Eskom	Works Information	

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	Signature	Date
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1. INTRODUCTION

Electrical cables in groups are one of the major fire hazards at power plants. Electrical and C&I cables present the following hazards:

- The cable insulation is a large source of combustible material.
- Fire can spread quickly along cable routes throughout the power plant.
- Cables exposed to small intensity fires can result in major damage to plant and equipment.
- Exposure to toxic and corrosive gases from electrical cable fires is a risk to life, safety, plant and equipment.
- Electrical cables are a potential source of ignition.

This document focuses on the cable spreading areas in the Matla Power Station Auxiliary Bay on 4.8 and 10.4 meter level (ML) for units 1 to 6.

The scope of this document focuses on passive fire protection measures for the cable spreading areas.

2. SUPPORTING CLAUSES

2.1 SCOPE

The passive fire protection work is for the auxiliary bay cable spreading areas (chambers) on 4.8 ML and 10.4 ML at Matla Power Station for units 1 to 6, these are further divided as follow:

- Area 1 – 4.8ML Units 1 to 6 (6 in total)
- Area 2 – 10.4ML Units 1, 3 & 5 (3 in total)
- Area 3 – 10.4ML Units 2, 4 & 6 (3 in total)

The scope of work (SOW) entails passive fire protection measures which includes the following:

- Partial coating of all grouped cables on cable racks.
- Coat all structural elements (exposed steelwork) with a 2 hour rated fire resistant coating.
- Fire area integrity to be evaluated and re-established by closing/sealing of openings to provide 2 hour fire rating.
- Installation of additional fire doors

2.1.1 Purpose

This document outlines the work that is required to be carried out to ensure a 2 hour fire rating of the cable spreading areas

2.1.2 Applicability

This document applies to the auxiliary bay cable spreading areas on 4.8 ML and 10.4 ML at Matla Power Station.

2.2 NORMATIVE/INFORMATIVE REFERENCES

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

2.2.1 Normative

[1] 240-56737450 Fire Protection and Life Safety Design Standard

[2] 240-56227443 Requirements for Control and Power Cables for Power Stations Standard.

[3] SANS10400-T The Application of the National Building Regulations - Fire Protection

[4] 240-53114026 Project Engineering Change Management Procedure

[5] 240-53113685 Design Review Procedure

[6] 240-86973501 Engineering Drawing Standard

[7] 240-93576498 KKS Coding Standard

[8] 240-71432150 Plant Labelling Standard

[9] 240-109607332 Abbreviation Standard for Labelling of Plant at Power Stations

2.2.2 Informative

[10] OHS Act of 85 , 1993 (Occupational health and safety act)

[11] ISO 9001 Quality Management Systems.

2.3 DEFINITIONS

Definition	Description
Area 1	Represents chambers (6 in total) in Unit 1, 2, 3, 4, 5, & 6 on 4.8m level
Area 2	Represents chambers (3 in total) in Unit 1, 3, & 5 on 10.4m level. Has the same structural layout as the chambers represented by Area 3, it is only the cables inside the chambers that are routed different to that of Area 3
Area 3	Represents chambers (3 in total) in Unit 2, 4, & 6 on 10.4m level. Has the same structural layout as the chambers represented by Area 2, it is only the cables inside the chambers that are routed different to that of Area 2, and there are some plumbing in these chambers that are not in the chambers of Area 2.

Chamber	This is a cable spreading area, each chamber is a fire area. No chambers are connected to other chambers, there are 12 Chambers in total:
	• There are 6 chambers on the 4.8m level
	  o Area 1 represents these chambers in Unit 1 to 6
	• There are 6 chambers on the 10.4m level:
	  o Area 2 represents the chambers in Unit 1, 3, & 5
	  o Area 3 represents the chambers in Unit 2, 4 & 6

Critical	Any part or area of plant/facility is seen to be critical if its loss during a fire incident has the potential to cause the following, either immediately or within a 6-12 hour period after the incident: • A multiple-unit load loss or trip; • Loss of transmission or distribution capability;

Definition	Description
	• Permanent loss of production or products; or Danger to fire-fighting personnel involved in fighting the fire
Fire Area	Fire Area is an area that is physically separated from other areas by space, barriers, walls, or other means in order to contain fire within that area.
Fire Barrier	A fire barrier is a continuous membrane, either vertical or horizontal as a wall, floor or ceiling assembly that is designed and constructed with a specified fire resistance rating to restrict the spread of fire and the movement of smoke.
Fire Compartment	A fire compartment is an area within a building which is completely surrounded with fire-resistant construction.
Fire Door	Automatic or self-closing door assembly which complies with the requirements contained in SANS 1253 [38], and which is especially constructed to prevent the passage of fire for a specific length of time.
Fire Protection	Method of providing for fire control or fire extinguishment.
Fire Protection/Detection Assessment	A fire protection/detection assessment is the initial, multi-disciplinary process in which reasonably foreseeable hazards are identified, the severity of the potential harm, to people and plant, is assessed, and reasonable engineering solutions to mitigate these hazards are proposed.
Passive Fire Protection	A Passive fire protection system is preferred above active fire protection. Because it is passive it does not require any mechanical or electrical parts that can fail in the event of a fire. These systems include spatial separation from other areas, containment areas, drainage, fire separation barriers, fire breaks, fire retardant cables, etc.
Smoulder	When something burns slowly with smoke but no flame
Unit	A boiler, turbine and generator set and all its dedicated auxiliaries.

2.3.1 Disclosure Classification

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

2.4 ABBREVIATIONS

Abbreviation	Description
CSA	Cable Spreading Area
ECM	Engineering Change Management
ML	Meter Level
PLCM	Project Life Cycle Model
Q.C Decking	Composite Steel and Concrete Slab System
SANS	South African National Standards
SOW	Scope of Work

2.5 ROLES AND RESPONSIBILITIES

The Employer provides the explanation of the works executed by the contractor.

The Contactor is responsible for executing the works as set out by the employer.

2.6 PROCESS FOR MONITORING

ECM Process: The Engineering Change Management Process will assist in ensuring that the PLCM is followed and all required documentation will be developed for the project.

Design Review Procedure: The design review procedure will ensure that the design from the *Contractor* is reviewed and the system performs the intended purpose.

3. DESCRIPTION OF THE EXISTING PLANT

3.1 OVERVIEW OF THE CABLE SPREADING AREAS

Intermediate level cable spreading areas (chambers) are located on 4.8 ML and 10.4 ML in the Matla Power Station Auxiliary Bay on units 1 to 6. These chambers are separated from all other plant areas and are divided per unit into fire areas (compartmentalised) by walls and fire doors.

The CSA are divided into 3 areas for the purpose of this technical specification to provide clarity on the status and configuration of plant for each area.

Table 1: Matla Power Station Cable Spreading Area Division

Area	Description (Inclusion) of the Area
Area 1	• 4.8m level Units 1-6 • Electrical cables • Cables fairly neatly routed on the floor and racks • Unitised
Area 2	• 10.4m level Units 1,3 and 5 • Electrical and C&I cables • Cables not properly routed. • Same floor area as Area 3 • Unitised passively but cables supply 2 units
Area 3	• 10.4m level Units 2,4 and 6 • Electrical cables and C&I cables • Cables routed fairly neatly on the floor and racks • Plumbing- water and drain pipes • Same floor area as Area 2 • Unitised passively but cables supply 2 units

Figure 1, Figure 2, Figure 3, and Figure 4 demonstrate the layout of these chambers, please note that this is general and not specific to any Unit, thus Area 2 and Area 3 will be shown as the same area.

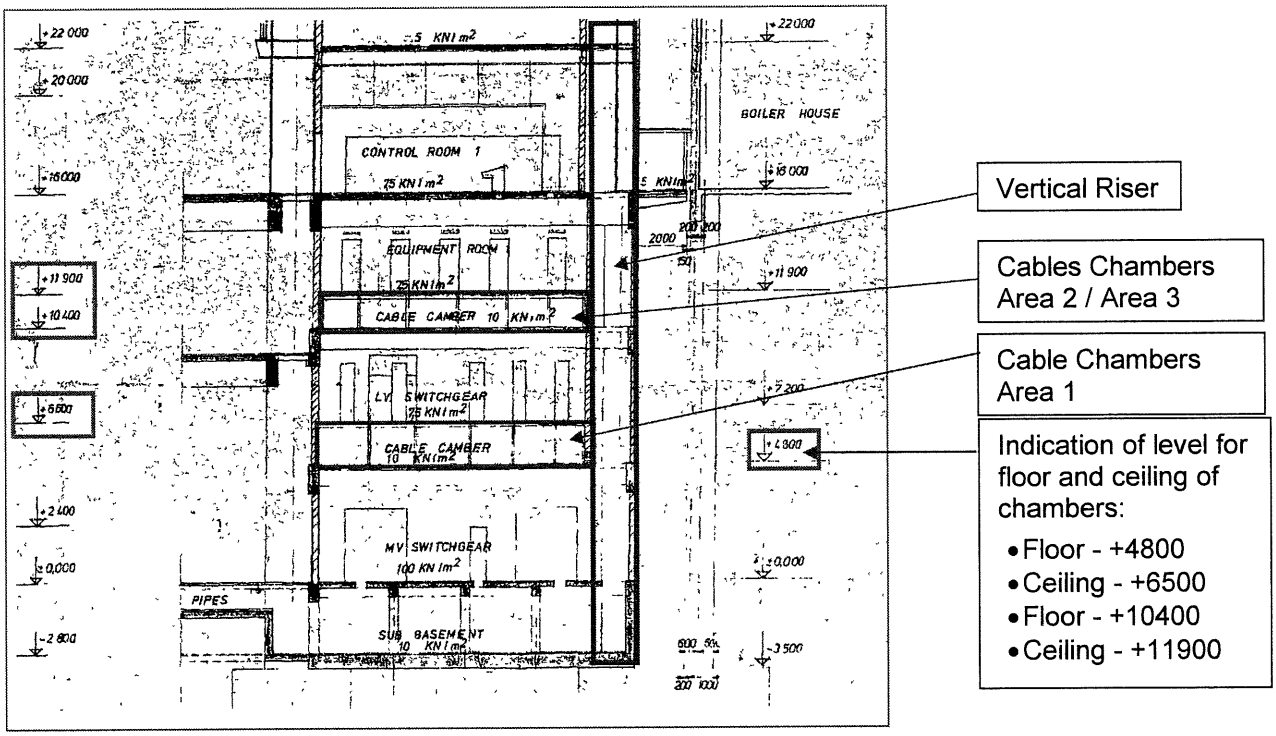

Figure 1: Unit 1-3 Auxiliary Bay Cross Section (Drawing [12])

Figure 1 is an extract from a plan and section drawing [12] of Unit 1-3 Matla Power Station's Auxiliary Bay cable chambers located on 4.8 and 10.4 meter levels. These chambers are separated from all other plant areas. The cable spreading areas are not easily accessible as they are only about 1.5m in height on the 10.4m level and about 1.7 meters in height on the 4.8m level. Approximately 0.2m to 0.3m is taken up by the I-beams on the roof of the area thus the accessible height is less than 1.7m and 1.5m respectively.

Some of the cables are installed and routed in a way that makes it difficult to crawl freely inside the cable spreading areas between cable racks.

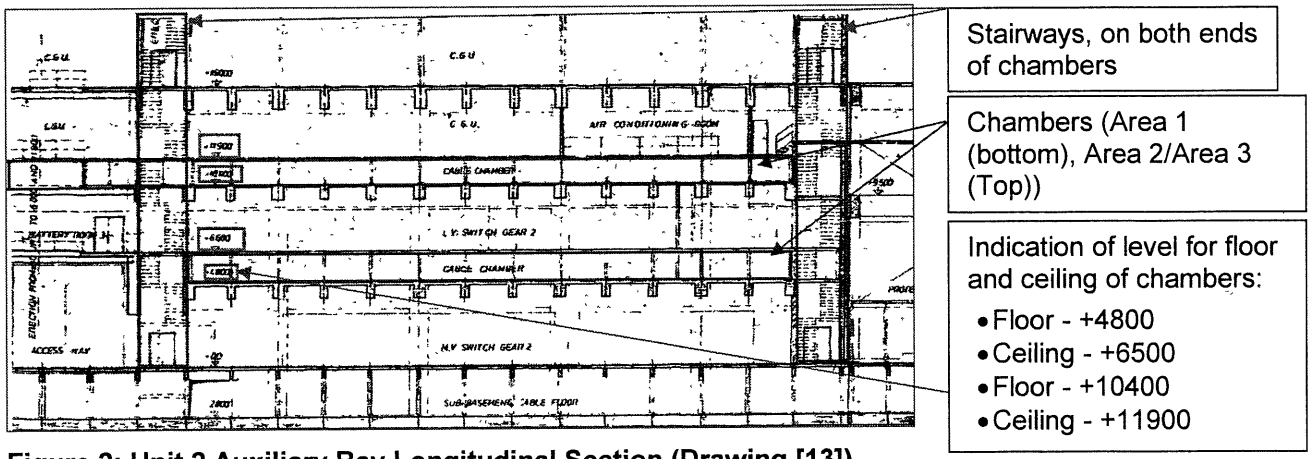

Figure 2: Unit 2 Auxiliary Bay Longitudinal Section (Drawing [13])

Figure 2 is an extract from a plan and section drawing [13] of Unit 2 Matla Power Station's Auxiliary Bay cable chamber located on 4.8 and 10.4 meter levels, this gives a side view.

The drawings giving sectional areas of the auxiliary bay (Figure 1 & Figure 2) has shown the following with regards to the cable spreading chambers:

- 4.8 meter level and 10.4 meter levels are connected with each other through a vertical riser that starts at the basement. The vertical riser is not an emergency exit. The Contractor ensures that it is a separate fire area.
- Each cable chamber forms a separate fire area at 4.8m and 10.4m
- The cable chambers at 4.8m (Area 1) are unitised. A fire in Area 1 will only affect a single unit.
- The cable chambers at 10.4m level are not unitised. C&I and electrical cables run in these areas (Area 2 and Area 3). A fire in Area 2 or Area 3 would affect 2 units. Example a fire at Unit 1 or 2 10.4m would affect both unit 1 and 2

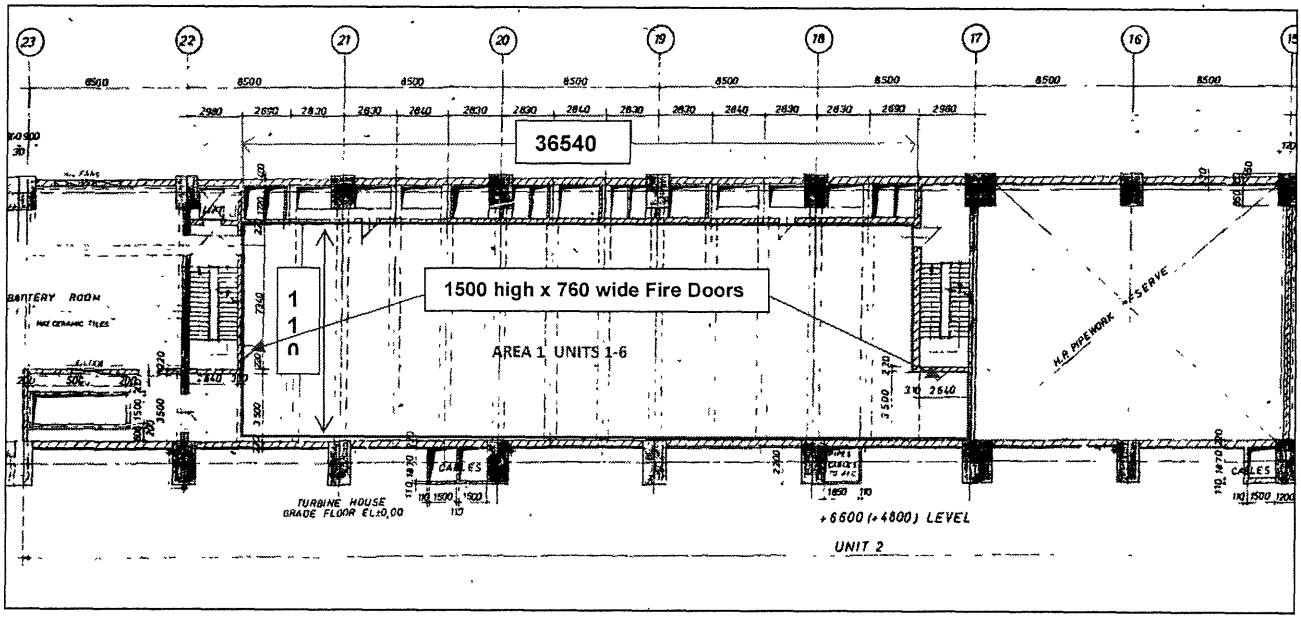

Figure 3: Area 1 Units 1-6 (4.8m) (Drawing [16])

In Figure 3 the staircases can be seen as well as the chamber area (Area 1) on 4.8m level. The each unit has an individual cable chamber. The cable chamber is not connected to the adjacent units

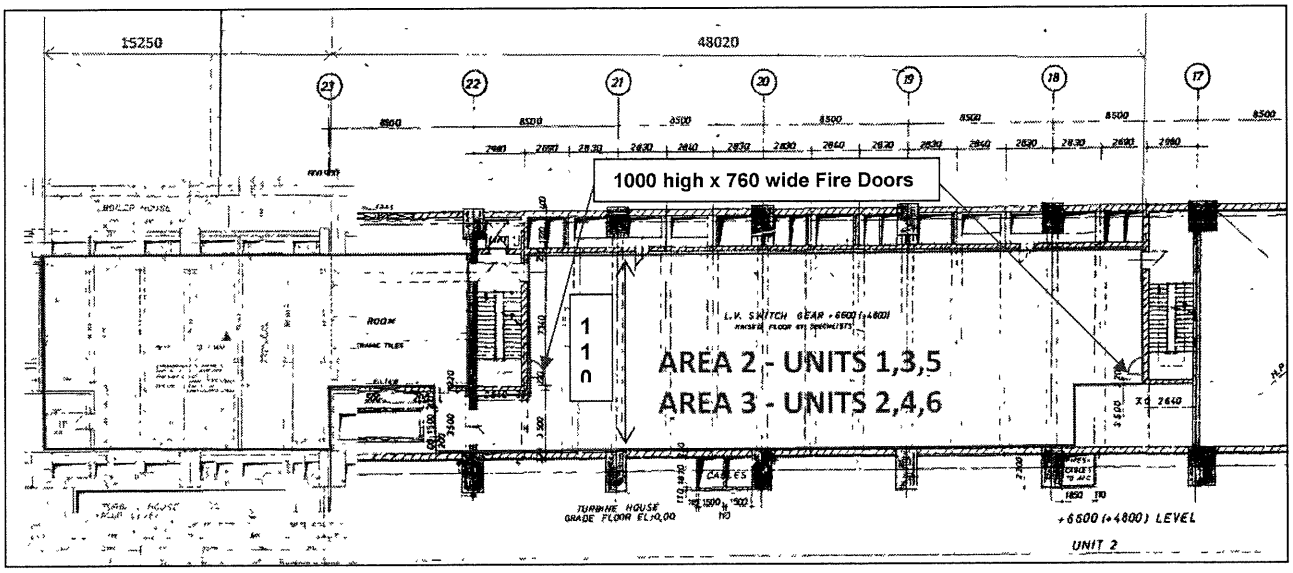

Figure 4: Area 2 Units 1, 3, 5 and Area 3 Units 2, 4, 6 (Combination of drawings [16] and [19])

In Figure 4 the staircases and fire doors can be seen as well as the chamber area on 10.4m level (Area 2 and Area 3). Please note that Area 2 is on Units 1, 3, 5 and Area 3 is on Units 2, 4, 6. The layout for Area 2 and Area 3 are exactly the same in terms of floor area and layout of walls (hence they are both shown in Figure 1, Figure 2, and Figure 4), the only difference is that the cable routing in each of these 2 areas are different, and Area 3 has plumbing. The idea of Figure 1, Figure 2, and Figure 4 is to indicate where Area 2 and Area 3 are located in relation to Area 1. Each unit has an individual cable chamber. The cable chambers are not connected to the adjacent units, but the cabling is connected over multiple units.

3.1.1 Design Information

Power cables present in the cable spreading areas include:

- For LV power cable 600/1000 V rated voltage, copper-stranded conductors PVC insulation cables.
- For single or three core MV power cable rated voltage copper or aluminium stranded conductors; triple extruded cross linked polyethylene (XLPE) insulation cables.
- Cable type BVXnnCM: Multi-core insulated thermoplastic cables, 600/1000V voltage rating, current rating varies with conductor size, minimum size is 1.5mm^2.
- Cable type UVGnnACM: thermoplastic insulated overall screened twisted pair, 300/500V voltage rating, 0.5mm^2 conductor areas, 1A current rating.
- Cable type BVSnnCM: Multi-core thermoplastic insulated overall screened (not armoured)

The current roof construction of both the 4.8ML and 10.4ML cable spreading roofs are composite roof slabs which comprises of Q.C trays and concrete. The Q.C trays are supported by a grid of I beams and steel columns.

The existing doors separating the cable chambers of the different units consist of 1000 x 760 mm class B fire door assemblies in Area 2/3 and 1500 x 760 mm assemblies in Area 1.

4. ENGINEERING AND THE CONTRACTOR'S DESIGN

4.1 *EMPLOYER'S* REQUIREMENTS

The *Employer* requires the area to be a fire area / fire compartment which is 2 hour fire rated.

4.2 *CONTRACTOR'S* DESIGN

The *Contractor* caters for the passive fire protection requirements as stipulated in this document and use the standards mentioned in this document.

4.2.1 Design basis for Fire Protection

The scope entails passive fire protection the *Contractor* ensures that the following is done:

1) Coat all grouped cables where physically possible as per requirements in this specification.
2) Coat all structural elements (exposed steelwork) with a 2 hour rated fire resistant coating.
3) Fire area integrity to be evaluated and re-established (which includes gaps on masonry walls, floors, roof and fire doors).
4) Installation of additional fire doors
5) Identification and labelling of all fire seals and cable coating

The *Contractor* ensures that the fire areas (each chamber) has a fire rating of two (2) hours in compliance with the fire resistance criteria for insulation, stability and integrity as specified by recognised testing institutions and their standards. Test result certificates of insulation, stability and integrity of the material on the standard time/temperature curve to be submitted for acceptance for any product used as part of this SOW.

The *Contractor* ensures that all fire barriers complies with the requirements as set out in the Eskom Fire Protection and Life Safety Design Standard [1] Section 5.3.

The *Contractor* prepares and installs all the fire barriers and coatings as per manufacturer's recommendations. The *Contractor* shall confirm ambient conditions in the CSA to ensure selected passive fire protection products are suitable for the ambient conditions in the area.

The *Contractor* takes into account the confined space and existing cables in the selection of the appropriate type of fire coatings.

4.2.1.1 Fire Retardant Cable Coating

The *Contractor* ensures that the coating is a fire retardant 2 hour rated coating.

All fire barriers must comply with the requirements as set out in the Eskom Fire Protection and Life Safety Design Standard [1] Section 5.3. Additional recommendations are noted in Section 3.7 of Eskom Standard Requirements for Control and Power Cables for Power Stations Standard [2].

Coating of cables on every rack are generally spaced at 2 meters of coating for every 20 meters of exposed cables. Coating is applied as far as reasonably practical. Where cable rack congestion makes application impractical, distance between coatings can vary.

Prior to coating the cables are to be cleaned,the cleaning of cables with water and soap is prohibited.

The only chemicals that might be considered are non-conductive and noncorrosive chemicals. The chemical must have been used before for the similar scope and it must have yield desired outcome.

Cleaning by means of the industrial hoover that will suck the dirt and accumulated dust is preferred versus blowing the cables as that will create a dust that will be difficult to remove from the tunnel. Unless if the blowing has been done before and it has yield the desired outcome.

Table 2 gives approximate quantities related to the cable coatings of the scope of work. The *Contractor* confirms the actual quantities required.

Table 2: Cable Coating Requirements - Approximate Quantities

Item	Description	Quantity per unit	Area Applicable	Total amount of Units
1	**Penetration seals** Cleaning/Preparation and Coating of cables for 1 m length, 0.6m width and 0.15m height on either side wherever cables, pass through walls, floors or ceilings which are boundary elements for a specified fire area. There are 4 of these cable racks on top of each other at certain areas, and at other areas it is less.	30 sections of cable (Asummed 30 per unit, at 15 per area)	Area 1, Area 2, and Area 3	6 (Total penetrations to be sealed are then assumed at 6x30=180 penetrations)
2	**Cable coating** Cleaning/Preparation and Coating of horizontal cables (every 20m for a distance of 2m)	27 sections of 2m in length, 0.6m width and 0.15m height each per area, thus 54 per unit	Area 1, Area 2, and Area 3	6 (Total penetrations to be sealed are then assumed at 6x54=324 cable coated)

4.2.1.2 Fire Area Integrity

The 4.8ML and 10.4 ML have been broken up into defined fire areas per unit.

The *Contractor* ensures:

1) All fire area elements to be 2 hour rated.
2) Fire area seals to be installed wherever cables, pipes or ducts pass through walls, floors or ceilings which are boundary elements for a specified fire area. Fire area seals are also required at the interface between the composite floor slab above the chamber and the adjacent wall. The seal provides a 2 hour fire resistance, limiting the spread of fire and reduce its effects on plant equipment

and personnel. Any openings or gaps in the walls/floors/roof to also be sealed to provide a 2 hour fire rating.

3) All construction joints in the floor,roof slab and walls are also required to be sealed with a 2 hour fire rated system.

4.2.2 Structural Requirements

The *Contractor* ensures the structural scope includes the coating of structural steel columns and beams, coating of composite roof slab and sealing of gaps on the masonry walls.

The *Contractor* is required to submit all details of the proposed passive fire protection installations for review and acceptance prior to the commencement of any work. All products are installed in accordance with manufacturer's specifications.

The *Contractor* takes into consideration the constraints of the confined space within the cable chambers as well as the existing cable racks in the selection of the appropriate fire protection coating. Coatings with hand application methods is therefore preffered.

4.2.2.1 Structural Steel Fire Protection

The *Contractor* is required to protect structural steel columns and beams to attain a 2 hour fire resistance as follows:

All structural steel columns and beams to be protected with a two hour fire rated intumescent coating or similar approved product in accordance with SANS10400-T: The Application of the National Building Regulations - Fire Protection.

4.2.2.2 Composite Roof Slab Fire Protection

The *Contractor* is required to protect the composite roof slab with a two hour fire rated intumescent coating or similar approved product in accordance with SANS 10400-T: The Application of the National Building Regulations – Fire Protection. Use of a vermiculite or perlite cement type of coating will not be acceptable on the underside of the composite slab due to the added weight as well as the deflections of the slab which would affect adhesion of the coating over time.

Table 3 gives approximate quantities related to the Structural Element Coating Requirements of the scope of work. The *Contractor* confirms the actual quantities required. It should be noted that at least 2 bays in each area are braced with vertical and horizontal cross bracing composed of angle members.

Table 3: Structural Element Coating Requirements - Approximate Quantities

Item	Description	Quantity	Area Applicable	Total amount of Units
1	Fire Doors	12	4.8 ML	N/A
2	Fire Doors	12	10.4 ML	N/A
3	New fire Doors (1000x760)mm	6	10.4 ML	6
4	Number of structural steel columns - 152x152 H (≈1.35 m long columns)	62	Area 1 – Per Unit	6
5	Length of structural steel beams - 305x165I (m)	180	Area 1 – Per Unit	6
6	Length of structural steel beams - 254x146I (m)	185	Area 1 – Per Unit	6

7	Length of structural steel beams - 150x90I (m)	510	Area 1 – Per Unit	6
8	Area of composite roof slab (m^2)	415	Area 1 – Per Unit	6
9	Number of structural steel columns - 152x152 H(≈1.4 m long columns)	100	Area 2/3 – Per Unit	6
10	Length of structural steel beams - 254x146I (m)	290	Area 2/3 – Per Unit	6
11	Length of structural steel beams - 203x133I (m)	230	Area 2/3 – Per Unit	6
12	Length of structural steel beams - 150x90I (m)	145	Area 2/3 – Per Unit	6
13	Area of composite roof slab (m^2)	645	Area 2/3 – Per Unit	6

4.2.2.3 Sealing Of Existing Gaps on the Masonry Walls

The *Contractor* is required to seal all gaps on the masonry walls with a suitable product based on the size of the opening to be sealed. The sealing product has two (2) hour fire resistance in compliance with the fire resistance criteria for insulation, stability and integrity as specified by recognised testing institutions and their standards.as specified by recognised testing institutions and their standards. Large openings in the double skin masonry walls without any sevices passing through may be closed with similar masonry units in Class I mortar.

Table 2 gives approximate quantities related to the structural requirements of the scope of work. The *Contractor* confirms the actual quantities required.

4.2.2.4 Existing Fire Doors

All fire door assemblies that are in place and not damaged can stay as Class B fire doors. but if the fire doors need to be replaced, due to damage, it needs to be Class D fire door assemblies with door closers to ensure that fire doors remain closed at all times in accordance with SANS 1253.

4.2.2.5 New Fire Doors

New fire doors are to be installed at 10.4 ML , the doors are to be Class D fire door assemblies with door closers to ensure that fire doors remain closed at all times in accordance with SANS 1253.

4.2.3 Configuration Management and Document Management

4.2.3.1 Design review procedure

The *Contractor* is the Design Authority as defined in the Design Review Procedure (240-53113685). The *Contractor* is responsible for following the design procedure and conducting all the design reviews as specified in this procedure. The *Contractor* is responsible for conducting the following design reviews:

1. Design Freeze Review (Detail design)
2. Integrated Design Review (Detail design)
3. Pre-Commissioning Review

4. Acceptance testing Review
5. Handover Review

For design review purposes the designs will be reviewed per part of the works as well as an integrated design where all interface issues between the various parts are addressed. In general:

1. The interim design stage will be an iterative process between the *Employer* and the designer with regular progress meetings.
2. The interim design stage will culminate with the submission of a report.
3. After receipt of the design report, the *Employer* will have ten (10) working days to review and submit comments to the designer.
4. The designer shall then have five (5) working days to submit the updated final design report.
5. The submission will then constitute the End of Phase review and the *Employer* will accept the final design report with comments by the *Employer* and updates by the designer within five (5) working days.

4.2.3.2 Engineering Change Management

All Design change management to be performed in accordance to the latest revision of the Eskom Project Engineering Change Management Procedure (240-53114026) and the *Employer* shall ensure that *Contractor* is provided with latest revisions of this procedure. Any uncertainty regarding this procedure should be clarified with the *Employer*. All design reviews will be conducted according to the Design Review Procedure (240-53113685).

All changes to be performed in accordance to the latest revision of the Eskom Project Engineering Change Procedure (240-53114026) and the *Employer* shall ensure that *Contractor* is provided with latest revisions of this procedure. Any uncertainty regarding this procedure should be clarified with the *Employer*. All design reviews will be conducted according to the Design Review Procedure (240-53113685).

4.2.3.3 Drawings Format and Layout

The creation, issuing and control of all Engineering Drawings will be in accordance to the latest revision of 240-86973501 Engineering drawing Standard. Drawings issued to Eskom will be a minimum of three hardcopies and 3 electronic copies. The *Contractors* shall ensure that Eskom process is been followed. Plant Coding and Labelling

4.2.3.3.1 Labelling of Passive Fire Protection Installations

The *Contractor* is required to install labels adjacent to all fire barriers installed (Fire doors, penetrations etc). Labels are required to indicate all details of the installation allowing for future replacement by the *Employer* to the same specification if required.

The *Contractor* also provides labels on the walls for each fire area depicting all details of the fire coatings applied to cables, structural steel members and the soffit of the above floor slab. Sufficient information is provided to allow repairs to be carried out by the *Employer* in future should any damage to the coatings occur.

The *Contractor* provides a drawing for each area per unit indicating the positions and details of the passive protection installed. Reference numbers are given for each installation which correlates with the

reference number on the adjacent label installed on site. Specifications for each installation is provided on the drawings.

4.2.4 General Requirements

Any and all fixtures in the area where fire resistant coatings will be applied (roof soffit / steel columns / steel beams) should not be contaminated with coating material. The fixtures include fire detection equipment, lights and associated equipment, dampers, electrical fittings etc.

The *Contractor* includes the *Employer's* drawing number in the drawing title block. This requirement only applies to design drawings developed by the *Contractor* and his Subcontractors. It does not apply to drawings developed by manufacturers for equipment and materials such as valves, instruments, etc. Drawing numbers will be assigned by the *Employer* as drawings are developed.

The project name is listed on all drawings, including manufacturers' drawings. Tag numbers and equipment names are listed on all manufacturers' drawings. A separate sheet may be attached to the submittal if needed to adequately list all tag numbers associated with the drawings such as valves or instruments which may have numerous tag numbers associated with it.

The language of all documentation is in the English language. The units of measurement are metric.

The *Contractor* retains project design calculations and information for the entire life cycle of the plant and provides these to the *Employer* on prior written notice at any time notwithstanding the expiry or termination of the contract.

4.3 AS-BUILT DRAWINGS, OPERATING MANUALS AND MAINTENANCE SCHEDULES

The contractor is to provide drawings that indicate the installed fire barriers and coatings, with the relevant details of the materails used. The drawings is to indicate where all barriers and coatings are installed as well as the KKS identification number

4.4 QUALITY MANAGEMENT

4.4.1 Test Certificates

All fire resistant coating or fire resistant barriers that will be supplied as part of this scope shall have test certificates for the specific product that is not older than 5 years. The test certificates shall be in accordance with

- SANS 10177 Fire testing of materials, components and elements used in buildings
- IEEE 634 Testing for Fire Rated Penetration Seals; or
- ASTM E814 Fire Test of through Penetration Fire Stops; or Equivalent.

Test certificates show the product fire rating in terms of stability, integrity and insulation for 120 minutes.

Test certificates of proposed products are also supplied at tender stage.

4.4.2 Fire Barrier and Fire Coating Labelling

All fire resistant coatings and fire resistant barriers will be labelled indicating

1. Product Name,
2. Uniuque identification code (KKS)

3. Date of Installation and
4. Fire Rating.

4.4.3 Inspection and Testing

Before any fire barrier or fire coating is built or applied a full application plan with the required Quality Control Plans (QCP's) / Inspection and Testing Plans (ITP's) will be in place with the relevant hold and witness points as required by the *Employer.* This will include any priming that is required before application.

Material application guarantees will be provide as part of the scope.

All relevant inspection, testing and maintenance requirements for the products supplied as part of the scope shall be supplied.

All drawings shall be created/updated to indicate the applied fire barriers, coatings etc.

5. LIST OF DRAWINGS

5.1 DRAWINGS ISSUED BY *EMPLOYER*

This is the list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract.

[12] 0.47/108 BQ - Auxiliary Bay Cross Sections (Matla 1-3 Power Station)

[13] 0.47/129 Sheet 4/2 - Auxiliary Bay Longitudinal Section Unit 2

[14] 0.47/107 BQ – No titles, but same type of drawing as in [12] above

[15] 0.47/23414 Rev 10 – Cable Floor +4800 Unit 3 FC 1-146

[16] 0.47/129 SHT 10 Auxiliary Bay Unit 2 plan view 6600,11900

[17] 0.47/23493 Rev 0 – Cable Chambers ½ Level +10,40 FC 153 – Unit 3

[18] 0.47/10708 Rev 4 – Cable Floor +4800 Unit 1 FC 144

[19] 0.47/129 SH24 Auxiliary Bay Plan View +11900 from Column 23 to 27

6. AUTHORISATION

This document has been seen and accepted by:

Name & Surname	Designation
Thando Mbulawa	Auxiliary Engineering Manager
Lele Masote	Engineering Manager
Tebogo Moloi	Auxiliary Engineering –Senior Engineer

7. REVISIONS

Date	Rev.	Compiler	Remarks
2021/03/29	0	Warren Garbutt	

8. DEVELOPMENT TEAM

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

- Warren Garbutt

9. ACKNOWLEDGEMENTS