 Eskom	Works Information	Kendal Power Station
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Title. Kendal - Ducting SOW for 5 years Contract Document Identifier *

Alternative Reference
Number

Area of Applicability **Engineering**

Document Type. **Report**

Revision **00**

Total Pages **31**

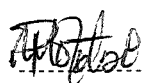
Next Review Date **N/A**

Disclosure
Classification. **Controlled Disclosure**

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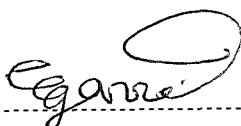
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1. Introduction

The ductings are installed to transport air and flue gas into and out of the boiler. The flue gas ducting extends from the boiler exit to the air-heater and from the air-heater to the precipitator inlet. The ducting transports flue gas from the boiler exit through the air-heater to precipitators. The secondary and primary air ducting delivers air from the Forced draught fans and Primary air fans.

1.1 Scope

This document covers the works information for the maintenance work for all the Units Ducting at Kendal Power Station.

1.1.1 Purpose

The purpose of this document is to provide the scope of *works* for both outage and opportunity maintenance scope of work for the Ducting Plant.

1.1.2 Applicability

This document shall apply throughout Kendal Power Station.

1.1.3 Effective date

This document is effective from the date of authorization.

1.2 Normative/Informative References

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

1.2.1 Normative

[1] ISO 9001 Quality Management Systems

ISO 14001 2004 - Environmental Management Systems

[1] ISO 9001 2008 - Quality Management Systems – Fundamentals and Vocabulary

[2] 32-95 - procedure manual for Perform occupation Health and Safety

[3] NEC3 - National engineering Contract

[4] *1017401 - Integrated Risk Management Procedure

1.2.2 Informative

[1] [1] 240-48929482 Tender Technical Evaluation Procedure

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[2] 32-1034 Eskom Procurement Policy

[3] ISO 9001 Quality Management Systems

[4] 240-53114002 Engineering Change Management Procedure

[5] GGD 1447 Plant Asset Management Directive

[6] 36-505 Personnel and Entities Performing Welding Related Special Processes on Eskom Plant

2.2.2 Informative

[7] 36-775 Control of Plant Construction, Repair and Maintenance Welding Activities

[8] 240-44682850 Process control manual (PCM) for Engineering during project sourcing

[9] 240-43156827 Introduction to the welding Rulebook

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

1.3 Abbreviations

Abbreviation	Description
C&I	Control and Instrumentation
ISO	International Standard Organization
kPa	Kilo Pascal
LH	Left Hand
M	meters
mm	millimetres
N/A	Not Applicable
NDT	Non Destructive Testing
NEC	National engineering Contract
°C	Degree Celcius
OHS	Occupational Health and Safety
QCP	Quality Control Plan
QTY	Quantity
RH	Right Hand
SHEQ	Safety, Health, Environment and Quality
SI	International System Of Units (System de International)
SOW	Scope Of Work
WPS	Welding Procedure Specifications

1.4 Roles and Responsibilities

The *Contractor* is responsible for the entire *works* as prescribed in this Works Information

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The *Employer* is responsible to provide the design requirements as well as the scope of the *works and the replacement Spares*

1.5 Process for Monitoring

Take periodic inspections of the ducting during opportunity as per established check sheet

- Ducting walls
 - Record the holed areas of the ducting and prepare repair plan
 - Record the duct thickness and wear patterns
- Expansion Joints
 - Inspect the expansion joints and replace where required
 - Repair the defective Expansion joints during opportunity

1.6 Related/Supporting Documents

- [1] 36-775 Control of Plant Construction, Repair and Maintenance Welding Activities
- [2] 240-44682850 Process control manual (PCM) for Engineering during project sourcing
- [3] 240-43156827 Introduction to the welding Rulebook

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2. Employer's Scope

Carry out maintenance work on Ducting system's components as laid on in the scope of work below

3. The *Contractor's* Scope

3.1 General Requirements for the *Works*

The *Contractor* must do maintenance work on the Ducting as per outage scope of work and defects as loaded in Kendal defect capture system (FLIP) during running maintenance

3.2 Detailed Scope of Work

3.2.1 General

Do Maintenance scope of work on Ducting and Duct components as per

- Outage or opportunity maintenance
- Defect that is loaded into Kendal Maintenance system (FLIP) under Permit to work

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The following is the detailed Scope of work for Interim Repairs (IR), General overhaul (GO), Boiler tubes inspections (BTI) and Maintenance

Plant	Component	Major scope	Responsible	SCOPE WORK	OF	OUTAGE TYPE
DUCTING	"A" TO "E" WINDBOX DUCTING	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect "A" to "E" windbox ductings (5 Off x 2), mark and record damage		IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before doors are closed		IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates "A" to "E" windboxes as needed		IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joints "A" to "E"		IR,BTI,GO, Mnt
			ducting cont	Install plate supporting dogs		IR,BTI,GO, Mnt
		PREPARE AREA FOR SAFE WORK	damper cont	Open inspection doors (5 off)		IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all casing damage as marked		IR,BTI,GO, Mnt
			ducting cont	Fit protection plates to 90mm pipe supports		IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER	damper cont	Replace door seals and close access doors (5 off)		IR,BTI,GO, Mnt

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		WORK				
BACKPASS FLOOR AREA (ABOVE FOUR DRIVES BELOW ECONOMISER)	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont		Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt	
		Eskom QC, ducting cont		Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt	
	PREPARE AREA FOR SAFE WORK	scaff		Build support repair scaffolds (2 off)	IR,BTI,GO, Mnt	
		ducting cont		Fit & weld 12 off 20mm round bar steps from Four drive inspection doors up	IR,BTI,GO, Mnt	
	REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont		Cut out & replace stay supports and protect	IR,BTI,GO, Mnt	
		ducting cont		Repair eroded floor area	IR,BTI,GO, Mnt	
	RETURN AREA TO NORMAL AFTER WORK	scaff		Break support repair scaffolds (2 off)	IR,BTI,GO, Mnt	
	DUCTING BETWEEN INLET ISOL DAMPER & S/AIR HEATER (28M/L)	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont		Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
Eskom QC, ducting cont				Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt	

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		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joint	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates at expansion joint	IR,BTI,GO, Mnt
		PREPARE AREA FOR SAFE WORK	SAH cont	Open inspection door (1 Off)	IR,BTI,GO, Mnt
			scaff	Build wall repair scaffold	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair / Replace worn stay supports	IR,BTI,GO, Mnt
			ducting cont	Install protection plates on to stay supports	IR,BTI,GO, Mnt
			ducting cont	Install channel iron supports under the ends of pipe stays	IR,BTI,GO, Mnt
			ducting cont	Repair holes in side casing & fit deflector plates	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold	IR,BTI,GO, Mnt
			SAH cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
	GAS INLET ISOLATING DAMPER AREA DUCTING(4	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt

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	DRIVES) (44M/L)		Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Remove entire expansion joint cover plate	IR,BTI,GO, Mnt
			scaff	Remove lagging inside the expansion joint and replace with new lagging	IR,BTI,GO, Mnt
			Eskom QC	Inspect expansion joint and record condition	IR,BTI,GO, Mnt
			Expansion contractor	Repair/replace expansion joint as needed	IR,BTI,GO, Mnt
			ducting cont	Replace entire expansion joint cover plate	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Inspect rubber expansion joint and record condition	IR,BTI,GO, Mnt
			Expansion contractor	Repair/replace rubber expansion joint and as needed	IR,BTI,GO, Mnt
			ducting cont	Lengthen the protection plate as needed to ensure that the protection plate	IR,BTI,GO, Mnt

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				covers the entire expansion joint	
		PREPARE AREA FOR SAFE WORK	damper cont	Open inspection door (1 Off)	IR,BTI,GO, Mnt
			scaff	Build scaffold for wall and support repairs	IR,BTI,GO, Mnt
			ducting cont	Fit & weld 20mm round bar steps from inspection doors to floor \pm 20 Off	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Replace/ repair damper seal plates wear areas	IR,BTI,GO, Mnt
			ducting cont	Install VRN protection plates around seal plates and fit square bar	IR,BTI,GO, Mnt
			ducting cont	Repair pipe supports	IR,BTI,GO, Mnt
			ducting cont	Repair channel iron slide supports	IR,BTI,GO, Mnt
			ducting cont	Repair holes in side walls	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates	IR,BTI,GO, Mnt
		REPAIR DAMPER	ducting cont	Remove /Replace damper cover plate	IR,BTI,GO, Mnt
			ducting cont	Repair/ Replace damper cover plate clips	IR,BTI,GO, Mnt
		RETURN AREA TO	clean	Clean entire area of ash	IR,BTI,GO, Mnt

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		NORMAL AFTER WORK	scaff	Break scaffold for wall and support repairs	IR,BTI,GO, Mnt
			ducting cont	Remove all scrap before the four drives are opened	IR,BTI,GO, Mnt
			Damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
	ID OUTLET DUCTING TO SMOKE STACK	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt
		PREPARE AREA FOR SAFE WORK	damper cont	Open inspection door (2 Off)	IR,BTI,GO, Mnt
			scaff	Build casing repair scaffold	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair access doors, casings and damper surfaces if required	IR,BTI,GO, Mnt
		REPAIR TURNING VANES	ducting cont	Repair centre vanes and install pipe supports	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break casing repair scaffold	IR,BTI,GO, Mnt
			Damper cont	Replace door seals and close access doors (2 off)	IR,BTI,GO, Mnt

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	PRECIP INLET DUCTING	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed.	IR,BTI,GO, Mnt
		PREPARE AREA FOR SAFE WORK	clean	Clean all ash in area	IR,BTI,GO, Mnt
			scaff	Build vane and wall repair scaffold (1 off)	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair holes in casing	IR,BTI,GO, Mnt
			ducting cont	Repairs to side casing and fit protection plate	IR,BTI,GO, Mnt
			ducting cont	Repair roof casing worn areas	IR,BTI,GO, Mnt
			ducting cont	Repair/ replace pipe stay supports	IR,BTI,GO, Mnt
			ducting cont	Remove & fit new protection plates	IR,BTI,GO, Mnt
		REPAIR TURNING VANES	ducting cont	Repair horz Vanes	IR,BTI,GO, Mnt
			ducting cont	Repair vertical vanes	IR,BTI,GO, Mnt
			ducting cont	Repair 60mm OD Vane supports	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER	scaff	Break vane and wall repair scaffold (1 off)	IR,BTI,GO, Mnt

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		WORK				
PRECIP OUTLET DUCTING TO ID FAN	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont		Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt	
		Eskom QC, ducting cont		Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt	
	PREPARE AREA FOR SAFE WORK	Fan cont		Open inspection door (2 Off)	IR,BTI,GO, Mnt	
		clean		Clean all ash from area	IR,BTI,GO, Mnt	
		scaff		Build wall repair scaffold	IR,BTI,GO, Mnt	
		ducting cont		Install 20 steps on precip slope	IR,BTI,GO, Mnt	
	REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont		Repair damaged areas of casing, supports and protection plates	IR,BTI,GO, Mnt	
		ducting cont		Install flat bar and expanded metal on floor and side casing to support flintcast if required	IR,BTI,GO, Mnt	
		ducting cont		Install flintcast if required on floor and side casing	IR,BTI,GO, Mnt	
	RETURN AREA TO NORMAL AFTER WORK	scaff		Break wall repair scaffold	IR,BTI,GO, Mnt	
		Fan cont		Replace door seals and close access doors (2 off)	IR,BTI,GO, Mnt	

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	WATER WALL TUBE, AT ELEVATION C - E	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before doors are closed	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Elevation "C" Repair Top & Bottom Protection plate	IR,BTI,GO, Mnt
			ducting cont	Elevation "C" Fit flat bar and Seal weld Flat bar to existing Plate	IR,BTI,GO, Mnt
			ducting cont	Elevation "D" Repair protection plates Top & Bottom	IR,BTI,GO, Mnt
			ducting cont	Elevation "D" Fit flat bar and Seal weld Flat bar to existing Plate	IR,BTI,GO, Mnt
			ducting cont	Elevation "E" Repair Top & Bottom Protection plate	IR,BTI,GO, Mnt
			ducting cont	Elevation "E" Fit flat bar and Seal weld Flat bar to existing Plate	IR,BTI,GO, Mnt
	FD SUCTION DUCTING	FAN PREPARE AREA FOR SAFE WORK	ducting cont	Remove expanded , metal to have access into area	IR,BTI,GO, Mnt
			scaff	Install ladder at level of expanded metal to access area	IR,BTI,GO, Mnt

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		INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, damaged and amount damage	mark areas record of	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do inspection	final	IR,BTI,GO, Mnt
		REPAIR CASING	ducting cont	Do repairs as needed		IR,BTI,GO, Mnt
			ducting cont	Clean area		IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Remove ladder		IR,BTI,GO, Mnt
			ducting cont	Replace expanded metal		IR,BTI,GO, Mnt
	PA FAN DISCHARGE DUCTING	PREPARE AREA FOR SAFE WORK	scaff	Install scaffold across fan casing, and to access walls		IR,BTI,GO, Mnt
		INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect casing and joints, mark damaged areas and record amount of damage		IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Inspect repairs before scaffold is allowed to be broken		IR,BTI,GO, Mnt
		REPAIR CASING AND EXPANSION JOINT	ducting cont	Repair as needed		IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break scaffold across fan casing and wall access		IR,BTI,GO, Mnt

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	FD RECIRC DUCTING	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt
		PREPARE AREA FOR SAFE WORK	damper cont	Open inspection doors	IR,BTI,GO, Mnt
			clean	Clean all ash from area	IR,BTI,GO, Mnt
			scaff	Build wall repair scaffold	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all wall, floor and roof damage	IR,BTI,GO, Mnt
			ducting cont	Repair all stay and protection plate damage.	IR,BTI,GO, Mnt
			ducting cont	Repair recirc damper surfaces	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold.	IR,BTI,GO, Mnt
			damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joint	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates at	IR,BTI,GO, Mnt

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	PA RECIRC DUCTING	INSPECT AND QUANTIFY WORK		expansion joint	Mnt
			Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt
			PREPARE AREA FOR SAFE WORK	damper cont	Open inspection doors
		scaff		Build wall repair scaffold	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all wall, floor and roof damage	IR,BTI,GO, Mnt
			ducting cont	Repair all stay and protection plate damage	IR,BTI,GO, Mnt
			ducting cont	Repair recirc damper surfaces	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold	IR,BTI,GO, Mnt
			damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joint	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates at expansion joint	IR,BTI,GO, Mnt

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	PA STEAMCOIL DUCTING	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt
		PREPARE AREA FOR SAFE WORK	damper cont	Open inspection doors	IR,BTI,GO, Mnt
			scaff	Build wall repair scaffold	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all wall, floor and roof damage	IR,BTI,GO, Mnt
			ducting cont	Repair all stay and protection plate damage	IR,BTI,GO, Mnt
			ducting cont	Repair recirc damper surfaces	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold	IR,BTI,GO, Mnt
			damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES.	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joint	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates at expansion joint	IR,BTI,GO, Mnt

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	PA COLD CROSSOVER DUCTING	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt
		PREPARE AREA FOR SAFE WORK	damper cont	Open inspection doors	IR,BTI,GO, Mnt
			scaff	Build wall repair scaffold	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all wall, floor and roof damage	IR,BTI,GO, Mnt
			ducting cont	Repair all stay and protection plate damage	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold	IR,BTI,GO, Mnt
			damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joints	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates at expansion joints	IR,BTI,GO, Mnt
	PA HOT CROSSOVER DUCTING	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of	IR,BTI,GO, Mnt

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				damage	
			Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt
		PREPARE AREA FOR SAFE WORK	damper cont	Open inspection doors	IR,BTI,GO, Mnt
			scaff	Build wall repair scaffold	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all wall, floor and roof damage	IR,BTI,GO, Mnt
			ducting cont	Repair all stay and protection plate damage	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold.	IR,BTI,GO, Mnt
			damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joints	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates at expansion joints	IR,BTI,GO, Mnt
	COLD DUCTING PA TO MILLS	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC,	Do final inspection before	IR,BTI,GO,

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				ducting cont	scaffold is allowed to be removed	Mnt
			PREPARE AREA FOR SAFE WORK	damper cont	Open inspection doors	IR,BTI,GO, Mnt
				scaff	Build wall repair scaffold	IR,BTI,GO, Mnt
			REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all wall, floor and roof damage	IR,BTI,GO, Mnt
				ducting cont	Repair all stay and protection plate damage	IR,BTI,GO, Mnt
			RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold	IR,BTI,GO, Mnt
				damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
			MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
				scaff	Install mineral wool into expansion joints	IR,BTI,GO, Mnt
				ducting cont	Repair protection plates at expansion joints	IR,BTI,GO, Mnt
	HOT DUCTING MILLS	PA TO	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
				Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt

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		PREPARE AREA FOR SAFE WORK	damper cont	Open inspection doors	IR,BTI,GO, Mnt
			scaff	Build wall repair scaffold	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all wall, floor and roof damage	IR,BTI,GO, Mnt
			ducting cont	Repair all stay and protection plate damage	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold	IR,BTI,GO, Mnt
			damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joints	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates at expansion joints	IR,BTI,GO, Mnt
	FD DUCTING TO SECONDARY AIR HEATER	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt
		PREPARE AREA FOR	damper cont	Open inspection doors	IR,BTI,GO, Mnt

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		SAFE WORK	scaff	Build wall repair scaffold	IR,BTI,GO, Mnt
		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all wall, floor and roof damage	IR,BTI,GO, Mnt
			ducting cont	Repair all stay and protection plate damage	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold	IR,BTI,GO, Mnt
			damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joints	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates at expansion joints	IR,BTI,GO, Mnt
	FD DUCTING FROM SECONDARY AIR HEATER TO WINDBOXES (2 OFF PER SIDE)	INSPECT AND QUANTIFY WORK	Eskom QC, ducting cont	Inspect, mark damaged areas and record amount of damage	IR,BTI,GO, Mnt
			Eskom QC, ducting cont	Do final inspection before scaffold is allowed to be removed	IR,BTI,GO, Mnt
		PREPARE AREA FOR SAFE WORK	damper cont	Open inspection doors	IR,BTI,GO, Mnt
			scaff	Build wall repair scaffold	IR,BTI,GO, Mnt

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		REPAIR CASING, SUPPORTS AND PROTECTION PLATES	ducting cont	Repair all wall, floor and roof damage	IR,BTI,GO, Mnt
			ducting cont	Repair all stay and protection plate damage	IR,BTI,GO, Mnt
		RETURN AREA TO NORMAL AFTER WORK	scaff	Break wall repair scaffold	IR,BTI,GO, Mnt
			damper cont	Replace door seals and close access doors	IR,BTI,GO, Mnt
		MAINTAIN EXPANSION JOINT AND PROTECTION PLATES	ducting cont	Repair/ replace expansion joints and protection plates as needed	IR,BTI,GO, Mnt
			scaff	Install mineral wool into expansion joints	IR,BTI,GO, Mnt
			ducting cont	Repair protection plates at expansion joints	IR,BTI,GO, Mnt

13ml Ductings

Plant	Component	Major scope	Responsible	SCOPE OF WORK	U M C	Q t y	OUTAG E TYPE
ESP DUCTING INTERIOR	Precip inlet ducting interior from Back-End(Outlet) of PAH/S	Inspect and quantify SOW ductings	Ducting cont	Open access doors 2 off	E a c h		IR,BTI, GO, Mnt
			Eskom	Build scaffolding for visual inspections			IR,BTI, GO, Mnt
			Eskom	Clean all ash build-ups in all affected areas			IR,BTI, GO, Mnt

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AH		Eskom QC,Ducting cont	Remove protection plates for metal expansion joint visual inspection at 13m level(PAH x2off,SAH x1off ,Next to SO3 Lances x2off, Central vertical Duct x1off)	E ac h		IR,BTI, GO, Mnt
		Eskom QC,Ducting cont	Remove protection plates for rubber expansion joint visual inspection (Between inlet duct and ESP inlet diffuser x1off)	E ac h		IR,BTI, GO, Mnt
		Eskom QC,Ducting cont	Do visual Inspections and mark damaged areas and quantify damages by recording them	E ac h		IR,BTI, GO, Mnt
		Eskom QC,Ducting cont	Do thickness test at all walls(Roof, Sides walls and Floor) of both inlet and outlet ducts as per document	E ac h		IR,BTI, GO, Mnt
	Initiate repairs and Quality checks	Ducting cont	Repair holes at the wall casings by cutting the area for window patch welding	sq /m		IR,BTI, GO, Mnt
		Ducting cont	Repair pipe stay supports	p/ m		IR,BTI, GO, Mnt
		Ducting cont	Repair worn areas at all sides of the fixed joints	p/ m		IR,BTI, GO, Mnt
		Ducting cont	Repair worn areas at all sides of the expansion joints	sq /m		IR,BTI, GO, Mnt
		Ducting cont	Replace damaged metal expansion joints and patch corners if necessary	p/ m		IR,BTI, GO, Mnt
		Ducting cont	Repair all damaged metal expansion joints corners by patching them and seal with high temperature resistance silicon(T>800 oC) if necessary in LH and RH casings	sq /m		IR,BTI, GO, Mnt
		Ducting cont	Install new protection plates Protection plate must protrude 100mm at fixed leading edge and 100mm at the free	E ac h		IR,BTI, GO, Mnt

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				trailing edge			
			Ductin g cont	Patch damaged and worn rubber expansion joints by using a rubber and glue that can withstand a temperature > 800 oC	sq /m		IR,BTI, GO, Mnt
			Ductin g cont	Repair all wall refractory (Flint Casting) by removing damaged ones and replace with new refractory with support metal brackets	sq /m		IR,BTI, GO, Mnt
			Ductin g cont	Repair horizontal guide vanes	sq /m		IR,BTI, GO, Mnt
			Ductin g cont	Repair vertical guide vanes	sq /m		IR,BTI, GO, Mnt
			Eskom	Repair diagonal guide vanes			IR,BTI, GO, Mnt
			Eskom	Remove scaffolding			IR,BTI, GO, Mnt
			Ductin g cont	Replace door seals and close access doors	E ac h		IR,BTI, GO, Mnt
	Precip outlet ductin g interio r until Front- End(S uction) of ID Fan	Inspec t and quanti fy SOW ductin gs		Open inspection door (2 Off)	E ac h		IR,BTI, GO, Mnt
			Eskom	Do visual inspection at ESP outlet duct and record ash build-up and damages	E ac h		IR,BTI, GO, Mnt
			Eskom	Build scaffolding if required			IR,BTI, GO, Mnt
			Eskom	Clean all ash from area	E ac h		IR,BTI, GO, Mnt
			Eskom	Inspect rubber expansion joint (Between ESP outlet hood and outlet duct x1off)	E ac		IR,BTI, GO,

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					h		Mnt
			Eskom QC,Ducting cont	Do visual Inspection and mark damaged areas and quantify damages by recording them	Each		IR,BTI, GO, Mnt
		Initiate repairs and Quality checks	Ducting cont	Repair holes at the wall casings by cutting the area for window patch welding	sq/m		IR,BTI, GO, Mnt
			Ducting cont	Repair pipe stay supports	p/m		IR,BTI, GO, Mnt
			Ducting cont	Patch damaged and worn rubber expansion joints by using a rubber and glue that can withstand a temperature > 800 oC Repair from exterior because duct is	Each		IR,BTI, GO, Mnt
			Eskom	Remove scaffolding			IR,BTI, GO, Mnt
			Ducting cont	Replace door seals and close access doors (2 off)	Each		IR,BTI, GO, Mnt

3.2.2 Bill of Materials

Spares to be provided by Eskom Kendal Power station

3.2.3 Skills required

- Trade test and qualifications certificates
 - Welder certificates with WPS (Welding Procedure Specifications)
 - Boiler maker
 - Artisan
 - Safety Officer
 - Responsible Person for Permit-To-Work

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3.2.4 Documentation Requirements

All documents supplied by the *Contractor* shall be of good quality and shall be subject to the *Employer's* approval

The following documentation to be supplied for each type of steel material

1. The quality Control Plan(ITP) for review by engineering before and after completion of the works
- 2 The method statement for ducting repair

3.3 Scaffolding

The tenderer will be allocated scaffolding in line with his access needs to carry out the scope of work

3.4 Tender Returnable

3.4.1 Gate keepers

See technical evaluations criteria but the guidelines are as follows

✓ N/A

3.4.2 Qualitative Returnable

The qualitative criteria is listed in the TES

4. Completion, testing, commissioning and correction of Defects

4.1.1 Installation

- Welding quality Inspection by Level 1 welding inspector

4.1.2 Commissioning & Performance testing

- Remove all the Debris and loose materials from the ducting and inspect for leaks and air ingress during fan balancing

4.1.3 Operational Maintenance after Completion

- Inspection of the Ductwork and Recording of the wear pattern for opportunity Scope readiness

5. Plant Outages

- Outage based – GO/ IR

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- Running maintenance based as per defects or Opportunity maintenance

6. Quality Management

6.1 Contract Quality Management Plan Requirements

The Contractor shall comply with the ISO 9001 2008 Quality Management System and Employer's Quality Requirements of as specified in Eskom QM58 document 240-51544462

7. Health and Safety Management

7.1 General

The Contractor shall comply with the following

- Eskom Safety Health procedure
- Construction regulation
- Adhere to the OHS Act 85 of 1993
- All staff will undergo Safety Induction, presented by Employer's Safety Risk Department
- Contractor must obtain a safety clearance and adhere to Plant Safety Regulation used at Kendal Power Station before carrying out any work

7.2 SHE Documentation required from the contractor

The Contractor complies with the following

- Construction regulation Requirement –Safety File Approval
- Safety File Approval Form

8. Environmental management

Contractors must comply with the following

- Environmental Management System (ISO 14001, 2004)
- National Environmental Management Act (Act 107 of 1998)
- Eskom SHEQ policy (32-727)
- Kendal Environmental Aspect and Impact Identification, Rating and Management Procedure (*1015586)
- Kendal Environmental Communication Procedure (*1015692)
- Kendal Emergency Preparedness Plan (*1015702)
- Kendal Non-conformance, Corrective and Preventive Actions Procedure (*1017357)
- Kendal Waste Management procedure (*1024102)
- Hazardous substance procedure (*1018300)

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- Eskom Flash report
- SHEQ File Index (*1027127)
- Site Inspection Checklist (*1027246)

9. Authorisation

This document has been seen and accepted by

Name	Designation
Jesse Eganza	Senior Engineer
Tendani Rasivetshela	Boiler Engineering Manager
Malibongwe Mabizela	Engineering Manager
Bonga Mashazi	Technical Plant manager
Sello Kgantsi	Boiler Maintenance Manager

10. Revisions

Date	Rev.	Compiler	Remarks
September 2020	00	Thengi /Tendani	First draft
November 2020	01	Jesse Eganza	Revision

11. Development Team

The following people were involved in the development of this document

- Jesse Eganza
- Itumeleng Mogale
- Thengi Molotsi

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