for voltages from 3.8/6.6kV to 19/33kV.

[12] SANS 10142-1 The wiring for premises Part 1: Low-voltage installations.

2.2.2 Informative

2.3 DEFINITIONS

a) **Contractor** – a person or company that signs a contract to supply materials or workers to perform a service or a job.

2.3.1 Disclosure classification

Controlled Disclosure: Controlled Disclosure to external parties (either enforced by law, or discretionary)

2.4 ABBREVIATIONS

Abbreviation	Description
AC	Alternating Current
DC	Direct Current
KV	Kilo Volt
LV	Low Voltage
MV	Medium Voltage
PVC	Polyvinyl Chloride
SANS	South African National Standards
SHEQ	Safety, Health, Environmental and Quality
UV	Ultraviolet
XPLE	Cross Linked Polyethylene
V	Volts

2.5 ROLES AND RESPONSIBILITIES

This document shall be managed and maintained by Electrical Engineering, Projects, Outage and Electrical Maintenance at Grootvlei Power Station.

Roles and responsibilities are as follows:

a) **System Engineer** Compile the scope of work for the contract and provision for technical assurance.

b) **The Contractor** is responsible for Supply and Delivery of all Power cables at Grootvlei Power Station.

c) **Electrical Maintenance Departments** are responsible for making sure that the contract is managed properly.

2.6 PROCESS FOR MONITORING

The contractor manager must ensure that the contractor follows all Eskom procedures and process. The contractor is to ensure the use of Inspections and quality to monitor progress and quality of the work.

2.7 RELATED/SUPPORTING DOCUMENT

Not Applicable

3. EMPLOYERS WORKS INFORMATION

3.1 EXECUTIVE OVERVIEW

The contract is for the Supply and Delivery of electrical Power cables at Grootvlei Power Station “as and when required”.

3.2 WORK TO BE PERFORMED BY THE CONTRACTOR FOR THE WORKS.

a) Supply and delivery on electrical cables at Grootvlei Power Station.

b) Transporting the Low Voltage (LV) and Medium Voltage (MV) cables at Grootvlei Power Station.

c) Contractor shall always adhere to the delivery agreement period as per Eskom standard (24-56361435)

d) Contractor shall comply to Eskom’s policies and procedures.

3.3 REQUIREMENTS FOR CONTROL AND POWER CABLES FOR POWER STATIONS

3.3.1 Statutory requirements

a) The requirements of the Occupational Health and Safety Act, Act 85 of 1993, (OHS Act) and all subsequent amendments and regulations shall be observed and adhered to.

b) The requirements of SANS 10142-1, SANS 1507, SANS 1339 and SANS 10198-1 shall be observed and adhered to.

c) All cable offered shall carry valid product type tests in accordance with the relevant SANS standard, and where applicable for local type tested cables the SANAS accredited product certification body mark scheme.

3.4 CABLE TYPES AND SPECIFICATION

3.4.1 General

a) The Contractor shall indicate basic information with regards to the compounds used in the cable construction of each type of cable.

3.4.2 Low voltage power cable requirements

3.4.2.1 General requirements for Low Voltage cables

a) Low voltage cables shall comply with SANS 1507-3 and the requirements of 240-56227443 Generation Requirements for Control and Power Cables for power stations standard.

b) All cable offered shall carry valid product type tests in accordance with the relevant SANS standard. A copy of all relevant type test reports and the required tender returnable documentation shall be submitted at the time of tender enquiry submissions.

3.4.2.2 Voltage rating

For 230 Vac, 220 Vdc and 400 Vac systems the rated cables voltage is 600/1000 V.

3.4.2.3 Conductors

The conductors shall be copper stranded for low voltage power cables. The conductor size required will be specified.

3.4.2.4 Insulation

PVC cable shall comply with SANS 1507-3 and SANS 1411-2

3.4.2.5 Color coding, identification of LV cable cores

a) Color coding of cable cores shall be in accordance with Table 2 of SANS 1507-3(2020 edition).
b) For multicore cables (more than 4 cores), cores shall be identified by numbering.

3.4.2.6 Bedding under armor

The cables shall have PVC bedding.

3.4.2.7 Armoring

a) Single-core cables shall have aluminum wire armor.
b) Multi-core cables shall have galvanized steel wire armor.

3.4.2.8 Outer sheath

a) The cables shall have PVC outer sheathing.
b) The outer sheath shall be ultraviolet (UV) radiation stabilized.

3.4.3 Medium voltage XLPE cables requirements

3.4.3.1 General requirements for MV cables

a) Medium voltage cables shall comply with SANS 1339 and the requirements of 240-56227443 Generation Requirements for Control and Power Cables for power stations standard.
b) All cable offered shall carry valid product type tests in accordance with the relevant SANS standard. A copy of all relevant type test reports and the required tender returnable documentation shall be submitted at the time of tender enquiry submissions.

3.4.3.2 Voltage rating

For XLPE insulated cables the rating shall be as follows:

a) For 3.3 kV system the rated cable voltage is 1.9/3.3(3.6) kV.
b) For 6.6 kV system the rated cable voltage is 3.8/6.6(7.2) kV.

3.4.3.3 Conductors

a) Conductors shall be copper or aluminium in accordance with SANS 1411-1. The conductors shall be Class 2 in accordance with SANS 1411-1.

b) Single and three core cables shall be with the cores individually screened with copper tape.

3.4.3.4 Armour

a) Single-core cables shall be unarmoured.

3.4.3.5 XLPE insulation

XLPE-insulated cables shall comply with SANS 1339 and shall meet the following specific requirements:

3.4.3.5.1 Type

The cable construction shall be type B.

3.4.3.5.2 Semi conducting core screen

The core screen shall be strippable.

3.4.3.5.3 Bedding under armouring

The bedding under the armouring shall comprise an extruded layer of XPLE type A in accordance with SANS 1411-4.

3.4.3.5.4 Outer sheath

The cables shall be XLPE insulated with flame-retardant reduced halogen emission PVC outer sheath and bedding (emit a mass of not more than 15% halogen). Acceptance criteria for insulation shall be in accordance with SANS 1411-2.

3.4.3.5.5 Screening and armouring

a) Single and 3-core cables shall be with the cores individually screened with copper tape. These cables shall be manufactured to SANS 1339 and SANS 1411 parts 1, 2, 4, 6 and 7.

3.5 CABLE TRANSPORTATION

a) Cable shall be transported in accordance with SANS 10198-6.

b) To prevent moisture and therefore corrosion, cable ends on returned drums may not be left open. The sealing of the cable end caps shall be by means of heat shrink caps.

Notes:

1. SANS 97 states that cable shall be sealed “by means of a metal cap plumbed onto the metal sheath or by other acceptable means to prevent the ingress of air or moisture”.

2. SANS 1339 states that cable shall be sealed “by means of a heat shrink cap or by other acceptable means, to prevent the ingress of moisture”.

c) MV cable drums shall be transported using a cable trailer. If this is not possible, drums may be transported by truck.

d) When transported by truck, all cable drums shall be secured (e.g., chained) to the truck bed to prevent them from rolling or sliding.

e) New and opened drums shall be protected against climatic influences. Drums shall not be stored directly on the ground but rather on wooden or other beams to permit drainage of rainwater and prevent rotting of the drums.

3.6 CONTRACT DELIVERABLES

The following deliverables are required as per the Configuration Management requirements, during the Contract period:

- Cable Manufacturing and Testing Certification

4. TENDER EVALUATION STRATEGY

4.1 TECHNICAL EVALUATION THRESHOLD

Mandatory Technical Evaluation Criteria (gatekeepers) are ‘must meet’ criteria. These criteria shall not be weighted, or point scored but shall be assessed on a Yes/No basis as to whether the criteria are met unless set otherwise. An assessment of ‘No’ against any criterion shall technically disqualify the tenderer and shall not be further evaluated against Qualitative Criteria.

Qualitative Technical Evaluation Criteria are weighted evaluation criteria used to identify the highest technically ranked tenderer after determining that all the Mandatory Evaluation Criteria have been met. The Qualitative Evaluation Criteria are weighted to reflect the relevant importance of each criterion. The minimum weighted final score (threshold) required for a tender to be considered from a technical perspective is **80%**.

Evaluation will be done according to Tender Engineering Evaluation Procedure 240-48929482

5. WORKING HOURS

5.1 NORMAL HOURS

The Contractor shall adopt the working hours of the Employer during the contract period.

The official working hours at Grootvlei Power Station are as follow:

-Monday to Thursday: 07:15 - 16:30

-Friday: 07:15 – 12:15

5.2 EMERGENCY HOURS

a) Any cable request for supply and delivery for which the Contractor was given less than 24-hour notice and must come to site on the request. The time would include his travelling time, and all travelling cost. This does not apply during normal office hours.

6. ACCESS TO FACILITIES AND SYSTEMS

a) The Employer arranges an access permit to Grootvlei site for the Contractor and his vehicle(s) for delivery of electrical cables.

b) While the Employer provides the access mentioned, the Contractor makes use of these facilities and systems within all procedures or other rules governing the similar use of these facilities by the Employer’s employees. These shall include the Employer’s safety, security, and ethics rules. The onus rests with the Contractor to ensure compliance to the relevant rules.

7. SAFETY PRECAUTIONS

7.1 HEALTH AND SAFETY PLAN (CONSTRUCTION REGULATIONS)

Upon the award of the contract, successful contractor must submit a Health and Safety Plan, filed in a Health and Safety File.

The Safety Officer employed by Grootvlei Power Station will audit these Health and Safety Plan to ensure compliance with the provisions of the Act. The approval of the health and safety plan can sometimes take 2 to 3 days to approve, and NO WORK shall be conducted before the plan is approved. The Contractor must consider this for their health and file costing.

a) The Health and Safety Requirements to be met by contractors will be always complied with.

b) The *Life Saving Rules* will be always applied to:

- Rule 1: Open, Isolate, Test, Earth, Bond and/or Insulate before Touch
- Rule 2: Hook up at heights
- Rule 3: Buckle up.
- Rule 4: Be Sober
- Rule 5: Ensure that you have a Permit to Work

8. QUALITY ASSURANCE REQUIREMENTS.

The Contractor will be subject to periodic audits by the Employer in order to ensure compliance with the system. Any deviations will be corrected to the Employer’s satisfaction.

9. ENVIRONMENTAL REQUIREMENTS

Grootvlei Power Station is ISO 14001 compliant. The Contractor must comply with the requirements of this procedure titled: Environmental Management System Requirement for the Contractors.

Grootvlei Power Station also has an SHEQ Policy, to which every Contractor and employees must adhere to. It is therefore the responsibility of the Contractor to ensure that the Contractor obtains copies of Grootvlei SHEQ Policy. The Contractor must identify all Environmental aspects and impacts related to his/her activities.

The contractor shall comply with all Eskom Grootvlei Power Station environmental requirements such as policies, standards and procedures (work instructions). Non-conformance, incident reporting and investigations shall be done by the contractor. Polluter pays principles shall apply to all Contractors. It is the responsibility of the polluter to clean all spillages and for the rehabilitation of the polluted land and the cost associated with that.

Eskom Grootvlei Power Station shall issue non-conformances where there are deviations from Grootvlei Power Station Procedures and any other environmental requirements. Adherence to the ‘Duty of Care’ as stipulated in section 28 of the National Environmental Management Act 107 of 2008.

The contractor/Maintenance must comply with the following requirements.

a) Environmental Management System (ISO 14001:2015)

b) National Environmental Management Act (Act 107 of 1998)

c) Environmental Management Procedure for Contractors (*1018332)

d) Waste Management Procedure (240-29828394)

e) Non-conformance, Corrective and Preventative Action (*1017357)

10. SITE SERVICES AND FACILITIES

10.1 ROADS

Main access roads are surfaced and complete and may be used by the Contractor with the necessary care. The Employer maintains the roads, described above, to a fair condition. Evacuation, First Aid and Fire Fighting

The Contractor must have a trained First Aid and Fire Fighter, in case of emergencies.

11. GENERAL

This contract and all information associated with its management is confidential and may not be divulged beyond the provisions stated within the contract. Should the Contractor violate this condition, the Employer may terminate this contract forthwith and nullifying any outstanding or further claims by the Contractor.

The Contractor and the key persons are to declare any interest, pecuniary, material or otherwise, in any tender, offer or quotation to the Contracts Service Manager for any other work, supply or service, to the Employer’s Agent at the time when such tender, offer or quotation is submitted. The Contracts Service Manager’s interpretation of a situation shall apply where there is a conflict.

12. AUTHORISATION

This document has been seen and accepted by:

Name	Designation
Thabiso Mtsweni	Electrical Plant Engineering Manager
Sihle Tembe	System Engineer
Thabo Montja	Engineering Manager
Lebo Mokgwabone	C&I Maintenance Manager and Acting Electrical Maintenance Manager
Moddy Mashiloane	Documentation Centre

13. REVISIONS

Date	Rev.	Compiler	Remarks
November 2024	1	S.S Tembe	New Document

14. DEVELOPMENT TEAM

The following people were involved in the development of this document:

- S Tembe

15. ACKNOWLEDGEMENT

- T. Mtsweni

APPENDIX A: Eskom Standard Code for Power and Control Cables

ESKOM STANDARD CODE FOR POWER AND CONTROL CABLES

B V X 99 D C V

NUMBER OF CORES

CABLE VOLTAGE RATING , PHASE TO PHASE VOLTAGE		INSULATION		CONSTRUCTION AROUND THE CORES		INDIVIDUAL CORE AREA		CONDUCTOR MATERIAL		OUTER SHEATING OR PROTECTION	
A	300/500 V	A	ASBESTOS	A	ALUMINIUM SHEATH	A	0.5 mm²	A	STRANDED ALUMINIUM	A	ASBESTOS TAPED
B	600/1000 V	B		B		B	0.75 mm²	B	SOLID ALUMINIUM	B	BITUMINOUS PAINTED
C	3300 V	C	CAMBRIC	C	COPPER SHEATH	C	1.5 mm²	C	STRANDED COPPER	C	BLACK CONDUIT
D	6600 V	D		D	SINGLE CORE LEADS	D	2.5 mm²	D	SOLID COPPER	D	DUCTING
E	11000 V	E		E	INDIVIDUAL COPPER SCREEN TAPE PLUS SINGLE SINGLE STEEL WIRE ARMOURING	E	4 mm²	E		E	FLEXIBLE CONDUIT
F	22000 V	F		F	FLAME RETARDENT PVC BEDDING	F	6 mm²	F		F	FLAME RETARDENT PVC SHEATH
G	33000 V	G		G	INDIVIDUAL COPPER SCREEN TAPE	G	10 mm²	G		G	GLASS-FIBRE WATERPROOFED
H	66000 V	H		H	INDIVIDUAL BRASS SCREEN TAPE	H	16 mm²	H		H	HESSIAN WATERPROOFED
J	88000 V	J	HALOGEN FREE LOW SMOKE MATERIAL	J	HALOGEN FREE, LOW SMOKE FLAME RETARDENT BEDDING	J		J		J	HALOGEN FREE LOW SMOKE FLAME RETARDENT SHEATHED
K	132000 V	K		K	INDIVIDUAL COPPER SCREEN TAPE PLUS DOUBLE STEEL WIRE ARMOURING	K	25 mm²	K		K	
L	275000 V	L		L	LEAD COVERED	L	35 mm²	L		L	GALVANISED CONDUIT
M		M	MINERAL	M	LOW HALOGEN PVC BEDDING	M	50 mm²	M		M	LOW HALOGEN PVC SHEATHED
N		N	NEOPRENE	N		N	70 mm²	N		N	NEOPRENE
P	330000 V	P	PAPER	P	SCREEN OVER ALL CORES AND SINGLE WIRE ARMOURED	P	95 mm²	P		P	
Q	400000 V	Q	POLYETHYLENE	Q		Q	120 mm²	Q		Q	POLYURETHANE SHEATHE
R		R	RUBBER	R	RUBBER COVERED	R	150 mm²	R		R	RUBBER SANDWICH
S		S	PAPER SCREENED	S	SCREEN OVER ALL CORES	S	185 mm²	S		S	
T	REF DWG 0.00/1744 TELEPHONE	T		T	LEAD COVERED DOUBLE WIRE ARMOURED	T	240 mm²	T		T	PVC TAPED
U	REF DWG 0.00/2713 CONTROL	U		U	DOUBLE STEEL TAPE ARMOUR	U	300 mm²	U		U	
V	REF DWG 0.00/2713	V	GENERAL PVC	V	GENERAL PVC COVERED	V	400 mm²	V		V	GENERAL PVC SHEATHED
W		W		W	LEAD COVERED SINGLE WIRE ARMOURED	W	500 mm²	W		W	HEAT RESISTANT PVC SHEATHED
X		X	CROSS LINKED * POLYETHYLENE (XLPE)	X	STEEL WIRE ARMOURED	X	630 mm²	X		X	HIGH IMPACT PVC SHEATHED
Y		Y		Y		Y	800 mm²	Y		Y	
Z	SPECIAL	Z	SPECIAL	Z	SPECIAL	Z	SPECIAL	Z	SPECIAL	Z	SPECIAL

APPENDIX B: Grootvlei Power Station Cable General Spares

No	Material Description	Quantity(m)
1	CABLE, ELECTRICAL: CONDUCTOR SIZE: 16 MM2; ARMOR: STL WIRE; CONDUCTOR: 4 CORES, CU STRANDED; COVERING: PVC; RATING: 1 KV; CONDUCTOR INSULATION: PVC; SUPPL P/N: BVX4HCV; REFERENCE NO: BVX4HCV; ARMOURED, PVC OUTER SHEATH, ENDS MUST BE PROTECTED BY PLASTIC CAP TO PREVENT INGRESS OF MOISTURE	500m
2	CABLE, ELECTRICAL: CORE QUANTITY: 4; CONDUCTOR MATERIAL: COPPER; CONDUCTOR SIZE: 16 MM2; ARMOR: STEEL WIRE; TYPE: STRANDED; COVERING: PVC; RATING: 1 KV; CONDUCTOR INSULATION: PVC; SUPPL P/N: BVX4HCV; REFERENCE NO: BVX4HCV; ARMOURED, PVC OUTER SHEATH, ENDS MUST BE PROTECTED BY PLASTIC CAP TO PREVENT INGRESS OF MOISTURE	500m
3	CABLE, ELECTRICAL: CONDUCTOR SIZE: 25 MM2; TYPE: DIRECT BURIAL; CONDUCTOR: 4 CORES, CU; COVERING: PVC; RATING: 600 V TO 1 KV; CONDUCTOR INSULATION: PVC; STEEL WIRE ARMOURED, ESKOM CODE: BVX4KCV	500m
4	CABLE, ELECTRICAL: CONDUCTOR SIZE: 95 MM2; ARMOR: SINGLE WIRE; CONDUCTOR: 4 CORES, CU STRANDED; COVERING: PVC; RATING: 600 V TO 1 KV; CONDUCTOR INSULATION: PVC; REFERENCE NO: BVX4PCV	500m
5	CABLE, ELECTRICAL: CONDUCTOR SIZE: 95 MM2; CONDUCTOR: 4 CORES, CU STRANDED; COVERING: HALOGEN FREE; RATING: 600 V TO 1 KV; CONDUCTOR INSULATION: HALOGEN FREE; REFERENCE NO: BVV4PCV; HALOGEN FREE BED	500m
6	CABLE, ELECTRICAL: CORE QUANTITY: 3; CONDUCTOR MATERIAL: COPPER; CONDUCTOR SIZE: 1.5 MM2; TYPE: CABTYRE; COVERING: PVC; RATING: 250-500 V 15 A; CONDUCTOR INSULATION: PVC; SUPPL P/N: P5; 70 STRANDS, IN 100 M ROLL, BLACK OD, COLOUR CODED; ONE BLUE, ONE BROWN, ONE GREEN/YELLOW	500m
7	FERRULE, ELECTRICAL CONDUCTOR: ACCOMODATED WIRE SIZE: 1.5 MM2; MATERIAL: CU TINNED; END TYPE: COMPRESSION; REFERENCE NO: HTB2F; NO INSULATION	500m
8	FERRULE, ELECTRICAL CONDUCTOR: INSIDE DIAMETER: 5 MM; ACCOMODATED WIRE SIZE: 16 MM2; MATERIAL: CU TINNED; END TYPE: COMPRESSION; REFERENCE NO: HTB16F; NO INSULATION	500m

9	FERRULE, ELECTRICAL CONDUCTOR: INSIDE DIAMETER: 2 MM; ACCOMODATED WIRE SIZE: 2.5 MM2; MATERIAL: CU; END TYPE: COMPRESSION; REDUCING NO INSULATION	500m
10	CABLE, ELECTRICAL: CONDUCTOR SIZE: 0.6 MM; TYPE: RIPCORD; SPECIFICATION: SAPO 212M; CONDUCTOR INSULATION: PVC; REFERENCE NO: PY818Y; SHEATHED, TINNED COPPER, MOLDED TOGETHER, COLOUR WHITE, SUPPLIED IN COILS EACH 200 METRES	500m
11	CABLE, ELECTRICAL: CONDUCTOR SIZE: 4 MM2; TYPE: INSULATED POWER; CONDUCTOR: 4 CORES, CU STRANDED; COVERING: RUBBER; RATING: 0.66-1 KV; CONDUCTOR INSULATION: RUBBER; REFERENCE NO: BRY4ECZ	500m
12	CABLE, ELECTRICAL: CONDUCTOR SIZE: 2.5 MM2; TYPE: ILLUMINATION; CONDUCTOR: 2 CORES, CU STRANDED; COVERING: PVC; RATING: 500 V 20 A; CONDUCTOR INSULATION: PVC	500m
13	CABLE, ELECTRICAL: CONDUCTOR SIZE: 1.5 MM2; ARMOR: ALUM/POLYURETHANE LAMINATE; TYPE: SURFIX; CONDUCTOR: 2; COVERING: PVC; RATING: 300-500 V; SPECIFICATION: SANS1507; WEIGHT PER UNIT MEASURE: 10.6 KG; TEMPERATURE RATING: 70 DEG C; CONDUCTOR INSULATION: 2 PVC; 1 BARE; COLOUR WHITE, 100 METERS PER COIL; (2)PVC, (1) EARTH; VENDORS ARE RESPONSIBLE FOR ENSURING THAT THEY ARE PERFORMING AGAINST THE CORRECT DRAWING	500m
14	CABLE, ELECTRICAL: CONDUCTOR SIZE: 35 MM2; TYPE: ARMORED; CONDUCTOR: 4; RATING: 1 KV; CONDUCTOR INSULATION: PVC; REFERENCE NO: BVX04LCV; LOW HALOGEN W/BLUE STRIPE COVERIN	500m
15	CABLE, ELECTRICAL: CONDUCTOR SIZE: 6 MM2; TYPE: ARMORED; CONDUCTOR: 4; RATING: 1 KV; CONDUCTOR INSULATION: PVC; REFERENCE NO: BVX04FCV; LOW HALOGEN W/BLUE STRIPE COVERING	500m
16	CABLE, ELECTRICAL: CONDUCTOR SIZE: 4 MM2; TYPE: ARMORED; CONDUCTOR: 4; RATING: 1 KV; CONDUCTOR INSULATION: PVC; REFERENCE NO: BVX04ECV; LOW HALOGEN W/BLUE STRIPE COVERING	200m
17	CABLE, ELECTRICAL: CONDUCTOR SIZE: 16 MM2; TYPE: ARMORED; CONDUCTOR: 4; RATING: 1 KV; CONDUCTOR INSULATION: PVC; REFERENCE NO: BVX04HCV; LOW HALOGEN W/BLUE STRIPE COVERING	2500m
18	CABLE, ELECTRICAL: CONDUCTOR SIZE: 185 MM2; TYPE: ARMORED; CONDUCTOR: 4; COVERING: LOW HALOGEN STRIPED; RATING: 1 KV; CONDUCTOR INSULATION: PVC; REFERENCE NO: BVX04SCV	500m
19	CABLE, ELECTRICAL: CONDUCTOR SIZE: 500 MM2; TYPE: XLPE ARMORED; CONDUCTOR: 1; COVERING: HALOGEN FREE W/WHITE STRIPE; RATING: 12 KV; CONDUCTOR INSULATION: PVC AWA	500m
20	CABLE, ELECTRICAL: CONDUCTOR SIZE: 2.5 MM2; TYPE: SURFIX; CONDUCTOR: 2; COVERING: PVC; RATING: 600 V TO 1 KV; CONDUCTOR INSULATION: 2 PVC; 1 EARTH; COLOUR WHITE, 100M PER COIL	1500m
21	CABLE, ELECTRICAL: CONDUCTOR SIZE: 4 MM2; TYPE: SURFIX; CONDUCTOR: 2; COVERING: PVC; RATING: 600 V TO 1 KV; CONDUCTOR INSULATION: 2 PVC; 1 EARTH; COLOUR WHITE, 100M PER COIL	500m

22	CABLE, ELECTRICAL: CONDUCTOR SIZE: 4 MM2; TYPE: EARTHING WIRE; CONDUCTOR: 1 CORE, CU; BARE, REQUIRED FOR EARTHING OF L.V. EQUIPME	2500m
23	CABLE, ELECTRICAL: CONDUCTOR SIZE: 120 MM2; TYPE: EARTHING WIRE; CONDUCTOR: 1 CORE, CU; BARE, REQUIRED FOR EARTHING FROM 6.6/400V TRANSFORMER TO L.V. PANEL	500m
24	CABLE, ELECTRICAL: CONDUCTOR SIZE: 25 MM2; TYPE: EARTHING WIRE; CONDUCTOR: 1 CORE, CU; BARE, REQUIRED FOR EARTHING OF L.V. SWITCHGEAR AND MOTOR, MULTI STRAND COPPER WIRE	500m
25	CABLE, ELECTRICAL: CONDUCTOR SIZE: 6 MM2; TYPE: EARTHING WIRE; CONDUCTOR: 1 CORE, CU; BARE, REQUIRED FOR EARTHING OF L.V. SWITCHGEAR AND MOTORS	2500m
26	CABLE, ELECTRICAL: CONDUCTOR SIZE: SQ 185 MM; TYPE: ARMORED; CONDUCTOR: 3 CORES, CU; RATING: 1 KV; CONDUCTOR INSULATION: PVC; SUPPL P/N: CU - PVC - PVC - SWA - PVC - 1KV; LOW HALOGEN WITH BLUE STRIPE COVERING, REQUIRED FOR USE ON INCOMING SUPPLY	500m
27	CABLE, ELECTRICAL: VOLTAGE: 600/1000 V; CORE QUANTITY: 4C; CONDUCTOR MATERIAL: CU; CONDUCTOR SIZE: 35 MM2; CONDUCTOR: 4 CORE, CU; COVERING: PVC; RATING: 600/1000 V; CONDUCTOR INSULATION: PVC SWA; REFERENCE NO: BVX04LCV	200m
28	CABLE, ELECTRICAL: CONDUCTOR SIZE: 16 MM2; TYPE: EARTH; CONDUCTOR: CU; CONDUCTOR INSULATION: BARE; REQUIRED FOR USE IN EARTHING OF MOTOR S AND SWITCHGEAR	500m
29	CABLE, ELECTRICAL: CONDUCTOR SIZE: 150 MM2; TYPE: EARTH; CONDUCTOR: CU; CONDUCTOR INSULATION BARE; REQUIRED FOR USE IN EARTHING SYSTEMS	500m
30	CABLE, ELECTRICAL: CONDUCTOR SIZE: 500 MM2; ARMOR: CU SCREEN/STL WIRE; TYPE: HIGH VOLTAGE; CONDUCTOR: 1 CORE, CU STRANDED; COVERING: PVC; RATING: 6.35-11 KV; CONDUCTOR INSULATION: XLPE; SUPPL P/N: DXE01WCV; 300M DRUM = 1EA	500m
31	CABLE, ELECTRICAL: CONDUCTOR SIZE: 50 MM2; TYPE: WESBRAID; CONDUCTOR: SILICON; COVERING: GLASS FIBER/POLYESTER; CONDUCTOR INSULATION: GLASS FIBER; SUPPL P/N: CB050; REQUIRED FOR USE ON UPS	500m
32	CABLE, ELECTRICAL: CONDUCTOR SIZE: 0.5 MM; TYPE: POWER; COVERING: RUBBER; TEMPERATURE RATING: -10 TO 100 DEG C; LENGTH: 6 M; APPLICATION: WEIGHT BRIDGE; FOR USE AT WEGHT BRIDGE IN COAL PLANT	500m
33	CABLE, ELECTRICAL: CONDUCTOR SIZE: 16 MM2; TYPE: HEAT RESISTANT; CONDUCTOR: 1 CORE, CU; COVERING: SILICON RED; RATING: 100 A; TEMPERATURE RATING: 180 DEG C; LENGTH: 500 M; APPLICATION: INLINE HEATERS; CONDUCTOR INSULATION: SILICON; FOR USE ON HP FUEL OIL PLANT	2500m
34	CABLE, ELECTRICAL: VOLTAGE: 400 V; CORE QUANTITY: 4; CONDUCTOR MATERIAL: COPPER; CONDUCTOR SIZE: 35 MM2; ARMOR: UNARMORED; DESIGN TYPE: TRAILING; TYPE: FLEXIBLE; CONDUCTOR: 4 CORE; CU; COVERING: RUBBER; RATING: 1000 V; SPECIFICATION: IEC; LENGTH: 100 M; APPLICATION: COMPRESSION, OIL AND UV RESISTANT; CONDUCTOR INSULATION: RUBBER; HARMONIZED RUBBER CABLE HO7 RN-F; WATER RESISTANT POLYCHLOROPRENE OR EQUIVALANT SYNTHETIC ELASTOMER CABLES; HEAVY DUTY; ABRASION RESISTANT	500m

35	CABLE, ELECTRICAL: VOLTAGE: 400 V; CORE QUANTITY: 4; CONDUCTOR MATERIAL: COPPER; CONDUCTOR SIZE: 16 MM2; ARMOR: UNARMORED; DESIGN TYPE: TRAILING; TYPE: FLEXIBLE; CONDUCTOR: 4 CORE, CU; COVERING: RUBBER; RATING: 1000 V; SPECIFICATION: IEC; LENGTH: 100 M; APPLICATION: COMPRESSION, OIL AND UV RESISTANT; CONDUCTOR INSULATION: RUBBER; HARMONIZED RUBBER CABLE HO7 RN-F; WATER RESISTANT POLYCHLOROPRENE OR EQUIVALENT SYNTHETIC ELASTOMER CABLES; HEAVY DUTY; ABRASION RESISTANT	500m
36	CABLE, ELECTRICAL: VOLTAGE: 400 V; CORE QUANTITY: 4; CONDUCTOR MATERIAL: COPPER; CONDUCTOR SIZE: 25 MM2; ARMOR: UNARMORED; DESIGN TYPE: TRAILING; TYPE: FLEXIBLE; CONDUCTOR: 4 CORE; CU; COVERING: RUBBER; RATING: 1000 V; SPECIFICATION: IEC; LENGTH: 100 M; APPLICATION: COMPRESSION, OIL AND UV RESISTANT; CONDUCTOR INSULATION: RUBBER; HARMONIZED RUBBER CABLE HO7 RN-F; WATER RESISTANT POLYCHLOROPRENE OR EQUIVLENT SYNTHETIC ELASTOMER CABLES; HEAVY DUTY; ABRASION RESISTANT	500m
37	CABLE, ELECTRICAL: VOLTAGE: 400 V; CORE QUANTITY: 4; CONDUCTOR MATERIAL: COPPER; CONDUCTOR SIZE: 10 MM2; ARMOR: UNARMORED; DESIGN TYPE: TRAILING; TYPE: FLEXIBLE; CONDUCTOR: 4 CORES, CU; COVERING: RUBBER; RATING: 1000 V; SPECIFICATION: IEC; LENGTH: 100 M; CONDUCTOR INSULATION: RUBBER; HARMONIZED RUBBER CABLE HO7 RN-F; WATER RESISTANT POLYCHLOROPRENE OR EQUIVLENT SYNTHETIC ELASTOMER CABLES; HEAVY DUTY; ABRASION RESISTA	500m
38	CABLE, ELECTRICAL: VOLTAGE: 400 V; CORE QUANTITY: 4; CONDUCTOR MATERIAL: COPPER; CONDUCTOR SIZE: 35 MM2; ARMOR: UNARMORED; DESIGN TYPE: TRAILING; TYPE: FLEXIBLE; CONDUCTOR: 4 CORE; CU; COVERING: RUBBER; RATING: 1000 V; SPECIFICATION: IEC; LENGTH: 100 M; APPLICATION: COMPRESSION, OIL AND UV RESISTANT; CONDUCTOR INSULATION: RUBBER; HARMONIZED RUBBER CABLE HO7 RN-F; WATER RESISTANT POLYCHLOROPRENE OR EQUIVALANT SYNTHETIC ELASTOMER CABLES; HEAVY DUTY; ABRASION RESISTANT	500m