

	MATLA POWER STATION SCOPE OF WORK	Template Identifier	240-43921898	Rev	6
		Document Identifier	14593	Rev	4
		Effective Date	October 2019		
		Review Date	October 2022		

PLANT AREA: Matla Power Station

TITLE: Scope of Work for operation of the sewage treatment plant at Matla Power Station

REF: MEP - 051319		Reference Rev No:1		MULTIDISCIPLINARY: No		Plant Level: All
COMPILED BY	Name: Maria Majake Contract Manager	Signature	M.M. Napie	Date	2022-01-31	
REVIEWED	Name: Bertie Venter Chemical Engineer	Signature	[Signature]	Date	2022/01/31	
REVIEWED	Name: Solly Sikwa Senior Advisor Chemical Engineering	Signature	[Signature]	Date	31/01/2022	
REVIEWED	Name: Themba Kubheka Senior Supervisor Water Treatment Plant	Signature	[Signature]	Date	2022/01/31	
APPROVED	Name: Brenda Moeng Line Manager	Signature	[Signature]	Date	2022-01-31	
APPROVED	Name: Lele Masote Group Manager	Signature	[Signature]	Date		
REVIEWED	Name: Derah Mchonto Quality Department	Signature	[Signature]	Date	2022/01/31	
REVIEWED	Name: Shareen Ramaboe Environmental Department	Signature	[Signature]	Date	31.01.2021	
ACCEPTED	Name: Stanley Motha Chemical Services Manager	Signature	[Signature]	Date	2022/01/31	

Reference No: MEP - 051319	Reference Rev No:	Date: 2021/11/22	Page 1 of 22
----------------------------	-------------------	------------------	--------------

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

GENERAL

- Data books, reviews, reports and diagrams/drawings shall be submitted to Engineering after the completion of the work. Engineering to forward the data books to Quality Department (Document Control)
- All QCP's to be submitted to Engineering and Quality for approval prior to outage/project or maintenance work commencement.

	SCOPE OF WORK DESCRIPTION / ACTIVITY	PROCEDURE, SPECIFICATION, ENG. REQUIREMENTS / DOCUMENTATION	HOLD POINTS, WITNESS, REPORTS	RESPONSIBLE PARTY
1 1	Safety	- 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 - Permit to work must be in place before any work commences - Worker's register must be completed and daily risk assessment conducted before any work commences.	Eskom to witness.	Contractor
1 2	Environmental Management.	- All activities listed in the National Environmental Act 107 of 1998, EIA Regulations as amended, must have environmental AUTHORISATION before commencement of work - The contractor shall comply with all applicable legal and other requirements - The polluter pays principle will be applied. - The contractor manager shall ensure compliance with Eskom Matla Environmental procedures to ensure the prevention of pollution (refer OMOP 4090 and 4402) - The last payment will be processed based on the status of the last housekeeping check sheet (Annexure C. OMOP 4402) of designated area. - EMS file based on ISO14001 will be required.	Eskom to witness	Contractor

Reference No: MEP - 051319

Reference Rev No:

Date: 2021/11/22

Page 2 of 22

Public

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

1 3	Quality Management	- The contractor/executioner of work will be responsible for drawing up all QCP documentation and this must be approved by engineering and authorised by the Quality Department before commencing with the work. - Contractors/executioner to adhere to QM 58 and OMOP4497 requirements - Number of NCR issued can affect your next tendering process. - The QCP shall be signed progressively by the Engineer/Supervisor, Eskom QC Inspector, Contractor QC Inspector and/or AIA. - No procuring of outage items without the approval of scopes by quality - All outage scopes creep and scopes addition should be approved by quality - No contractor should be in the possession of scopes for execution without the scopes approved by quality - The contractor is subjected to quality auditing at any point in time during execution of scope	Hold point	Contractor
1 4	Inputs from other departments			
1.5	Commissioning reference			

Reference No: MEP - 051319	Reference Rev No:	Date: 2021/11/22	Page 3 of 22
----------------------------	-------------------	------------------	--------------

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Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

1	SYSTEM DESCRIPTION			
1.1	<u>SYSTEM INFORMATION</u>	<u>PLANT SPECIFICATIONS</u> ✓ Chlorine consumption : Estimated at +/- 65 kg per week ✓ Dry sludge produced : Estimated at +/- 500 kg per week ✓ Screenings to be removed : Estimated at +/- 50 kg per week ✓ Grit removals Estimated at +/- 100 kg per week ✓ Plant throughput : Estimated at +/- 35 MI per month ✓ Plant type : Modified Sequential Batch Reactor System		
2	DETAILED REQUIREMENTS			
2.1	The sewage treatment plant at Matla Power Station is to be operated in accordance with the specified governing standards.	✓ The Contractor shall operate the plant in accordance with the Department of Water and Sanitation current license requirements ✓ It is the responsibility of the Contractor to ensure that the employed personnel are registered with the Department of		

Reference No: MEP - 051319

Reference Rev No:

Date: 2021/11/22

Page 4 of 22

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	MATLA POWER STATION SCOPE OF WORK	Template Identifier	240-43921898	Rev	6
		Document Identifier	14593	Rev	4
		Effective Date	October 2019		
		Review Date	October 2022		

2.2	Operating of the plant is governed by Eskom procedures. The Contractor shall operate the plant and equipment according to the stipulated instructions and manuals	Water and Sanitation and shall provide proof of registration to the employer's representative within 3 months after the start of the contract ✓ The plant shall at all times comply with the requirements of the Occupational Health and Safety Act No 85 of 1993 and all other relevant legislation. ✓ The Contractor shall operate the plant in accordance to the operating procedures ✓ It is the responsibility of the Contractor to ensure that the number, duties, training qualifications and compulsory medical examinations of the persons employed at the plant shall be in accordance with the requirements of the plant's registration certificate ✓ It is the responsibility of the Contractor to ensure that the water works licence and registration certificates are displayed at the sewage plant control room ○ Matla sewage plant operations ○ Handling of activated sewage sludge ○ Sewage plant disinfection ○ Handling of screen debris ○ Sewage plant inspection ○ Drawing and recirculating sludge		
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Reference No: MEP - 051319	Reference Rev No:	Date: 2021/11/22	Page 5 of 22
----------------------------	-------------------	------------------	--------------

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.3	The Contractor is responsible for cleaning of the sumps on a regular basis in order to control microbiological growth to within the stipulated standards.	The use of a high pressure cleaner is required to effectively clean the plant, channels and sumps. It is the responsibility of the contractor to obtain his own high pressure cleaner.		
2.4	The Contractor must operate the plant such that the maturation ponds are always clean and empty and only used as buffer capacity in the case of an emergency.			
2.5	The emergency pond must be kept empty at all times and the operation of the pump must be checked on a shift basis.			
2.6	The sludge drying beds must be operated in such a way that 50% of the beds are clean and available for de-sludging while the remaining beds are busy drying			
2.7	The dried sludge and screen debris must be disposed of in bins/skips provided on site in order to maintain clean drying beds, channels and screens			
2.8	The staff shall operate the plant 24 hours, every day. Each shift must include both a plant operator and plant worker.			
Reference No: MEP - 051319		Reference Rev No:	Date: 2021/11/22	Page 6 of 22

Public

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.9	All critical units at the plant shall be manned, operated and supervised on a 24 hour basis to ensure efficient operation and minimise the potential risk of pollution.	The critical units requiring supervision are as follows ✓ Screens ✓ Aeration ponds ✓ Balancing ponds ✓ Maturation ponds ✓ Emergency ponds ✓ Pump station ✓ Chlorine dosing ✓ Contract tank ✓ Clarifier		
2.10	The Contractor's site Manager / Supervisor must be in possession of a cell phone during the full term of the contract			
2.11	A list of contact persons and telephone numbers of the Contractor must be made available to the employer's representative before contract start date			
2.12	It is the responsibility of the Contractor to ensure that all operators are trained in "Safe handling of chlorine gas"	A copy of the training certificate must be provided to Eskom upon awarding of the contract or within three months after the start of the contract.		
2.13	All employees will be given the required personnel protective equipment (PPE) and a list with all PPE issued must be handed to Eskom on an annual basis.			

Reference No: MEP - 051319

Reference Rev No:

Date: 2021/11/22

Page 7 of 22

Public

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.14	The staff working on the plant must have the required immunisations and proof must be provided to Eskom.			
2.15	The staff shall undergo a yearly medical screening performed by a registered medical practitioner.	✓ Tetanus-Toxoid: to be repeated every 3 years. ✓ Hepatitis A Vaccination		
2.16	The site supervisor must attend the Chemical Services Morning Meetings on Mondays and Thursdays every week at the Chemical Services Boardroom from 07h15 to provide feedback on the plant operation and status	Copies of the medical screening must be provided to the medical practitioner at Matla Power Station not later than the end March of every year.		
2.17	The Contractor shall submit a weekly plant report to the Eskom representative reflecting all plant conditions.			
2.18	All records must be filed and kept in the sewage treatment plant office and is regarded to be Eskom property.	Records of the following shall be kept . ✓ All visitors to the plant (Access control) ✓ Hourly flow rates of inflow and out flow ✓ Frequency, numbers, types of samples collected and points of collection. ✓ Types of analysis conducted and results (data) ✓ Inspections conducted ✓ Daily consumption of Hazardous substances ✓ Volume of Sludge (dried) disposed off ✓ All PPE issued to the employees and the status ✓ Any incident that occurred on the plant ✓ Monthly safety meeting minutes		
Reference No: MEP - 051319		Reference Rev No:	Date: 2021/11/22	Page 8 of 22

Public

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2.19	The Contractor shall submit the following reports no later than the third working day of a new month	✓ All PPE issued to the contractor employees ✓ Safety inspection on the plant (monthly) ✓ Monthly Chemical consumption (chlorine and flocculants)		
2.20	The Contractor shall conduct a safety inspection and hold a meeting with all employees once per month. The minutes of the meeting must be handed to Eskom no later than the fourth last working day of the current month	✓ A month end report indicating plant performance, individual plant unit integrity, deficiencies, defects, chemical consumptions, sludge and effluent qualities and disposal (volume) ✓ Copies of the daily log as per the operating procedure. ✓ Reports on any incidents that occurred on the plant (Issues)		
2.21	Emergency back-up systems shall be defined and agreed upon by the employer's representative and the Contractor. The back-up system will then be made available by the employer to the Contractor.			
2.22	Receptacles for litter and waste must be provided by the Contractor.			
2.23	The Contractor shall provide and adopt a sound labour relation's policy and shall promptly attend to any labour grievances that may arise.			
Reference No: MEP - 051319		Reference Rev No:	Date: 2021/11/22	Page 9 of 22

Public

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.24	The Contractor shall not remunerate his employees at less than the proclaimed statutory wage	The final effluent average flow rate is +/- 30 MI per month.		
2.25	The Contractor must comply with the Labour Relations Act (LRA) for both permanent and non-permanent staff.			
2.26	The final effluent must be treated with a chlorine based product. Products are to be supplied by the Contractor at his own cost			
2.27	The plant shall be operated to meet and where possible, exceed effluent standards as set forth in the sewage treatment works permits/license conditions.			
2.28	All waste introduced to and / or produced at the Eskom sewage treatment plant premises by the Contractor must be handled in accordance with the minimum requirements for the handling of / and disposal of Hazardous Waste in terms of Government legislation as proclaimed by the Department of Water and Sanitation Act of 1994, Ref BN0621 - 16296-5.			
2.29	The Contractor is responsible to ensure that no influent shall enter the treatment works other than for which it has been designed			
2.30	The Contractor is responsible to ensure the safety of all employees as far as practicable without risk to their health			
Reference No: MEP - 051319		Reference Rev No:	Date: 2021/11/22	Page 10 of 22

Public

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.31	The Contractor is responsible to report all safety defects to Eskom immediately for action			
2.32	The Contractor must attend the monthly Contractors Safety meeting representing his company.			
2.33	The site supervisor must keep the company's Contractors Safety File updated and hand it in for Auditing purposes on a quarterly basis.			
2.34	The plant and its surrounding areas shall be maintained at all times to the standard of the Power Station by executing the following:	✓ Cleaning the paving ✓ Keeping the area free from litter ✓ Cleaning the office area ✓ Cleaning the change room facilities on a daily basis ✓ Cleaning the store rooms, bund areas and dosing houses once a week. ✓ Removing weed from the Maturation pond and Drying Beds		
2.35	Inspections shall be carried out on all plant units and the inspection checklist shall be set up using the operating manual as a guide. The checklist must be approved by the employer's representative and the records shall be kept and made available to the employer as and when required			

Reference No: MEP - 051319	Reference Rev No:	Date: 2021/11/22	Page 11 of 22
----------------------------	-------------------	------------------	---------------

Public

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.36	Preventative operational maintenance must be carried out by the Contractor	✓ Cleaning of strainers ✓ Swapping over of pumps as per maintenance manual		
2.37	The Contractor shall submit a list of defects on a weekly basis to the employer's representative, to ensure that the plant is kept operational. In the case of an emergency defect, the case must be reported immediately to the employer's representative			
2.38	In the event of a major plant breakdown, repairs shall be undertaken by the employer after receiving notification from the Contractor. An investigation of the event will take place to assess the root cause. The investigation team will involve both the Contractor and employer.			
2.39	An Environmental Management System (EMS) for the Water Care Works shall be developed, documented and implemented by the Contractor after approval from the employer. The EMS document shall be put in place within the first three months from the start of the contract.	The EMS must cover the following areas as per ISO 14001:2015, ✓ Environmental policy ✓ Environmental Legislation ✓ Risk Assessments ✓ Environmental training awareness ✓ Setting of KPI's ✓ Contingency plans.		
2.40	Environmental Management Programmes shall be maintained to ensure that objectives and targets at the Water Care Works are achieved.			

Reference No: MEP - 051319	Reference Rev No:	Date: 2021/11/22	Page 12 of 22
----------------------------	-------------------	------------------	---------------

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.41	Audits covering various aspects of Environmental, Safety, Operational, IBI and Maintenance Management at the plant shall be conducted to ensure compliance with statutory requirements and Eskom's policies, directives and procedures. It is required that the Contractor must be well prepared and participate in the audit as the "Employer's representative"			
2.42	The Contractor is required to carry out sample analysis weekly for assessment of the plant performance. All required equipment and chemicals must be provided by the Contractor. Equipment must be serviced and calibrated as per best practices	The composite samples are : ○ Raw Sewage Inlet ○ Reactor outer Zone ○ Reactor inner Zone ○ Clarifier outlet ○ Final Effluent The parameters to be analysed weekly are as follows as per the water use licence section 3 4 ○ pH ○ Conductivity – mS/m ○ Chemical Oxygen Demand – mg / l ○ Ammonia as N – mg / l ○ Orthophosphate as P – mg / l ○ Nitrate as N – mg / l ○ Suspended Solids – mg / l ○ Faecal Coliforms – counts per 100 mls ○ Ecoli – counts per 100 mls		
Reference No: MEP - 051319		Reference Rev No:	Date: 2021/11/22	Page 13 of 22

Public

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Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.43	A full set of composite samples must be sent to an Accredited Laboratory for analysis on a weekly basis	And/ or any other variable that may be required from time to time by the Regional Head The parameters to be analysed daily per shift are as follows: ○ Turbidity - NTU ○ pH ○ Total suspended solids ○ Conductivity – mS/m ○ Dissolved Oxygen –% & ppm ○ Total Chlorine - ppm ○ Free Chlorine - ppm ○ MLSS ○ Temperature - ° C The following physical plant parameters shall be recorded daily: ○ Rainfall (Daily) ○ Ambient Temperature (Min & Max) - ° C A certificate of analysis must be obtained from the Laboratory and kept on record. ○ Samples must be analysed on the same day every week		
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Reference No: MEP - 051319	Reference Rev No:	Date: 2021/11/22	Page 14 of 22
----------------------------	-------------------	------------------	---------------

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.44	To ensure accuracy of results, the sampling and transport of the samples must be performed with care and the samples must be maintained at a temperature of +/- 5°C at all times.	✓ Micro-biological analysis must be done on a separate fresh sample taken in a sterile container		
2.45	The Contractor shall make sundry consumables such as cleaning materials, protective clothing, disinfectants, etc., available for use to persons working at the plant.			
2.46	The Contractor is responsible to train his employees on the use of safety equipment			
2.47	Appropriate safety equipment such as a self-contained breathing apparatus, life buoys and lifelines shall be made available by the employer's representative at relevant places on the plant. The Contractor will be responsible for maintenance of this safety equipment			
2.48	No employee shall be allowed to work unaccompanied at and/or on potentially dangerous equipment and areas, e.g. at the chlorinating house			
2.49	The contractor is required to attend the station's main safety meeting which is held once a month and give feedback as required			
Reference No: MEP - 051319		Reference Rev No:	Date: 2021/11/22	Page 15 of 22

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.50	Access to the plant shall be secured and controlled at all hours by the Contractor. A register of all persons visiting the plant shall be kept at the plant.	The register shall indicate the name of the person visiting the plant, the purpose, the time of entry and exit into and out of the plant as well as the company the visitor represents.		
2.51	When maintenance work is to be executed on the plant, the permit to work system shall be complied with			
2.52	For any operations necessary in the switch gear room, it is required that all employees of the Contractor be trained and pass the required panel assessment. The training will be provided by the employer.	Any training that is required by the employer for the Contractor shall be provided by the employer such as IBI training		
2.53	It is the responsibility of the Contractor to develop a training program aimed to enhance employee environmental awareness responsibility, legal and financial liability as well as address personal development of the employee. Training must be in accordance with the standards reflected in section 4 of the Regulations Relating to Compulsory National Standards for Process Controllers and Water Services Works (No. 36958) Proof may be requested from time to time by the employer's representative.			
2.54	The Contractor shall provide supervision for the total infrastructure to competently fulfil the requirements of the Contract This includes adequate management and supervision at all levels.			

Reference No: MEP - 051319	Reference Rev No:	Date: 2021/11/22	Page 16 of 22
----------------------------	-------------------	------------------	---------------

Public

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

2.55	Appropriate safety warning signs and notices will be supplied by the employer and it is the responsibility of the Contractor to display it at relevant places at the plants, e.g. chlorine house, digesters, electrical equipment, etc.			
2.56	An internal telephone will be available for use by the Contractor and the bill for any numbers phoned outside the Power Station will be at the Contractor's expense			
2.57	It is expected that the Contractor provide historic data of previous operations and analysis associated with sewage plant works with reputable contact details of clients.	The data should be provided in the form of a report/ letter capturing the following: ✓ Outline details of work performed and operating hours (Matla Sewage plant works 24 hour shifts, seven days a week) ✓ Process description of sewage treatment technology employed ✓ Plant capacity		
2.58	The Contractor shall provide a plan detailing how the plant will be operated in compliance with the Labour Law and Regulations Relating to Compulsory National Standards for Process Controllers and Water Services Works (No 36958)			

Reference No: MEP - 051319	Reference Rev No:	Date: 2021/11/22	Page 17 of 22
----------------------------	-------------------	------------------	---------------

Public

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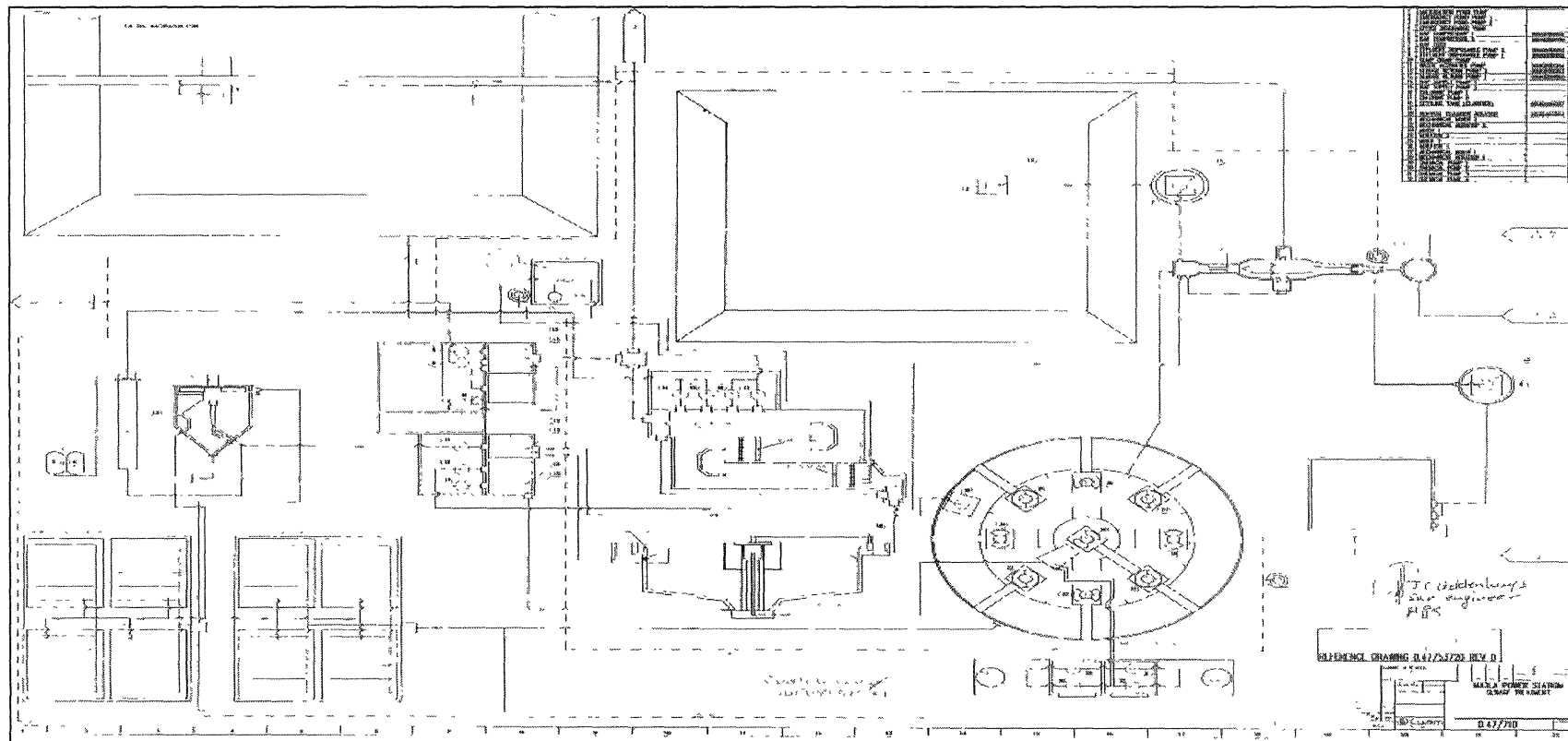


MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

APPENDIX A: Sewage Treatment Plant Process Flow Diagram



Reference No: MEP - 051319

Reference Rev No:

Date: 2021/11/22

Page 18 of 22

Public

When downloaded from the document management system, this document is uncontrolled and the responsibility rests with the user to ensure it is in line with the authorised version on the system

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

APPENDIX B: IRIS User Application Form

IRIS USER APPLICATION (Wastewater Quality)				USER ROLES / GROUPS (Wastewater Quality)																																																					
Complete this form and mail to meshygoi@dws.gov.za or green-drop@dws.gov.za for implementation				User Administrator: Register & administrate users & user access for your institution.																																																					
Document Administrator: Upload & update institutional documentation. E.g., ...				Technical Manager: Institutional setup i.e. Supply systems, Sample Points, Monitoring Programmes etc.																																																					
Works Manager: Administrate Treatment Plants & Process Controllers				Lab Manager: Administrate Techniques, Methods and Laboratory Documentation																																																					
Data / Analysis Capturer: Upload & Capture of Analysis				Read Only: View Data & Print Reports																																																					
Institutional Administrator: All levels of Access.				(Please note that we can setup custom or any combination of user rights / user groups)																																																					
User Details <table border="1"><tr><td>Name</td><td></td></tr><tr><td>Surname</td><td></td></tr><tr><td>Institution</td><td></td></tr><tr><td>Designation</td><td></td></tr><tr><td>Office Address</td><td></td></tr><tr><td>Phone</td><td></td></tr><tr><td>Cell</td><td></td></tr><tr><td>Email*</td><td></td></tr></table> *If it is will be used as your username				Name		Surname		Institution		Designation		Office Address		Phone		Cell		Email*		Approving Manager Details <table border="1"><tr><td>Name</td><td></td></tr><tr><td>Surname</td><td></td></tr><tr><td>Institution</td><td></td></tr><tr><td>Designation</td><td></td></tr><tr><td>Office Address</td><td></td></tr><tr><td>Phone</td><td></td></tr><tr><td>Cell</td><td></td></tr><tr><td>Email*</td><td></td></tr></table>				Name		Surname		Institution		Designation		Office Address		Phone		Cell		Email*																			
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Signature of Applicant / User _____ Date signed: _____ IMPORTANT: External users requesting access to the profile/s of Water Services Institutions (WSIs) have to adhere to the following: 1) Letter on WSI letterhead; 2) Signed by the appropriate WSI manager; 3) Name of the Institution and details of the individuals of the Institution to be granted access; 4) User access roles have to be stipulated; 5) Period of access to be stipulated																																																									
User Access (Please do not use abbreviations) – Refer to the attached list for available Roles <table border="1"><thead><tr><th>Role</th><th>Institution</th><th>System</th><th>From</th><th>To (Max 12 Months)</th></tr></thead><tbody><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></tbody></table> (See attached for all user roles)				Role	Institution	System	From	To (Max 12 Months)																																																	
Role	Institution	System	From	To (Max 12 Months)																																																					
I declare that this applicant reports to me and that I have the necessary authority to approve this application. I further declare that the Applicant received the necessary training / is under trained mentorship to utilise the access to the IRIS responsibly. By authorizing this access, I take full responsibility of all activities performed by this User on the IRIS																																																									
Signature of approval by Manager _____ Date signed: _____																																																									

Reference No: MEP - 051319

Reference Rev No:

Date: 2021/11/22

Page 19 of 22

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APPENDIX C: Process Controller Qualifications

	water & sanitation Department Water and Sanitation REPUBLIC OF SOUTH AFRICA		 blue drop Water & Sanitation	 blue drop Water & Sanitation
PROCESS CONTROLLER No _____		For Office Use		

CURRENT PROCESS CONTROLLER (PC) INFORMATION							
SURNAME _____ (as on ID document)				FIRST NAMES: _____ (as on ID document)			
ID NUMBER _____ (as on ID document) (a clear copy of ID document certified within the past 3 months should be uploaded on IRIS profile)				PC E-mail address: _____			
				PC Cell number: _____			
CURRENT INSTITUTIONAL OWNER of works - _____							
CURRENT WSA NAME of works - _____							
MANAGER/SUPERVISOR NAME AND SURNAME for above: _____				Manager E-mail address: _____			
Manager landline nr: _____				Manager Cell number: _____			

Name of Works – Waste Water Treatment Works (WWTW) or Water Treatment Works (WTR) as specified in IRIS	Works Class	Designation (See List Below)				Years worked at work				Class	All Certificates of Qualifications obtained including In-House Training, relevant to process controller at WWTW or WTR
		No	Date From In format (yy/mm/dd)	Date To In format (yy/mm/dd)	Date From In format (yy/mm/dd)	Date To In format (yy/mm/dd)					
											Clear and certified copies (certified within past 3 months) should be uploaded on the PC IRIS profile
TOTAL YEARS RELEVANT EXPERIENCE		WATER TREATMENT WORKS WASTE WATER TREATMENT WORKS									

Signed _____	Position _____	Date _____
* Must be signature of Manager/Supervisor as indicated above		
Signed _____	Position _____	Date _____
* Must be signature of Process Controller as indicated above		

List of designation positions: 1. Process controller Assistant, 2. Process controller, 3. Process controller in Charge, 4. Grand Parent, 5. Supervisor, 6. Superintendent, 7. Inspector

Note: Please note that the verified accurate information remains the responsibility of authorizing Manager / Supervisor. Department of Water and Sanitation may not be held liable for incorrect stipulated information on this form, contrary to that the Department reserves the right to prosecute the relevant personnel's.

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MATLA POWER STATION

SCOPE OF WORK

Template Identifier	240-43921898	Rev	6
Document Identifier	14593	Rev	4
Effective Date	October 2019		
Review Date	October 2022		

SCOPE COMPILATION REFERENCES				
SOURCE & Ref No.	Yes	No	N/A	Comments
Previous outage service reports				
Return to service data packages				
Maintenance Strategy with Rev number				
SAP defects (attach list as appendix)				
GHRMS (STEP) reports (Generation Heat Rate Management System)				
Online Condition Monitoring				
Pre-outage performance test results				
Post outage performance test results				
GPSS/ Plant Performance data on UCLF incurred				
OMS / IIRMS recommendations (Audits Reports)				
Risk controls (IRM system)				
Previous audits and reviews (e.g. ERAP)				
Engineering Change Requests (Projects)				
LOPP strategy reports				
URS				
Philosophy (Outage)				

Reference No: MEP - 051319

Reference Rev No:

Date: 2021/11/22

Page 21 of 22

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Condition Monitoring Report				
VA/PHD Viewer trends				
Corrective Actions				
CARAB reports				
Statutory Requirements				
Grid code requirements				
Waivers and Exemptions				
Calibration requirements				
Previous Outage SOW variations				
Post Mortems Actions from previous outages				
Pre-Outage plant walks				
Risk based inspection (RBI) report				
Simulation, TOIs, OON, SI				

COMMENTS

Compiled by: Maria Majake
Bertie Venter
Natalie Naidoo

Reference No: MEP - 051319	Reference Rev No:	Date: 2021/11/22	Page 22 of 22
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