Eskom	Scope of Work	GROOTVLEI

Title: **Grootvlei Power Station: Dams, Drains and Channel Cleaning SoW**

Document Identifier: **GVL/0623**

Alternative Reference Number: **N/A**

Area of Applicability: **Eskom Holdings SOC Ltd**

Functional Area: **Engineering**

Revision: **1**

Total Pages: **19**

Next Review Date: **AS REQUIRED**

Disclosure Classification: **Controlled Disclosure**

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Date: 30/07/2025	Date: 30/07/2025	Date: 05/08/2025

Content

Page

1. Introduction

Grootvlei Power Station is situated close to the town of Balfour in Mpumalanga province. The Power Station consists of six units with a capacity of 200 MW each and the total installed capacity is 1200 MW. The first of six units was commissioned in 1969. Three of the units were mothballed in 1989 and the rest in 1990. Grootvlei was one of the power stations being recommissioned. The return to service of the first unit occurred during 2007 and all six units were recommissioned during 2010. The power station is currently 51 years old.

The Power Station is provided with pollution control dams, drains, and channels which are critical for water conveyance and management during the operating life cycle of the power plant. It is critical that through the operating life cycle, the above-mentioned infrastructure remains serviceable and performs according to the stipulated design requirements.

Due to the nature of operations and the medium conveyed, silting and scaling up occurs which compromises the design baseline. For this reason, it is required that the infrastructure be cleaned to remove the silt accumulation on an as and when required basis.

2. Supporting Clauses

2.1 Scope

This document covers the scope of works relating to the cleaning of the dams and waterway infrastructure as listed below, where the works are to be performed by the Contractor.

2.1.1 Purpose

The purpose of this document is to outline the minimum requirements and the scope of activities required from the Contractor for the execution of the works.

2.1.2 Applicability

This document applies to Grootvlei Power Station and all other stakeholders involved in the project.

2.2 Normative/Informative References

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

2.2.1 Normative

[1] Eskom Health, Environment and Quality (SHEQ) Policy 32-727

[2] ISO 9001 Quality Management Systems

[3] National Environmental Management Act (NEMA) 107 of 1998

[4] Construction Regulations, 2014

[5] Occupational Health and Safety Act No. 85 of 1993

[6] 240-99527377: Inspection Manual for Civil Works at Eskom's Power Station

2.2.2 Informative

None

2.3 Definitions

N/A

2.3.1 Disclosure Classification:

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

2.4 Abbreviations

Abbreviation	Explanation
AWR	Ash Water Return
CSY	Coal Stockyard
ET	East Terrace
ISO	International Organization for Standardization
ST	South Terrace

2.5 Roles and Responsibilities

- Grootvlei Power Station Engineering and Coal Management will be responsible for appointing an appropriate *Contractor* to perform the activities as indicated in this document.
- The *Contractor* shall be responsible for delivering work according to specification.
- The *Engineer* shall conduct pre and post inspections on the areas where activities are conducted in liaison with the Coal Management department.

2.6 Process for Monitoring

The *Contractor* submits a quality control plan for approval by *Employer*.

2.7 Related/Supporting Documents

Drawings (to be issued as and when required).

3. Employers Objectives and Purpose of the Works

The objective and purpose of the works is to:

- Ensure that the water conveyance and storage structures are maintained at a serviceable level.
- Ensure that these structures perform and operate at their desired design intent.

4. Scope of Works

4.1 Description of the Works

The Contractor shall adhere to the South African Environment Protection Act, the Waste Management code of practice and the South African Occupational Health and Safety Act No. 85 (OHS Act), the regulations promulgated thereunder and Eskom Health, Environment and Quality (SHEQ) Policy 32-727 for removal, separation and disposal of scrap, waste and hazardous materials.

The Contractor provides a service to the Employer for the desilting/desludging/dredging and cleaning and/or high-pressure cleaning of the below infrastructure on an “As and When Required” basis:

1. East Terrace Dam (Pollution Control Dam)
2. Coal Stockyard Dam (Pollution Control Dam)
3. South Terrace Dam (Pollution Control Dam)
4. Lower Ash Water Return Dams
5. Upper Ash Water Return Dams
6. Ash Dam Penstocks
7. Ash Dam Filter Drains
8. Vaal Dam Clarifiers
9. Trenches and Channels
10. Sludge Dams at Vaal Dam
11. Oil Skimmer Plant

4.2 Cleaning of the East Terrace Dam

Inspections shall be carried out by the Employer on the ET dam checking the extent of weeds, shrubs and sludge that has accumulated in the ET dam. Upon completion of the inspection, if the amount of sludge, shrubs and weeds significantly affects the capacity and status of the ET overall, a recommendation shall then be made to clean the ET dam.

The following work shall be carried out:

- To assess the accessibility to site for transportation carrying the working equipment.
- Contractor to identify any potential limitations which prohibits him/her from executing the work effectively.
- To determine sludge/sediment depth on an “as and when required” basis (conduct sonar surveys which will clearly indicate the sludge mass and water volume).
- To determine the acceptable water depth for the safe and efficient operation of the dredger.
- Dredger machine must be suitable to operate on all the dams.
- Should pumping of water be required, the supplier will be responsible to provide such pumps.

- To determine the dam/pond depth.
- To determine the distance between dam/pond and the ash dam site.
- To determine the head pressure required by booster pump.
- To supply and deliver of the dredging equipment and booster sludge pump with all necessary piping and bends to site.
- To install booster sludge pump and connections to the discharge pipeline.
- To anchor a system for the dredging machine erected.
- To remove sludge or sediment from the dam by agitating or dredging and pumping the slurry to the ash dam from the ET dam.
- To remove the weeds and reeds inside and on the skirt of the dam.
- To assess the site with the Employer once the cleaning activities are completed for acceptance by the Employer.
- To clean and rehabilitate site to its original or better state after completion of work (housekeeping).
- Alternatively, should the sludge pumping not be successful due to material that cannot be pumped, a suitable method to be used to haul the material from point east terrace to ash dams.
- HP gun to be provided to unblock and flush the pipelines ‘as and when required’.

4.3 Cleaning of the Coal Stockyard Dam

Inspections shall be carried out by the Employer on the COAL STOCKYARD dam checking the extent of weeds, shrubs and sludge that has accumulated in the COAL STOCKYARD dam. Upon completion of the inspection, if the amount of sludge, shrubs and weeds significantly affect the capacity and status of the COAL STOCKYARD overall, a recommendation shall then be made to clean the COAL STOCKYARD dam

The following work shall be carried out:

- To assess the accessibility to site for transportation carrying the working equipment.
- Contractor to identify any potential limitations which prohibits him/her from executing the work effectively.
- To determine sludge/sediment depth on an “as and when required” basis (conduct sonar surveys which will clearly indicate the sludge mass and water volume).
- To determine the acceptable water depth for the safe and efficient operation of the dredger.
- Dredger machine must be suitable to operate on all the dams.
- Should pumping of water be required, the supplier will be responsible to provide such pumps.
- To determine the dam/pond depth.
- To determine the distance between dam/pond and the ash dam site.

- To determine the head pressure to be required by booster pump.
- To supply and deliver of the dredging equipment and booster sludge pump with all necessary piping and bends to site.
- To install booster sludge pump and connections to the discharge pipeline.
- To anchor a system for the dredging machine erected.
- To remove sludge or sediment from the dam by agitating or dredging and pumping the slurry to the ash dam from the CSY dam.
- To remove the weeds and reeds inside and on the skirt of the dam.
- To assess the site with the Employer once the cleaning is completed for acceptance by the Employer.
- To clean and rehabilitate site to its original or better state after completion of work (housekeeping).
- Alternatively, should the sludge pumping not be successful due to material that cannot be pumped, a suitable method to be used to haul the material from point Coal Stockyard dam to ash dams.
- HP gun to be provided to unblock and flush the pipelines ‘as and when required’.

4.4 Cleaning of the South Terrace Dam

Inspections shall be carried out by the Employer on the ST Dam checking the extent of weeds, shrubs and sludge that has accumulated in the ST Dam. Upon completion of the inspection, if the amount of sludge, shrubs and weeds significantly affect the capacity and status of the ST overall, a recommendation shall then be made to clean the ST Dam.

The following work shall be carried out:

- To assess the accessibility to site for transportation carrying the working equipment
- Contractor to identify any potential limitations which prohibits him/her from executing the work effectively
- To determine sludge/sediment depth on an “as and when required” basis (conduct sonar surveys which will clearly indicate the sludge mass and water volume).
- To determine the acceptable water depth for the safe and efficient operation of the dredger.
- Dredger machine must be suitable to operate on all the dams.
- Should pumping of water be required, the supplier will be responsible to provide such pumps.
- To determine the dam/pond depth.
- To determine the distance between dam/pond and the ash dam site.
- To determine the head pressure to be required by booster pump.

- To supply and deliver the dredging equipment and booster sludge pump with all necessary piping and bends to site.
- To install booster sludge pump and connections to the discharge pipeline.
- To anchor a system for the dredging machine erected.
- To remove sludge or sediment from the dam by agitating or dredging and pumping the slurry to the ash dam from the ST dam.
- To remove the weeds and reeds inside and on the skirt of the dam.
- To assess the site with the Employer once the cleaning is completed for acceptance by the Employer.
- To clean and rehabilitate site to its original or better state after completion of work (housekeeping).
- Alternatively, should the sludge pumping not be successful due to material that cannot be pumped, a suitable method to be used to haul the material from South Terrace dam to ash dams.
- HP gun to be provided to unblock and flush the pipelines ‘as and when required’.

4.5 Cleaning of AWR (13 Million East and West) Dams

Inspections shall be carried out by the Employer to determine the extent of sludge accumulation in the AWR dams. Should the dam capacity highly compromised, a decision shall then be made to clean the AWR dams by removing the solid material to a designated site for dumping indicated by Employer.

The following work shall be carried out:

- To determine the acceptable water depth.
- To determine sludge/sediment depth /volume.
- To determine the dam/pond depth.
- To determine the distance between dam/pond and the ash dam site.
- To determine the head pressure to be required by booster pump.
- To supply and deliver the Dredging/Agitating equipment and booster pump with all piping necessary on site.
- To install booster pump and connections to the discharge pipeline.
- To install a discharge line on water surface.
- To anchor a system for the dredger erected.
- Assessment to be conducted to gain access for safe entry into the dam.
- To ensure that existing structures, pipework, lighting, and all other components are not damaged during the cleaning.
- To ensure that the original capacity of the dams is not increased during the cleaning (No narrowing of the existing walls during cleaning to ensure stability is maintained).
- To remove sludge or sediment from the dam by agitating and pumping the slurry to the ash dam from both the AWR dam (Method statement of the Contractor will be accepted).
- To remove the shreds and weeds or reeds on the skirt of the dam.
- To assess the site with the Employer once the cleaning is completed for acceptance by the Employer.

- To clean and rehabilitate site to its original or better state after completion of work (housekeeping).

4.6 Cleaning of AWR (6 Million East and West) Dams

Inspections shall be carried out by the Employer to determine the extent of sludge accumulation in the AWR dams. Should the dam capacity be highly compromised, then a decision shall be made to clean the AWR dams by removing the solid material to a designated site for dumping indicated by Employer

The following work shall be carried out:

- To determine the acceptable water depth.
- To determine sludge/sediment depth /volume.
- To determine the dam/pond depth.
- To determine the distance between dam/pond and the ash dam site.
- To determine the head pressure to be required by booster pump.
- To supply and deliver the Dredging/Agitating equipment and booster pump with all piping necessary on site.
- To install booster pump and connections to the discharge pipeline.
- To install a discharge line on water surface.
- To anchor a system for the dredger erected.
- Assessment to be conducted to gain access for safe entry into the dam.
- To ensure that existing structures, pipework, lighting, and all other components are not damaged during the cleaning.
- To ensure that the original capacity of the dams is not increased during the cleaning (No narrowing of the existing walls during cleaning to ensure stability is maintained).
- To remove sludge from the dam by agitating and pumping the slurry to the ash dam from both the AWR dam (Method statement of the Contractor will be accepted).
- To remove the shreds and weeds or reeds on the skirt of the dam.
- To assess the site with the Employer once the cleaning is completed for acceptance by the Employer.
- To clean and rehabilitate site to its original or better state after completion of work (housekeeping).

4.7 Cleaning of Ash Dam Filter Drains

Due to the water carrying silt particles during the draining process, scale forms in the drainage pipes and this reduces the flow through the pipes. If not cleaned the scale increases so much such that the drainage pipes block thus rendering the drainage pipe useless. It is therefore necessary to periodically clean the drainage pipes to ensure that the flow through the pipes is as per design (diameter of pipe not reduced by scale).

The following work shall be carried out:

- To assess the drain flows with the employer prior to conducting the works.
- To provide high pressure machine with pipework that can extend up to 150m.
- To provide water tankers for the supply of water during the high-pressure cleaning ‘as and when required’.

- To conduct high pressure rodding of all the filter drains ensuring the scale is removed and that all blocked drains are unblocked.

Inspect the filter drains outlets after the cleaning to verify that the outlet flow has improved.

4.8 Cleaning of Ash Dam Penstock

Due to the water carrying silt particles during the draining process, scale forms in the drainage pipes and this reduces the flow through the pipes. If not cleaned the scale increases so much such that the drainage pipes block thus render the drainage pipe useless. It is therefore necessary to periodically clean the drainage pipes to ensure that the flow through the pipes is as per design (diameter of pipe not reduced by scale).

The following work shall be carried out:

- To conduct a CCTV inspection for the penstock checking for the condition of the decanting line prior to cleaning.
- To submit CCTV inspection footage to Employer for analysis (video and pictorial).
- The Employer shall then take a decision on the distance to clean based on the condition of the line as evident from the video footage taken.
- To provide high pressure machine with pipework that can extend up to 500m.
- To provide water tankers for the supply of water during the high-pressure cleaning activity ‘as and when required’.
- To conduct high pressure cleaning of the decanting line removing all scale that has formed.
- To conduct a post CCTV inspection for analysis by the Employer showing the condition of the decanting line once cleaning is completed.

4.9 Cleaning of Raw Water Reservoirs

The *Employer* shall carry out inspections on the reservoirs checking the extent of weeds, shrubs and sludge that has accumulated in the reservoirs. Upon completion of the inspection, if the amount of sludge, shrubs and weeds significantly affect the capacity and operability of the reservoirs overall, an instruction shall then be issued to clean the reservoirs.

The following minimum actions shall be carried out by the *Contractor* for the execution of the works:

- To determine sludge/sediment depth on an “as and when required” basis (conduct sonar surveys which will clearly indicate the sludge mass and water volume).
- To supply and transport all identified cleaning equipment to site as identified in the Contractors Method Statement.
- Care is to be taken in ensuring that the base of the dam and entire wall structure is not damaged during the cleaning.
- To ensure that existing structures (overflow spillways), water supply pipework, lighting and all other components are not damaged during the cleaning. The *Contractor* shall be liable for any damage caused to this infrastructure because of the cleaning activities.
- To ensure that the solid material is separated from the water and dried adequately.
- To remove the dried sludge/sediment by trucks to the designated dumping site.
- To clean and rehabilitate site to its original or better state.

4.10 Cleaning of the Sludge Dams (Dry Beds) at Vaal Dam

The *Employer* shall carry out inspections to determine the extent of sludge accumulation in the sludge dams. If the capacity of the sludge dams is identified to be compromised, then a decision shall be made by the *Employer* to clean the sludge dams by removing the solid material (may be dried sludge) to a designated site for dumping as instructed by the *Employer*.

The following shall be read as the scope by the *Contractor*:

- To organise and deliver to site all equipment required for the cleaning of the sludge dams
- Assessment is to be conducted on each sludge dam to identify areas for safe access into the dam.
- To remove/clean the dams off the accumulated sludge as per method statement provided by the *Contract*or to the *Employer.*
- To ensure that existing structures, pipework, lighting, and all other components are not damaged during the cleaning. The *Contractor* shall be liable for any damage caused to this infrastructure because of the cleaning activities.
- To ensure that the original capacity of the dams is not increased during the cleaning (No narrowing of the existing walls during cleaning to ensure stability is maintained)
- To assess the site with the *Employer* once the cleaning is deemed to be complete for acceptance by the *Employer.*
- To clean and rehabilitate site to its original or better state.

4.11 Cleaning of Clarifiers

The *Employer* shall carry out inspections to determine the extent of sludge in the clarifiers. A decision will then be taken, when required, to clean the clarifiers by removing the sludge that has accumulated. All removed sludge shall be deposited into the provided sludge dams.

The following shall be read as the scope by the *Contractor* for the works:

- To supply and deliver all equipment necessary for the cleaning to be successfully completed as identified in the method statement
- To remove sludge or sediment from the clarifiers by using a suitable method as depicted in the contractor's method statement.
- Upon completion of the cleaning, the *Contractor* informs the *Employer* to assess the condition of the clarifiers.
- The *Contractor* shall ensure that all equipment surrounding the site and within the site is not damaged during the cleaning process.
- To clean and rehabilitate site to its original or better state.

4.12 Cleaning of the Primary and Secondary Chamber at the Oil Skimmer Plant

The *Employer* shall carry out inspections to determine the extent of silt in the primary and secondary chambers. A decision will then be taken, when required, to clean the chambers by removing the silt that has accumulated. All removed and uncontaminated silt shall be deposited into the ash dam. Should the ash be contaminated, it must be deposited into a designated certified disposal site.

The following shall be read as the scope by the *Contractor* for the works:

- To supply and deliver all equipment necessary for the cleaning to be successfully completed as identified in the method statement.
- To remove silt, as and when required, from the chambers by using a suitable method as depicted in the contractor's method statement.
- Upon completion of the cleaning, the *Contractor* informs the *Employer* to assess the condition of the chambers.
- The *Contractor* shall ensure that all infrastructure and equipment surrounding the site and within the site is not damaged during the cleaning process.
- To clean and rehabilitate site to its original or better state.

4.13 Cleaning of the Surrounding Trenches around the Ash Dam Site

The following shall be read as the scope by the Contractor for the works:

- To supply and deliver all equipment necessary for the cleaning to be successfully completed as identified in the method statement.
- To remove the weeds, shrubs and dried silt that has accumulated within the trenches.
- To dispose the waste into a designated dumping site after removal.
- The *Contractor* shall ensure that all equipment surrounding the site and within the site is not damaged during the cleaning process.
- To clean and rehabilitate site to its original or better state.

4.14 Oil Skimmer Operators

The hiring of oil skimmer plant operators to operate and maintain the oil skimmer plant for a period of 60 months. X8 operators are required in total. X2 operators will be working per 12Hours shift cycle (day and night).

- Operate (start and stop) oil skimmer separation pump when there is a flow of oil.
- Inspect and report any oil entering the oil skimmer plant.
- Cleaning and removal of reeds and vegetation inside the trenches.
- Applying cushion and booms at the chambers to prevent oil from overlapping and escaping to the East Terrace Dam.
- Removal of oil from the blue tank into the oil drums for disposal.
- Housekeeping to be done continuously. Removal of waste (used booms and cushions, reeds, and vegetation) to be disposed at designated skips and disposal sites.

4.15 Employer's Design/Specification

Below are the specifications detailing the dam type and capacities for each of the dams to be cleaned:

Area	Type	Dimensions and Capacity
East Terrace Dam	Earth Wall HDPE Lined (Clay Base)	43 000 m^3
Coal Stockyard Dam	Earth Wall HDPE Lined (Clay Base)	18 000 m^3
South Terrace Dam	Earth Wall HDPE Lined (Clay Base)	11600 m^3
AWR 13 Million Dam	Earth Wall with Clay Base	190 000m^3

AWR 6 Million Dam	Earth Wall	27 180m^3
Penstocks	Steel Pipeline	750mm Diameter
Filter Drains	HDPE/Irrigation Earthenware	150mm Diameter
Clear Water reservoir	Earth Dam, Unlined	Capacity: 11 160m^3, 6.1m high
Terminal Reservoir	Earth Dam, unlined	Capacity: 160 000m^3 each, 5.2m high
Sludge Dams	Earth Ponds	Unknown
Clarifiers	Concrete Structures	Dimensions: 40 x 9 x 7m deep Capacity: 2 520m^3, 4 off
Ash Dam Trenches	Concrete Lined Channels	Total length: approx. 6100m
Oil Skimmer Plant	Concrete Structures	Dimensions: Primary Chamber = 28 x 7.89 x 2.5m deep (Capacity: 553 m^3) Secondary Chambers = 40 x 23.34 x 2.5m deep (Capacity: 2334 m^3)

4.16 Contractor's Requirements

4.16.1 General

1. The Contractor takes full accountability and liability for the works as described in the scope of works.
2. The Contractor is required to confirm and verify all information supplied by the Employer prior to being used in the works.
3. The Contractor adheres to all design requirements, codes of standards and regulations stated in this scope of works and those not stated but are applicable.
4. Any discrepancy or ambiguity between the Employer's Specifications or requirements is to be immediately brought to the attention of the Contracts Manager for clarification.
5. Where the Contractor requires additional information, the Contractor notifies the Contracts Manager of the Contractor's requirements a minimum of one (1) week before continuing with the works.
6. Any damages to existing infrastructure and services resulting from the works is repaired/ made good by the Contractor at his own expense. This is subject to the Contractor supplying a method statement for the repair works to the Project Manager for review and acceptance prior to conducting the repair works.

7. The Contractor quantifies the limitations and risks in the form of a detailed risk assessment, which is reviewed and accepted by the Project Manager prior to commencing with construction work.

4.17 Works Execution Requirements

4.17.1 General

The *Contractor*:

1. Adheres to the South African Environment Protection Act, the waste management code of practice and the South African Occupational Health and Safety Act No. 85 of 1993, the regulations promulgated thereunder and Eskom Safety, Health, Environment and Quality (SHEQ) Policy 32- 727 and Waste Management Procedure, as well as the National Building Regulations and SANS 10400 for all works.

2. Submits a comprehensive method statement (including a comprehensive risk assessment) detailing the proposed methods for the entire works to the *Contracts Manager* for acceptance prior to the start of the works. Refer to Section 4.4.5 for method statement requirements.

3. Submits a project specific safety file to the *Contracts Manager* for comments / acceptance.

4. Submits a detailed level 3 schedule for the *works* to the *Project Manager* for acceptance after contract award.

5. Takes all necessary precautions to ensure that none of the existing structures / facilities is damaged during construction. The *Contractor* is liable for all damages that may occur and repairs are to be done at no additional cost to the *Employer*.

6. The *Contractor* disposes of all waste material at a waste disposal site to be approved by the *Contract Manager*. The waste disposal site is selected to suit the classification of the materials to be disposed of. Certificates of disposal are required to be submitted to the *Contract Manager*.

7. Continuously monitors the conditions within the working and surrounding areas for any hazardous substances or situations, and in such case, the *Contractor* is required to take necessary precautionary measures.

8. Manages access to the working areas and the Site.

9. Manages activities on Site to ensure that no interference takes place between the *works* and that of others.
10. The *Contractor* is responsible for the design and erection of all the temporary supports require for the *works*. In addition to the aforementioned, the *Contractor* adheres to the following:

- The *Contractor* is restricted to the designated working areas
- The *Contractor* is not to enter any other areas and ensures that his employees abide by the applicable regulations

- The *Contractor* performs all hoisting and lifting by qualified riggers where required
- The *Contractor's* Equipment does not impair the operation or access to the plant during his works execution
- The *Contractor* provides any temporary or expendable materials required for the storage of materials
- The *Contractor* safeguards and secures all items whilst in the *Contractor's* custody and control, until completion of the works
- Plant and equipment not forming part of the *works* are not to be modified without written permission from the *Project Manager*. Modification in this sense includes, but is not limited to the following:
  - Welding onto existing plant,
  - Drilling into structural steel or concrete,
  - Cutting or removing
  - Loading adjacent structures
  - Excavating the Employers property

11. The Contractor ensures that a complete QCP, risk assessment, method statement and ITP's, where applicable are submitted to the *Project Manager* for review and acceptance before the works can commence for each activity to be carried out. During reviews of the ITP's, the *Project Manager* provides the necessary intervention points.

4.17.2 Plant and Material Supply

1. The *Contractor* provides all plant, tools, and equipment for the handling of material and the proper execution of the works.
2. The *Contractor* takes reasonable care to ensure that equipment used does not cause damage to any existing infrastructure. In the event that such damages do occur to the surrounding infrastructures, the *Contractor* is responsible for repairing such damages and is liable for all costs associated with the repairs.
3. The *Contractor* is to supply, deliver, offload, and temporarily store (as may be required) all materials needed to carry out the works.

4.17.3 Storage Facilities

1. The *Contractor* is to make his own arrangements regarding storage facilities and laydown areas that are required to complete the works. All laydown areas on Site are as per agreement with the Contract Manager.
2. All storage facilities (Plant, Material and Equipment) will be within the boundaries of the Site in order not to affect the operations of Others.

4.17.4 Method Statement

1. As a tender returnable, the *Contractor* submits a Method Statement taking into consideration the various requirements for the different plant areas as per the above listed areas.

2. This Method Statement clearly illustrates how the Contractor accounts for the risks of the activities and is tailored to address the specified project objectives and requirements.
3. The Method Statement includes, as a minimum and where applicable, the following:

- Constraints identified and considered by the *Contractor*.
- Interfacing with Others; the Contractor illustrates an understanding of the work that is to be completed by Others and accommodates for the completion of such work in his methodology.
- Description and illustrations of a construction traffic plan, use of laydown areas and plot plan.
- Dam cleaning methodology and sequence of task undertaking taking into consideration access restrictions and safety requirements.
- Detailed risk assessment which lists risks specific to the works and are accompanied with associated proposed mitigations.
- List and description of plant and machinery required to carry out all the works in their different types.
- Inspection and Quality Control Plan.
- A clear description of the responsibilities of the Contractor's personnel involved with the works, including (where applicable) his Project Manager, Site Quality Manager, Health and Safety Officer, Supervisor, Environmental Officer, Transporter, and other personnel required for the works.
- Health, safety, and quality control for the activity.
- All plant, equipment and machinery required to complete each activity.
- Plan for confining, collecting, and disposing of waste materials because of removal operations, where applicable.
- Works required to safeguard existing infrastructure and services.

4. All Method Statements are reviewed and accepted by *Contract Manager* prior to commencing any work.

4.18 Deliverables

The Contractor provides the following document deliverables as part of the works.

4.18.1 Tender Phase

The tenderer submits the following as a minimum in the tender submission:

1. Method Statement (including Programme, QCP and Risk Assessment) for the entire works clearly demonstrating understanding of and compliance with the full scope as detailed in the Scope of Works.

2. Relevant experience in completion of similar projects. List of verifiable relevant references (minimum of 3 projects) must be provided for works completed within the last 5 years. References to include contact numbers and name of client, description of scope in the project and the cost of the project as a minimum.

3. CV's of the proposed key resources each having a minimum of 5 years' relevant experience. Copy of valid certificate to be provided. Organogram of site team to also be provided clearly indicating the roles that the resources will fulfil in the project.

4. List of equipment the Contractor aims to utilise for each of the activities listed in the Scope of work. The equipment list is to be provided with serial numbers for verification by the Employer. Where the Contractor intends to hire such equipment, the Contractor provides a letter of intent listing the required equipment signed by him and his supplier.

5. CIDB Registration of 8CE

4.18.2 Planning Phase for Each Activity

1. A Level 3 schedule (schedule with defined activities) for the design scope clearly highlighting all activities involved, major milestones and provision.
2. Detailed Method Statement for the execution of the works.
3. Risk Assessment
4. Project Quality Control Plan.

4.18.3 Pre-Task Completion

1. A Bathymetry Survey is to be completed on each of the dams to determine the amount of silt accumulated.
2. Detailed method statements for the execution of the identified works
3. Inspection and Test Plans (ITP's) indicating all intervention points
4. Quality Control Plans (QCP's)
5. Programme detailing works execution
6. Task Specific Safety File (updated)
7. Any temporary works required as part of construction signed by a qualified person
8. Detailed Risk Assessments (updated)
9. Visual Assessment Report which forms part of the package

4.18.4 Post Task Completion

1. For dam cleaning, a Bathymetry Survey shall be completed verifying that the dam has been cleaned to the satisfaction of the *Employer.*
2. A CCTV inspection showing that the Penstock and filter drains have been cleaned to the *Employers* Satisfaction.

5. Acceptance

This document has been seen and accepted by:

Full Name and Surname	Designation
Mpho Taje	Civil Engineer
Menelisi Mkhabela	Auxiliary Engineering Line Manager
Thabo Montja	Engineering Manager
Sibongile Nkosi	Coal Management Manager
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6. Revisions

Date	Rev.	Compiler	Remarks
Feb 2025	1	Mpho Taje	Final document

7. Development Team

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

- Mpho Taje
- Menelisi Mkhabela

8. Acknowledgements (if applicable)

N/A