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THE CONSTRUCTION OF RESERVOIR AND ASSOCIATED INFRASTRUCTURE FOR MOSSEL BAY AREA ON THE FARM VAALE VALLEY 219, MOSSEL BAY

FINAL ENVIRONMENTAL MONITORING REPORT

TDR69/2020/2021 (RESERVOIR) & TDR70/2020/2021 (PUMP STATION)



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BAY AREA ON THE FARM VAALE VALLEY 219, MOSSEL BAY**

TDR69/2020/2021 & TDR70/2020/2021

COMPLETION ENVIRONMENTAL REPORT – JUNE 2022

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<u>Report Submitted to</u>	Dean Jacobs – V3 Consulting Engineers Klasie Lategan – Urhwebo E-Transand
<u>Copies to</u>	Eric Louw - Mossel Bay Municipality Mushfiqah Abrahams – Mossel Bay Municipality

ECO site inspection date:

26 May 2022	ECO site inspection for completion report
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INTRODUCTION

This report monitors compliance with the Environmental Management Plan (Ref: MOS20/472/25 – dated 15 December 2020) and it constitutes the completion report for phase 1 which included the construction of a new regional reservoir and pump station.

The following technical components were approved in the EMPr, of which **phase 1** consisted of the construction of one 7Ml reservoir, head booster pump station and rising main between the booster pump station and new reservoir.

The technical components are as follows:

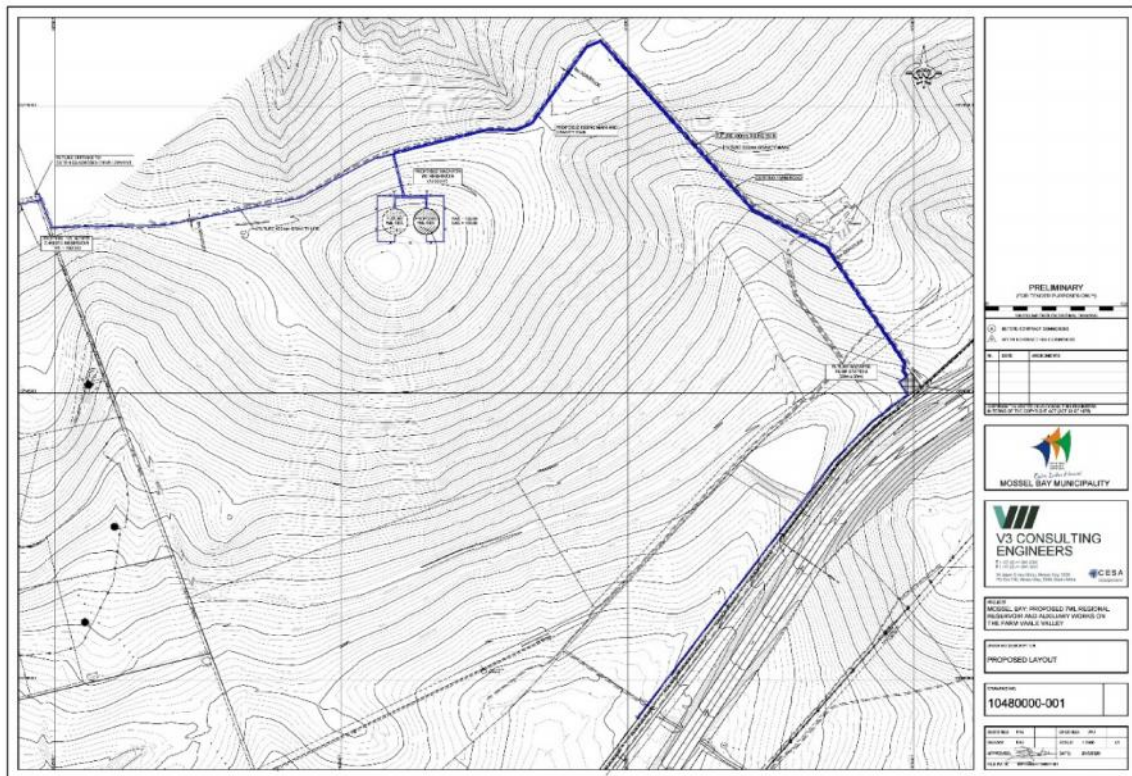
- 125 l/s @ 65 m head booster pump station next to District Road R102.
- 1250 m x 400 mm UPVC/GRP rising main between booster pump station and the reservoirs (15 Ml total capacity)
- 1675 m x 600 mm GRP gravity line from reservoir to termination point next to District Road R102. The length of pipe next to road is approximately 600 m.
- 750 m x 400 mm UPVC/GRP gravity line between 15 Ml and the existing 1 Ml Monte Christo reservoir.
- A 6,0 m wide servitude for the pipes and maintenance road.

The alignment was chosen due to the following aspects:

- Cost effective route since it runs along the existing farm roads and caused least disturbance to the surrounding agricultural areas.
- Proposed alignment will link up / connect with existing sections of pipeline that is already in place.
- Proposed alignment will be easily accessible for maintenance and repairs.

The **first phase** of construction will entail the construction of a 7 Ml reservoir within the identified and approved area with the supporting infrastructure (pipelines etc.). Provision has been made for a future 7 Ml reservoir adjacent to the first reservoir. Pipeline is according to the surveyed route and along the **existing** farm road.

All outstanding technical components (future construction phases) must **comply** with the EMPr (MOS20/472/25 – dated 15 December 2020).



Phase 1 of the EMPr is now complete and ongoing maintenance falls on the Mossel Bay Municipality, refer to Section 7 of the EMPr:

7 OPERATIONAL PHASE

Operational phase monitoring would be done if and when the applicant (Mossel Bay Municipality) needs to do inspections or repairs on the reservoir, pipeline or associated infrastructure.

The applicant can choose to appoint an Environmental Control Officer (ECO) or make use of the Mossel Bay in-house Environmental Officer for the duration of the operational phase repairs to monitor compliance against the **CONSTRUCTION PHASE (Section 5)** of this Environmental Management Programme.

ENVIRONMENTAL MONITORING REPORT

1. Environmental Induction

Environmental induction was done with all staff members on-site before commencement of construction activity in **January 2021** (reservoir) and **June 2021** (pump station). A follow-up environmental induction was given in **March 2021 (reservoir)** to all staff members on site.

2. Soil Management

Topsoil has been stripped and stockpiled away from the active construction area. Subsoil was stockpiled away from the construction area and will be used for infilling

and shaping once final testing completed. Topsoil to be placed back on top. The landowner is using the rest of the subsoil to fill and shape his agricultural fields.

- The landowner issued a letter of consent to permit the spoiling of subsoil on his property.



Compacted soil was loosened, and grass is growing

3. Paleontological Impact Assessment

The palaeontologist (Dr John Almond) visited the site on the **19th of January 2021** and report the following:

"This is to confirm that we did not observe any fossil material within the reservoir and pipeline footprint, that there are no palaeontological heritage objections to further construction, and no further specialist palaeontological mitigation is considered to be necessary, pending the discovery of any change fossil finds."

No further palaeontologist site inspections are necessary.

4. Access to site

The existing road leading to site was upgraded to provide better access for construction vehicles. Access to site was controlled by the contractor to prevent any unauthorised access to the site.

5. No-Go Demarcation

No-Go demarcation was in place at all times. It was reported that the orange netting at the top excavation area was **not sturdy enough** to prevent the cattle from pushing it over. It was discussed during a site meeting that a stronger, more stable fence be installed to prevent the cattle from entering the excavation/construction

area. The ECO monitored maintenance and adherence to the demarcation during site inspections.

It was recommended during a site meeting that the item for installation of the reservoir boundary fence must be prioritised to prevent the farm animals from entering the construction site.

6. Construction Site

The site camp was fenced off correctly and set up in an area that is not within or adjacent to the sensitive natural area.

Adequate litter bins were provided at the site camp. The contractor was doing **daily litter picking** to keep the site neat and tidy.

Portable toilet facilities were available on site for male and female construction workers.

A bunded concrete mixing area, which was lined with a non-permeable layer, was created for small patchwork.

Major works were done with Ready-mix concrete – **Ready-mix trucks were not allowed to rinse out anywhere on site – nothing reported.**

No construction activity (OR RUBBLE/WASTE) occurred in the natural vegetation area – this is not approved by the Department of Environmental Affairs.

7. Dust Management

No dust issues were reported to the ECO or noted by the ECO during the construction period. The dust mitigation measure must be implemented, as and when required. This will include spraying of water on gravel roads or exposed areas that generate dust or covering haul roads / exposed areas with wood chip to reduce the generation of dust – where necessary. This includes the management of dust originating from any of the stockpiles.

8. Rehabilitation

Final rehabilitation around the reservoir must still be done once testing and subsequent backfilling and shaping is complete. An indigenous grass seed mixture consisting of equal parts of Kweek (*Cynodon dactylon*), and ryegrass (*Lolium multiflorum*) (2g/m² of each) sown over lightly raked topsoil is recommended.

Additional erosion protection below the outlet structure is required – a small series of small soil berms seeded with the indigenous grass seed mixture described above.

The rising main pipeline (disturbance area) has recovered to the satisfaction of the ECO.



A series of small soil berms is required below the outlet structure to prevent soil erosion.



Rising main pipeline is rehabilitated to the satisfaction of the ECO

CONCLUSION

The construction site was kept neat and tidy throughout the construction period and without any environmental damage. The ongoing monitoring and maintenance of the infrastructure now falls on the Mossel Bay Municipality and they must ensure compliance with **Section 7** of the **EMPr** as reported above.

Future phases must comply with the EMPr to ensure that no environmental damage is caused throughout the construction period.

Section in EMPr		Reservoir - TDR69/2020/2021 Pump station – TDR70/2020/2021
5.1	Pre-Construction phase	
5.1.1	All construction staff must be briefed by the ECO in an environmental education programme regarding the environmental status and requirements of the site, prior to any activities commencing on site.	Compliant – Environmental induction was done with all staff
5.1.2	Before the contractor(s) begins each construction activity the contractor and Site Agent must, prior to the commencement of such activity involving construction, maintenance, or rehabilitation, give the ECO a written plan setting out the method statement.	Compliant and ongoing communication with contractor.
5.1.3	As topsoil is a valuable resource, it must be stripped from all construction areas before work commences in that specific area and stockpiled at an area approved by the ECO.	Compliant – see number 2 above.
	Any surplus subsoil that needs to be stockpiled for cut and fill operations must be stockpiled in an approved stockpile area as agreed to by the ECO.	Compliant – landowner provided consent letter for dumping/storing on his farm.
	No pollutants (e.g., Bedding sand, cement etc.) to be dumped on site	Compliant
	Silt fencing needs to be installed before construction works commence (in the areas with a steep slope, or as instructed by the ECO) to ensure that there is limited movement of silt on site.	Not yet necessary
5.1.4	<u>Specific requirements in terms of the Paleontological Impact Assessment</u> Before construction starts , a professional palaeontologist must be commissioned to record and judiciously sample petrified wood and any other significant fossil material exposed during the construction phase of the project, while bedrock excavations for the reservoir are still unsealed.	Compliant – See number 3 above.
	The Environmental Control Officer (ECO) responsible for the reservoir development must be aware of the possibility of important fossils (e.g., shells, petrified wood, plant remains, trace fossils, mammalian bones and teeth) being present or unearthed on site and must regularly monitor all substantial excavations into superficial sediments as well as fresh (i.e., unweathered) sedimentary bedrock for fossil remains	ECO to continually monitor during site inspections.
	Should it be suspected that an object or structure of heritage or paleontological value has been uncovered during earthworks or the clearing of vegetation (including but not limited to bones, burial sites, structures older than 50 years, stone tools, shell middens, pottery etc.), then all work is to immediately cease , and the ECO is to be contacted to inform Heritage Western Cape (HWC). Work shall not recommence until HWC have visited the site, inspected the object in question and advised on how to proceed. If the object requires removal by a trained archaeologist, this process will be at the expense of the developer. It is the contractor's responsibility to ensure all staff on site is aware of this procedure.	ECO to continually monitor during site inspections.
5.2	General Construction Requirements	
5.2.1	The construction area must be demarcated to prevent any encroachment into agricultural or sensitive vegetation areas.	Compliant
	All topsoil must be stripped from the area required and stockpiled in the site camp or area as approved by ECO, for later use in rehabilitation.	Compliant – see number 2 above.
	All excess soils that will not be used must be disposed of at a licensed landfill site.	
	Care must be taken when working with concrete, no concrete to be spilled or mix on the ground. This must be done on suitable trays.	Compliant – cement/concrete is mixed in bunded area.
5.2.3	<u>Access to the Site</u> No unauthorized access to the site permitted – gate to be kept closed at all times.	Compliant – see number 4 above.
	Construction vehicles to use existing access routes or if not available can only use one route per site to minimize the	

	potential environmental impact. These access routes must be confirmed prior to construction with the appointed ECO. The access roads will be upgraded and repaired but not widened. The roads will either be surfaced with gravel, or a two-spool concrete track will be made. Access to the area is to be monitored during construction	
5.2.4	Site agent The contractor must appoint a responsible agent to ensure that they comply with this EMP and all its conditions.	Klasie Lategan
5.2.6	Demarcation of No-Go areas No Go demarcation must be in place and maintained throughout the construction period. The No-Go areas must be kept clear of any construction material/vehicles as well as stock piling of vegetation matter and topsoil All construction activities must be restricted to the demarcated areas to ensure that no further disturbance into the surrounding vegetation. Access into the No-Go areas by personnel is strictly forbidden (i.e., Work breaks such as lunch are not permitted outside the defined work area - no entry into the neighbouring properties or open space areas). A spot fine will be imposed against the contractor in the event of contravention of the no-go policy up to a maximum of R5 000 per incident). Construction site camp The contractors' site camp, offices and storage facilities shall not be located within or adjacent to an environmentally sensitive area. Portable ablution facilities (chemical toilets) are to be provided at the camp site for use of the staff. A fenced off area must be created within the camp site for refuse and waste management. No open fires are to be permitted due to the risk of fire.	Compliant - See number 5 above. Compliant - see number 6 above.
5.2.8	Storage of construction material The following must be adhered to (if not within the construction site camp): All stockpile sites to be approved by the ECO prior to the commencement of stockpiling. All stockpile sites to be properly demarcated with silt-fences and/or danger tape, where necessary. Silt protection measures around stockpile sites must be implemented, if required.	Compliant - Construction material to be stored in the construction site camp and topsoil & subsoil stockpiles at the approved areas. See numbers 2 & 6.
5.2.9	Fire protection No open fires or naked flames for heating or cooking shall be allowed on site. The contractor must ensure that all personnel are aware of the fire risk and the need to extinguish cigarettes before disposal. Cigarettes shall not be disposed of in the veld and must be disposed of properly in receptacles. No burning of waste on ANY PART of the site is permitted.	Contractor to take note of this.
5.2.10	Health and Safety The H&S Officer is to copy the ECO in on his/her reports for record purposes.	Health and safety officer to monitor compliance
5.2.11	Waste management Recycling must be encouraged on-site and recycling bins must be provided and clearly marked. Disposal of all waste materials must be done at suitable facilities. No dumping of any waste material on or off-site is permitted. The contractor shall ensure that the site is maintained in a neat and tidy condition and kept free of litter (including the adjacent open space area). At all places of work, the contractor shall provide litter bins, containers and refuse collection facilities for later disposal. Litter to be removed from the site daily (through	Compliant - ongoing monitoring to be done.

	daily litter picking before the site is closed for the day). Rubbish bins must be provided on-site and regularly cleaned / emptied.	
	Solid waste (construction rubble etc.) is to be temporarily stored on-site in a designated area approved by the ECO prior to collection and disposal. Solid waste must be removed on a weekly basis to a licensed municipal waste site.	
5.2.12	<u>Ablution Facilities</u> Contractors must provide chemical ablution facilities for all construction personnel working on the site. The number of chemical toilets required must adhere to the H&S requirements applicable at the time of the contract.	Comply – see number 6 above.
5.2.13	<u>Concrete and Cement Works</u> The contractors will use ready-mix concrete for the reservoir but when any other concrete work take place on site then it must be mixed on trays and not directly on the soil . No concrete or cement contaminated water is allowed to be disposed of anywhere along the construction route or in the adjacent sensitive vegetation area (to the north).	Comply – see number 6 above.
	No ready-mix trucks are permitted to rinse their tanks on site or along the access roads to and from the site. Any spillage is to be immediately cleaned by the responsible contractor / supplier / owner.	Contractor must take note of this.
6.	<u>Rehabilitation Phase</u>	
	<u>Rehabilitation of damaged areas will include, but is not limited to the following:</u>) All building rubble and waste must be completely removed and disposed of at an approved landfill site.) Compacted topsoil must be raked loose.) Agricultural areas to be reinstated as required by the landowner.) Existing farm tracks / roads used during construction to be left to the satisfaction of the landowner.) Contaminated soil must be disposed of at an approved landfill site.) Stockpiled topsoil to be placed back (on top) and NOT compacted.) Indigenous grass seed must be sown within the disturbed and affected areas (as indicated by the ECO);) Implementation of additional erosion control methods as required.) Planting of screening vegetation around the reservoirs can be considered and ECO will advise on suitable species.) Maintenance of storm water system until handed over to the local authority.	) Compliant –) Excess construction material and rubble were removed;) Compacted soil was ripped;) Agricultural land was reinstated and is currently in use;) Access tracks are in good condition;) No contaminated soil noted during final inspection;) Grass is growing in the disturbed areas;