



OUTAGE SCOPE OF WORK FORM/TEMPLATE

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Eskom	Page 1 of 18

**Matla Power Station
Outage Scope of Work for Cooling Towers (CT) 1 to 6**

Reference No.	MEA-
Revision:	0
Unit No.	4
Genix ID.	24423
Date:	13/08/2026

Outage Type:	MO	Outage Start Date:	30 /08/ 2026
Department:	Auxiliary Engineering	Plant Area:	Cooling Towers
Scope Review Date:	N/A	Discipline:	Civil Engineering

Details	COMPILATION: System Engineer	APPROVAL: Line Manager	APPROVAL: Maintenance	APPROVAL: Engineering Specialist	APPROVAL Engineering Manager
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Date	12/04/2024				12/04/2024

Details	REVIEW: Quality Representative	REVIEW: Environmental Representative	REVIEW: AIA	ACCEPTANCE: Outage Coordinator	ACCEPTANCE: Outage Manager
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Signature					
Date	22/04/2024	24/04/2024			

SCOPE COMPILATION REFERENCES

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SOURCE & Ref No.	Yes	No	N/A	Comments
Previous Outage Service Reports	X			
Return To Service Data Packages	X			
Maintenance Strategy With Rev Number	X			
SAP Defects (Attach List As Appendix)	X			
GHRMS (STEP) Reports (Generation Heat Rate Management System)			X	
Online Condition Monitoring	X			
Pre-Outage Performance Test Results	X			
Post Outage Performance Test Results		X		
GPSS/ Plant Performance Data On UCLF Incurred			X	
OMS / IIRMS Recommendations (Audits Reports)		X		
Risk Controls (IRM System)	X			
Previous Audits And Reviews (E.G. ERAP)			X	
Engineering Change Requests (Projects)		X		
LOPP Strategy Reports			X	
URS	X			
Philosophy (Outage)	X			
Condition Monitoring Report	X			
VA/PHD Viewer Trends			X	
Corrective Actions			X	
CARAB Reports			X	
Statutory Requirements			X	
Grid Code Requirements			X	
Waivers And Exemptions		X		
Calibration Requirements			X	
Previous Outage SOW Variations	X			
Post Mortems Actions From Previous Outages		X		
Pre-Outage Plant Walks	X			
Risk Based Inspection (RBI) Report			X	
Simulation, TOI's, OON, SI		X		
SOW Reviewed And Challenged Within Engineering By All Engineering Functions (Attach Proof, E,G Attendance Register Or Review Form)	X			

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CONTENTS

	Page
1. INTRODUCTION	4
2. OBJECTIVES	4
2.1 TECHNICAL CRITERIA	4
2.2 SCOPE VARIATIONS	4
2.3 FINANCIAL PERFORMANCE.....	4
2.4 TIME MANAGEMENT	4
3. SUMMARY OF THE SCOPE: OPPORTUNITY OUTAGE.	4
3.1 AUXILIARY SCOPE OF WORK:	4
3.1.1 Re-instatement of the collapsed beams and Repair of the broken corbels (CT 1 to 6)	4
3.1.2 Replacement of Steel Cat ladders and Handrails at CT1 to CT6	4
3.1.3 Expansion Joint at CT1 to CT6 and Ponds repairs on all CTs.....	5
3.1.4 Knee Braces at CT1 to CT6	5
3.1.5 Coating of all Columns at CT1 to CT6 and Recasting / re-instatement of all the A frames.	5
3.1.6 Handrails	5
3.1.7 The Launder channels.....	5
3.1.8 Screen Washing Bay.....	5
3.1.9 Additional Requirements	5
4. 4. GENERAL ARRANGEMENT AND LOCATION DRAWINGS	5
5. 5. APPLICABLE CORPORATE / GENERATION / INTERNATIONAL GUIDELINES AND STANDARDS . 6	
5.1 5.1.1 APPLICABLE MATLA POWER STATION STANDARDS AND PROCEDURES.....	6
6. GENERAL CONSIDERATIONS	6
6.7 BUDGET BILLS OF MATERIAL.....	10
7. SAP DEFECTS	11
7.1 UNIT 1 BOILER REHEAT PIPE SUPPORTS	11

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1. INTRODUCTION

Cooling towers are meant to cool the water and any failure in the internal beams that support the distribution pipes results in poor cooling efficiency and also pose risk to the structural integrity internally.

2. OBJECTIVES

2.1 TECHNICAL CRITERIA

The following skills are required to complete the scope highlighted below for coal plant.

- Structural Engineer Professional
- NDip Civil Engineer
- Construction Supervisor
- Qualified Rigger
- General Workers

2.2 SCOPE VARIATIONS

- None

2.3 FINANCIAL PERFORMANCE

Not applicable.

2.4 TIME MANAGEMENT

List the significant delays experienced during the previous outage and describe the actions to address it.

- Isolation of the cooling towers – replacement of the passing valves.

3. SUMMARY OF THE SCOPE: OPPORTUNITY OUTAGE.

3.1 AUXILIARY SCOPE OF WORK:

Figure 1 to 9 Illustrate drawings as well as few photographic images of defect in the plant.

3.1.1 Re-instatement of the collapsed beams and Repair of the broken corbels (CT 1 to 6)

- a) Re-instatement of the collapsed supporting beams for the fill on Collapsed section
- b) Repair the broken corbels on all Cooling towers and any collapsed beams during the Outage

3.1.2 Replacement of Steel Cat ladders and Handrails at CT1 to CT6

- c) Replace the severely corroded cat ladders with a stainless steel inside the towers in total they are Six (6) and 3m each of height per tower.

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3.1.3 Expansion Joint at CT1 to CT6 and Ponds repairs on all CTs

- d) Remove and re-instate the expansion joint along in the pond as well as the other joints on the diametric duct in the tower.
- e) Remove delaminated sections and open up the cracks for thorough repairs.

3.1.4 Knee Braces at CT1 to CT6

- f) Re-align the beam connections that have moved from the corbels with a knee brace in all the towers– details of the knee brace provided below/ supplier's design.

3.1.5 Coating of all Columns at CT1 to CT6 and Recasting / re-instatement of all the A frames.

- g) Repair cracks and recoat the main supporting columns in the cooling towers.
- h) Conduct housekeeping and clean the area.
- i) Demolish / re-instate and recast the A-Frame at CT1 to CT6

3.1.6 Handrails

- j) Replace the current damaged handrails at CT1 TO CT6.

3.1.7 The Launder channels

- k) Re-instate the walls of all the launders feeding the towers and replace the joint sealant.

3.1.8 Screen Washing Bay

- l) The contractor shall repair the channels at the screen washing bay and the top walls and recast all the damage top wall of the screen washing bay.

3.1.9 Additional Requirements

- Provide continues pumping/draining of the pond and the diametric ducts.
- Provide product data sheet.
- QCPs prior commencement of the works.
- Detail Method statement signed supported by Pr Civil Engineer for 3.1.1 to 3.1. 8
- The team to conduct the housekeeping prior to plant handover to commissioning.
- Work must be conducted in line with the following procedures/standards and regulations
 - Occupation Health and Safety Act No 181 of 1993
 - 36-681 (Rev 2) Generation Plant Safety Regulations
 - 39-98 Rev 1 Safe Use of Lifting Machines

4. 4. GENERAL ARRANGEMENT AND LOCATION DRAWINGS

No	DRAWING NUMBER	TITLE
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5. 5. APPLICABLE CORPORATE / GENERATION / INTERNATIONAL GUIDELINES AND STANDARDS

No	REFERENCE NUMBER	DOCUMENT TITLE
1	36-681	Generation Plant Safety Regulations
2		Occupation Health and Safety Act 1993

5.1 5.1.1 APPLICABLE MATLA POWER STATION STANDARDS AND PROCEDURES.

No	REFERENCE NUMBER	DOCUMENT TITLE
1	240-72261425	Outage Philosophy for Matla Power Station

6. GENERAL CONSIDERATIONS

6.1 PRE-REQUISITES / PRE-CONDITIONS	
ACTIVITIES	SPECIFICATIONS
Data books, reviews, reports and diagrams / drawings shall be submitted to Engineering 21 days after the completion of the work. Engineering to forward all data books to the Quality Department (Documentation Control).	WI 4418
All QCP's to be submitted to Engineering and Quality for approval prior to the outage / project commencement.	

6.2 SAFETY	
ACTIVITIES	SPECIFICATIONS
All work is to be done in accordance with Matla Plant Procedures and Safety Regulations.	GGR 0992
Matla Power Station induction must be done before any work commences.	
A permit to work must be in place before any work commences.	36-681 (Rev 2) Generation Plant Safety Regulation
The worker's register must be completed and daily risk assessments conducted before any work commences.	

6.3 ENVIRONMENT	
ACTIVITIES	SPECIFICATIONS

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All activities listed in the National Environmental Act 107 of 1998, EIA Regulations as amended, must have environmental AUTHORIZATION before the work can commence.	
The contractor shall comply with all applicable legal and other requirements.	
The polluter pays principle shall be applied.	
The contractor's manager shall ensure compliance to Eskom Matla Environmental Procedures to ensure the prevention of pollution.	OMOP 4090 and OMOP 4402
The last payment will be processed based on the status of the last housekeeping check sheet of the designated work area	OMOP 4402
EMS File based on ISO 14001 will be required.	

6.4 QUALITY

ACTIVITIES	SPECIFICATIONS
<p>Process Quality Process/Procedure (PQP/QCP)</p> <p>The Contractor / Executioner of the work will be responsible for drawing up all QCP documentation, which must be approved by Engineering and Authorized by the Quality Department prior to commencing with the work.</p>	
<p>Hold and witness points</p> <p>H&W points that form part of the QCP and have been approved prior to the start date, shall not be by-passed under any circumstances without the written concession of an authorised member of the Engineering Department. It is the Contractors responsibility to inform the Plant Engineer or his representative at the daily progress meetings when an activity will be ready for QC.</p>	

The Contractor / Executioner shall adhere to QM58 and OMOP4497 requirements	QM58 and OMOP4497
The number of NCR's issued can affect your next tendering process.	

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The QCP shall be signed progressively by the Engineer / Supervisor, Eskom QC Inspector, Contractor QC Inspector and/or AIA.	
6.4 QUALITY	
ACTIVITIES	SPECIFICATIONS
No procuring of outage items without the approval of Scopes of Work by the Quality Department.	
All outage scope creep and scope addition shall be approved by the Quality Department.	
No Contractor shall be in the possession of Scopes of Work for execution, without prior approval as indicated on the cover page of this document template.	
The contractor is subjected to quality auditing at any point in time during the execution of the Scope of Work.	

6.5 OTHER REQUIREMENTS	
ACTIVITIES	SPECIFICATIONS
The importance of correct equipment spares and procedures should be included in structured toolbox talk sessions with all contractors.	
Spares It should be kept in mind that lead time of outside plant spares required during major overhauls can be as much as 12 months. Therefore all the spares required will be ordered in time. Spares ordered and used will be reported by always quoting the ESKOM stock number (if applicable) as well as the Group and item number from the spares manuals.	
Documentation Full service reports must be compiled and submitted to both Engineering and the Matla documentation centre for safe keeping and approval 21 days after unit is synchronised on load	WI 4418
Equipment Lifting equipment: An up to date test certificate will be available for all lifting equipment that will be used. Measuring equipment: An up to date calibration certificate must be available for all measuring equipment that will be used. Special tools will be serviced before the outage, will be available on site and will be on good working condition. A list if all special tools must be compiled before the outage and submitted to	

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Engineering. The special tools must be readily available for inspection by QC and Engineering.	
Use of SAP PM to record history and costs SAP PM will be used to record history of work done and the related costs to at least the second level of headings as listed in this document.	

6.6 EXISTING DEFECTS	
ACTIVITIES	SPECIFICATIONS
A list of all defects loaded before the submission of this SOW should be attached in Section 10.	

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6.7 BUDGET BILLS OF MATERIAL

NOTE: SOW OF WORK VARIATIONS WILL BE ISSUED ONLY IF REFURBISHMENT OR REPLACEMENT COMPONENTS EXCEED BUDGET, OTHERWISE CUTTING INSTRUCTIONS WILL BE USED TO COMMUNICATE WHICH COMPONENTS MUST BE REPAIRED, REPLACED OR REFURBISHED.

Area / structure	SI Units	Quantity
Pond Containment		
Steel (reinforcement)	Kg	2500
Concrete	m3	60
Grout	Kg	1000
Waterproofing liquid	L	12000
Coating on Tower columns		
Euclid Vandex Super Coating	l	50000
Cleaning of existing coat	Sum	Sum
Internal Beams and corbels		
Concrete (pumped)	m3	60
Steel	kg	5000
Grout	kg	3000
Diametric Duct		
Steel (rebar's)	kg	6000
Gunit concrete	m3	720
Bolts and Nuts for all plates and handrails	kg	150
Platforms and Cat Ladders		
Handrails		sum
Wind Deflectors		
Concrete	M3	200
Steel	kg	5000
Concrete panels (New design – 600panels)	sum	sum
Cat Ladders and Platforms		
Cat Ladder (stainless steel)	m	120
Handrails	m	300
Pump/Draining of Diametric Duct and Ponds (Continuous)	sum	sum

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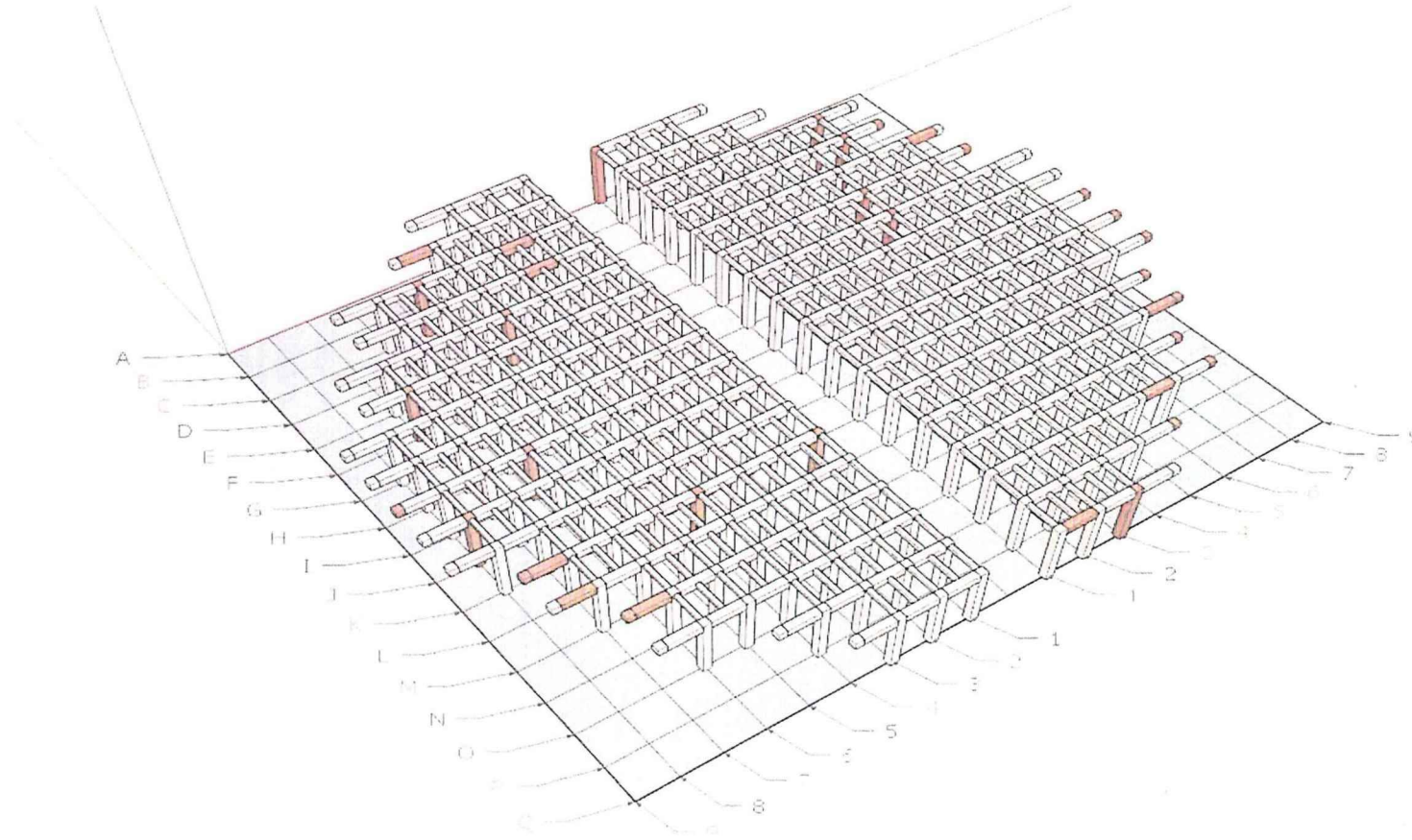


Figure 1: Tower internal arrangement

Evidence of damages in the Cooling Towers.

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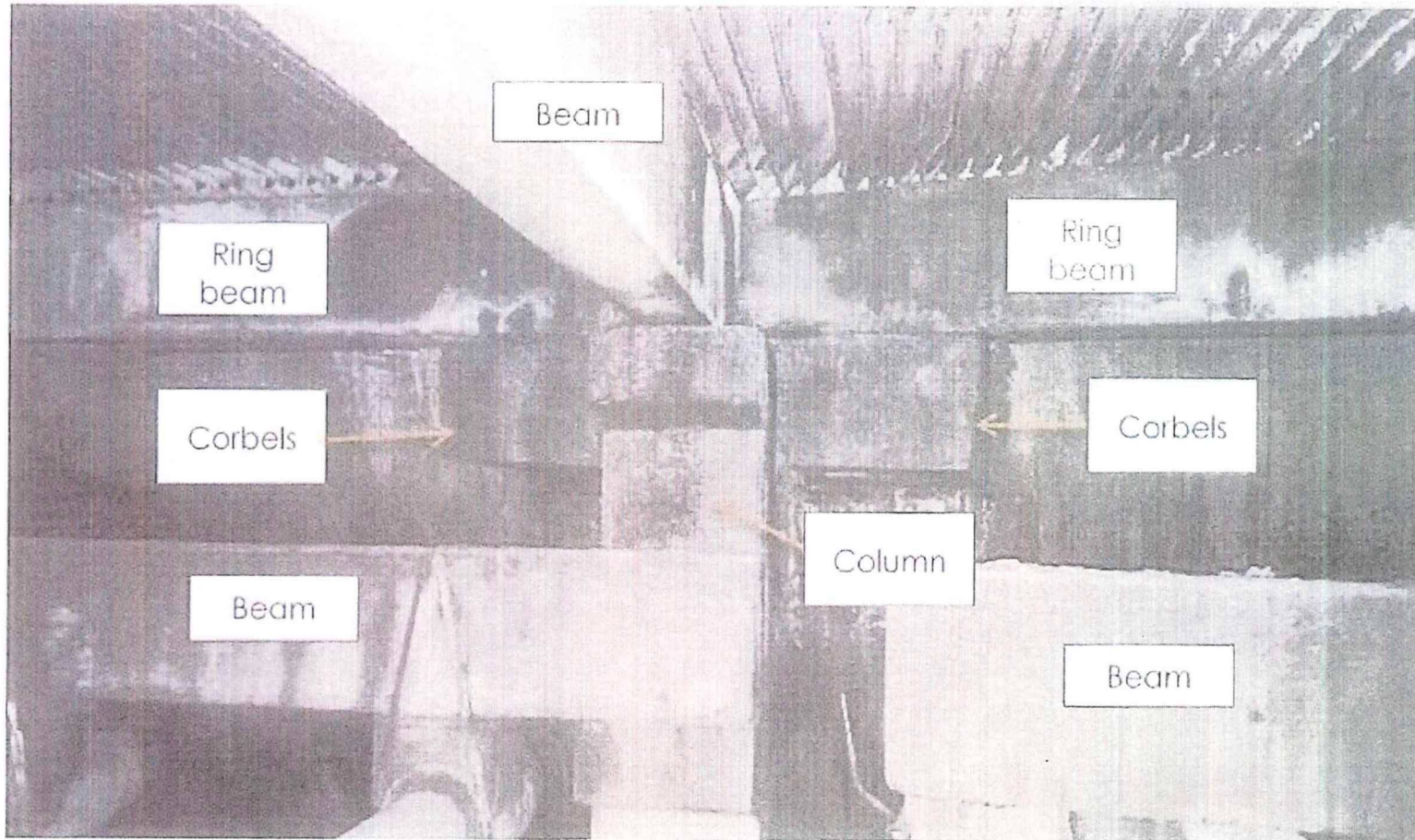


Figure 2: Basic labelling of the Structural components.

Columns, beams, Ring beam and corbel connections.

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The columns, ring beams and corbels generally have a low degree of damage, but there are a few beam connections that have a medium degree of damage with misalignment and cracking due to thermal movement. These beam connections need to be repaired or sealed per the concrete repair method (Please refer to method stated below. Knee braces (see below) should be installed at all affected column beam connections. The knee brace will tie the columns to the beams and prevent any future movement.

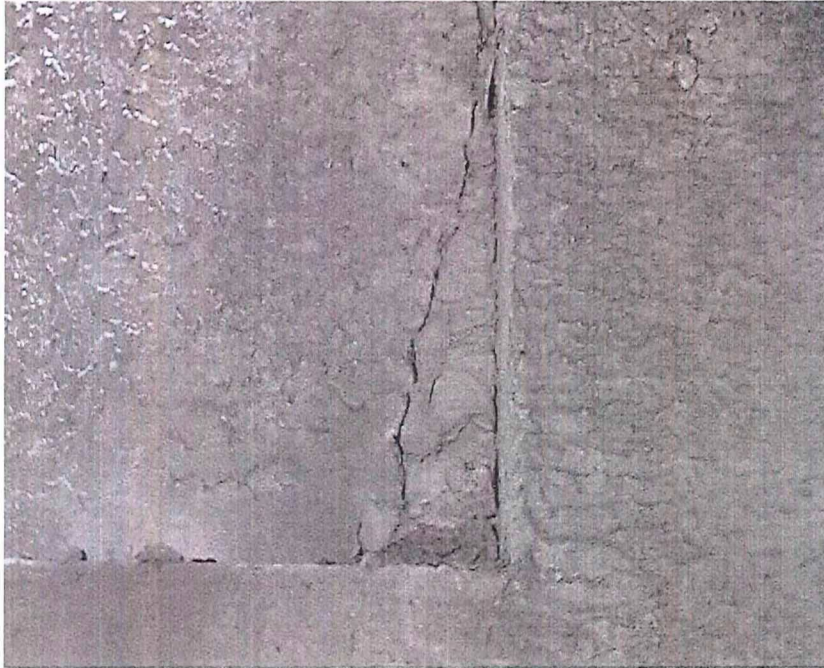


Figure 3: Cracking at beam edge

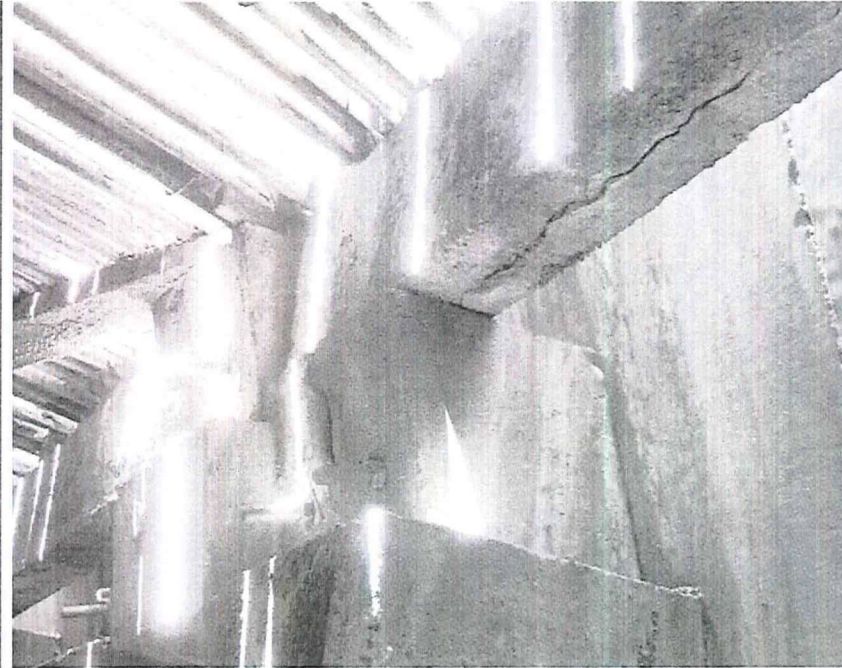


Figure 4: Ring Beam Cracking

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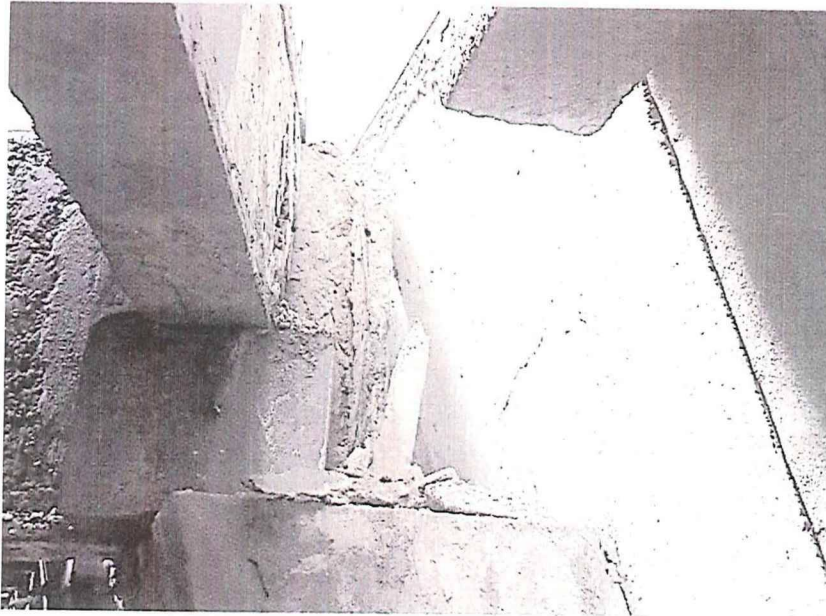


Figure 5: Cracking and spalling at beam corbel connection

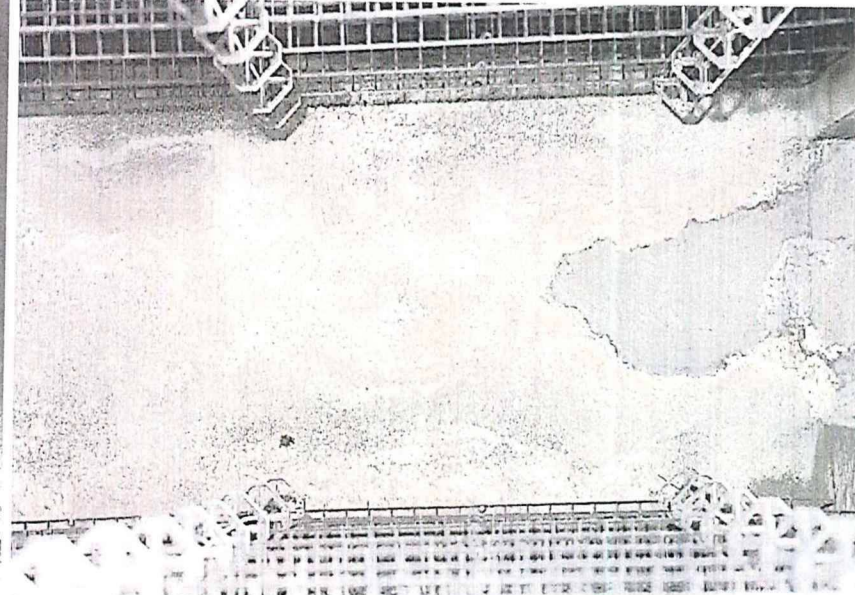


Figure 6: Sulphate Attack

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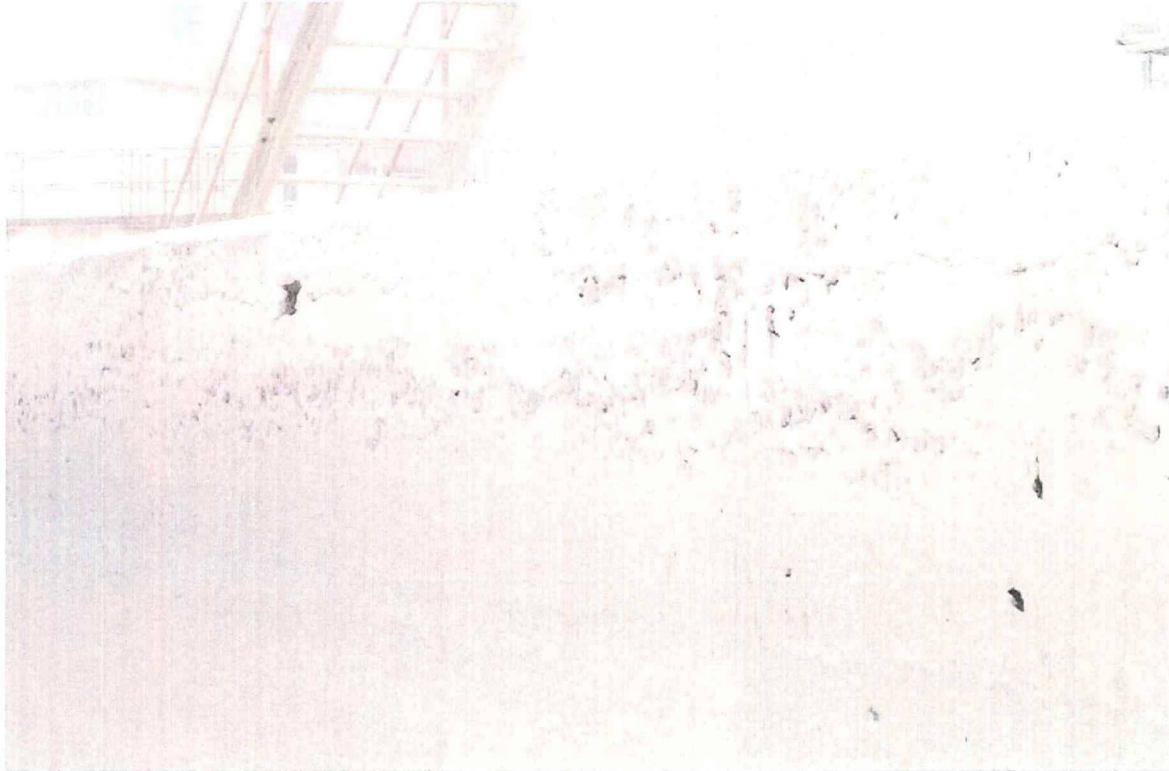


Figure 7: Pond internal walls cracking.

Knee brace detail

The knee braces are to be installed at all affected column beam connection. The knee brace will tie the columns to the beams and prevent any future movement. The knee brace consists of 150x150x10 angle 300mm long with 4 M16 grade 8.8 stainless steel chemical anchors and a 10mm stiffener between the bolts.

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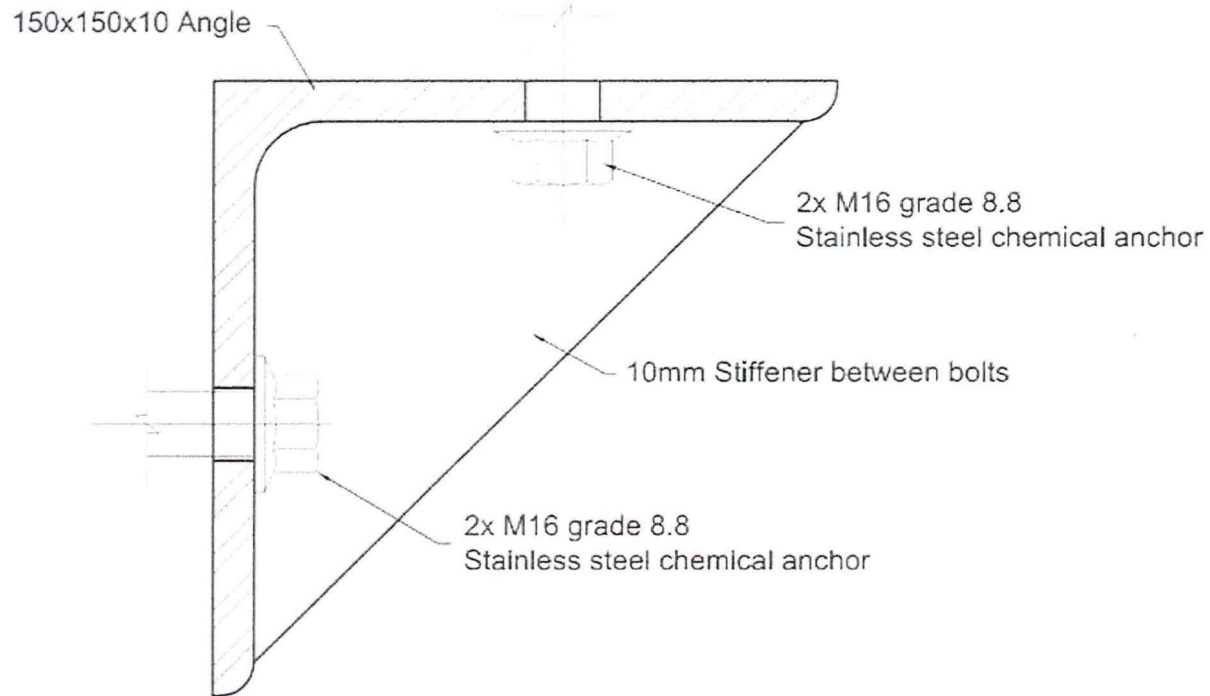


Figure 8: Knee Brace

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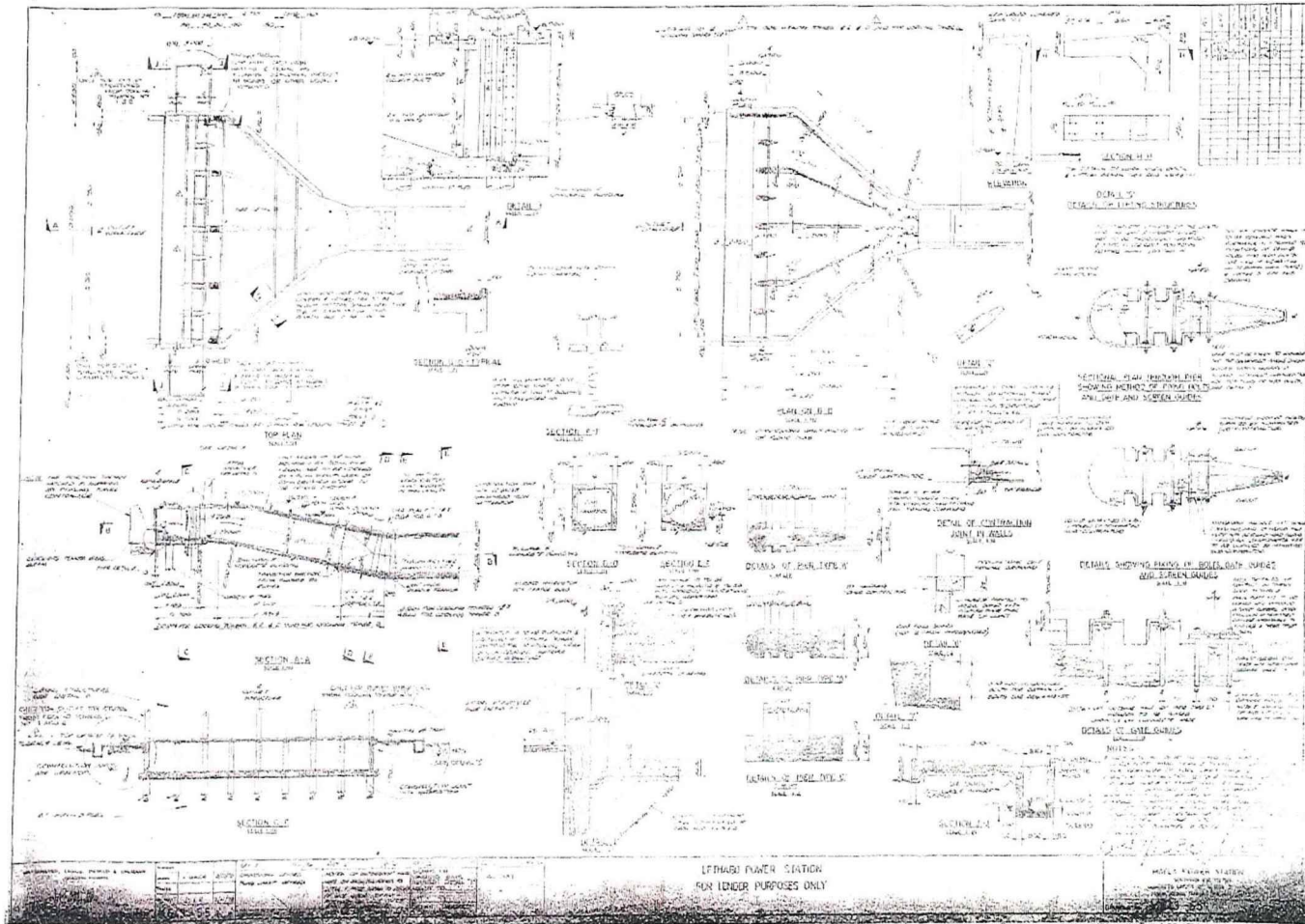


Figure 9: Diametric duct drawing

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