
DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

PROPOSED CONSTRUCTION OF A NEW BULK WATER PIPELINE WITHIN 32 m OF A WATER COURSE, RACEWAY PARK DEVELOPMENT, BLOEMFONTEIN

Applicant: Mangaung Metro Municipality
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1. INTRODUCTION

1.1. Proposed project and associated construction activities

The proposed project entails the proposed installation of a 700 mm pipeline for bulk water services for the Raceway Park Development planned in the eastern part of Bloemfontein. The purpose of this environmental application is however only for the area of the pipeline crossing over the Bloemspruit. The rest of the pipeline occurs within the urban edge and thus does not trigger any environmental activity. This site is located in the eastern part of Bloemfontein on the Farm Bloemfontein 654, owned by the Mangaung Metro Municipality.

1.2. Objectives of the EMPr

The EMPr aims to fulfill the requirements as specified in Section 33 of Regulations No. R. 543 (18 June 2010) in terms of the National Environmental Management Act (Act 107 of 1998), with the following objectives:

- To promote the integration of the principles of environmental management, set out in Section 2 of NEMA, into the making of all decisions which may have a significant effect on the environment.
- To identify, predict and evaluate actual and potential impacts on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impacts, maximizing benefits and promoting compliance with the principles of environmental management.
- To identify and employ the modes of environmental management best suited to ensuring that the activity is pursued in accordance with best environmental management practices.

- To ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them.
- To ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment.
- To ensure the consideration of environmental attributes in management and decision-making which may have a significant effect on the environment.
- To be able to respond to unforeseen events.
- To provide feedback on compliance.

1.3. Implementation of the EMPr

- The project applicant, namely Mangaung Metro Municipality, is responsible for the implementation of the EMPr.
- All construction contractors and operation phase facility managers / supervisors should be supplied with a copy of the EMPr and should ensure that construction staff adheres to the mitigation measures.
- The applicant should ensure that the contractors adhere to the recommendations of the EMPr and conditions of the Environmental Authorisation during construction.
- An Environmental Control Officer (ECO) can be appointed separately or can be part of the contractor's team to monitor the activity.

1.4 Environmental Awareness Plan

During site establishment and before construction activities commence all employees must be aware of the following:

- Point out the areas that are not to be impacted on and that require protection.

- Explain the possible impacts as listed in the reports.
- Inform construction staff of the conditions of the Environmental Authorisation and recommendations of the EMPr.
- Explain risks and emergency procedures.
- Impose an understanding of pollution and degradation of the environment that may result from the construction work.
- Advise on the importance of containing the footprint of the construction site.
- Advise on the aims of rehabilitation, post construction.
- The above should also be communicated to any new employees that join the team during the construction period.

2. PREPARATION OF THE EMPr

2.1. Person(s) who prepared the EMPr

- i) Mr. Neil Devenish
- ii) Ms. Marike du Plessis

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2.2. Expertise of the person(s) who prepared the EMPr

- i) Mr. Neil Devenish
Key qualifications:
 - Key competencies and experience include development control applications (applications and appeals pertaining to rezoning,

consolidations, subdivisions etc.) township establishment applications, environmental management and control applications.

Education:

- B. A. (Sociology, Geography) University of the Free State, SA, 1994
- Master of Town and Regional Planning, University of the Free State, SA, 1996
- Managing the Environmental Impact Assessment Process, Environmental Management Unit, PU for CHE, 2000
- Environmental Management Consulting, South African Institute of Ecologists & Environmental Scientists, 2001
- Water Law of South Africa, The South African Institution of Civil Engineers (SAICE), 2006

ii) Ms. Marike du Plessis

Key qualifications:

- Key competencies include environmental management and research in geology.

Education:

- B.Sc. (Geology), University of the Free State, South Africa, 2005
- B.Sc. Honors (Geology), University of the Free State, South Africa, 2006

3. RECOMMENDED MANAGEMENT AND MITIGATION MEASURES

The following measures should be considered at all times during the phases of planning, construction and rehabilitation.

- i. The environment is composed of biophysical and social components.

- ii. Any construction is disruptive and the environment must be given consideration with every activity undertaken.
- iii. All relevant standards relating to legislation should be adhered to (including waste emissions, waste disposal, noise regulations etc.).
- iv. Effort should be made to minimize and recycle waste materials.
- v. According to Section 28 of the National Environmental Management Act 107 every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring and if it can't be avoided or stopped, to minimize and rectify such pollution or degradation of the environment.

3.1 Planning Phase / Site Preparation

- i. A dedicated person will be appointed to ensure compliance with the approved EMPr, Environmental Authorisation (EA) and best practices on site.
- ii. The contractor will ensure that the environment within the site area is protected.
- iii. Controlled access will be implemented to ensure that no unlawful entry to site is obtained and will prevent degradation of the environment in the nearby vicinity.
- iv. The necessary Water Use License will be obtained before construction over the stream crossing commences.
- v. If an artifact, grave or fossil is uncovered during construction activities, work in the immediate vicinity is to be stopped until the project Archaeologist and / or Palaeontologist and the relevant authorities have been consulted.

3.2 Construction Phase

3.2.1 General

- i. The EMPr, EA and layout plan will be available on site during the construction phase.
- ii. The applicant will ensure that the contractor is qualified and complies with the conditions stipulated in the EMPr and EA, as well as best practices.
- iii. The applicant will be held responsible for all environmental issues on site during construction.
- iv. Any factors that contribute to negative environmental impacts will be corrected as soon as possible.
- v. A compliant -, environmental incident - and safety incident reports will be available on site, during the construction phase.
- vi. Clean water will be made available daily to workers on site.
- vii. Drainage of water will be properly designed according to the nature of the site so that the existing flow pattern is not disturbed but copied.
- viii. No additional activities will be undertaken without the investigation of the potential necessity to perform and EIA in terms with the NEMA Regulations of 2010.
- ix. Adequate provision must be made for drinking water, sanitation and ablution facilities for workers.
- x. A dished concrete service area will be provided for any servicing and washing of vehicles.

3.2.2 Water resources

- i. Caution must be taken to ensure that construction materials are not dumped or stored within the waterway(s) and buffer zones of 32 m.
- ii. Emergency plans must be in place in case of spillages into any water resource.
- iii. Erosion control of all banks must take place so as to reduce erosion and sedimentation into any water source.
- iv. Construction activities in the waterway(s) should be limited through proper demarcation and appropriate environmental awareness training. The Contractor is responsible to inform all staff of the need to be vigilant against any practice that will have a harmful effect on waterways.
- v. Infilling, excavation, drainage and hardening of surfaces should not occur unnecessarily in waterway(s) (i.e. permanent, seasonal or temporary), or within 32 m thereof. This 32 m buffer zone should be extended in areas where slope in combination with rainfall will potentially provide conditions for the transportation and deposition of materials with the water resource(s).
- vi. It should be ensured that the pipeline should have minimal effect on the flow of water.
- vii. Construction time and footprint within the streams must be kept to a minimum.
- viii. No natural watercourse is to be used for the cleaning of tools or any other apparatus. This includes for purposes of bathing, or the washing of clothes etc.

- ix. No spills may be hosed down into storm water drains or sewers, or into the surrounding natural environment.
- x. No dumping of construction rubble or building material into Bloemspruit.

3.2.3 Handling and storage of materials

- i. All chemicals used during the development, including fuel for the construction vehicles, should be stored in a proper storeroom or protected area to prevent pollution.
- ii. Vehicles should be serviced at designated areas. No oil, diesel or other chemicals may be spilled or discharged anywhere.
- iii. Where applicable, the contractors must ensure that all relevant national, regional and local legislation regarding storage, transport, use and disposal of petroleum, chemical, harmful or hazardous substances and materials are adhered to.
- iv. Cement and concrete mixing, if applicable, should only take place within the construction site. No concrete may be mixed directly on the ground.
- v. All environmental problems occurring on the site such as chemical spillage, wasteful water disposal etc. should be reported to the ECO.

3.2.4 Leakage or spillage of hazardous material

- i. All chemicals used during the development, including fuel for the construction vehicles, will be stored in a proper store room or protected area to prevent pollution.
- ii. Bund walls will have a capacity of at least 110% of the total capacity of the stored volume.
- iii. Drip trays will be used during the servicing of vehicles as well as the transfer of hazardous substances from transportation vehicles.
- iv. No oil, diesel or other chemicals may be spilled or discharged anywhere.
- v. The contractors must ensure that all relevant national, regional and local legislation regarding storage, transport, use and disposal of petroleum, chemical, harmful or hazardous substances and materials are adhered to, where necessary.
- vi. Cement and concrete mixing should only take place within the construction site. No concrete may be mixed directly on the ground.
- vii. All environmental problems occurring on the site such as chemical spillage, wasteful water disposal, etc. should be reported to the Applicant or Environmental Consultant.
- viii. Suitable covered receptacles will be available at all times and conveniently placed for the disposal of hazardous waste (if any).
- ix. Visual inspections will be undertaken regularly by the ECO to ensure that all leakages / spillages are cleaned

- up and the place of spillage / leakage will be rehabilitated as soon as possible.
- x. No major services may be undertaken on site. In the event of small repair and services of machines on site, drip trays will be used to prevent spillage.
 - xi. Spills of any product (such as paint, oil, cleaning agents, etc.) will be cleaned up immediately by removing the spillage together with the polluted soil and by disposing it at a recognized facility or treated by means of a bio-degradable substance.
 - xii. Drip trays and bunds must be emptied regularly, especially before a known rain event and after a rain event and the contents disposed of at an authorised disposal facility or oil recycling company.
 - xiii. All used oils, grease, hydraulic fluids, etc. that cannot be re-used shall be placed in a hazardous waste container to be disposed of at a recognized facility.
 - xiv. All vehicles will be well maintained to ensure that there are no oil or fuel leakages.

3.2.5 Waste management

- i. Waste streams will be identified and will be separated (e.g. general waste, hazardous waste, recyclable waste, etc.) and a sufficient number of suitable receptacles will be placed at the construction site.
- ii. The contractor will be responsible for the removal of construction waste.

- iii. All general solid waste produced will be disposed of at an authorised landfill site.
- iv. All hazardous waste should be disposed of at an authorised hazardous landfill site.
- v. Recyclable waste will be sold or re-used, where possible.
- vi. No littering is allowed and all litter must be removed from site.
- vii. No burning or burying of waste may take place on site.
- viii. Proper sanitation, water and waste facilities will be in place for construction workers.
- ix. Chemical toilet facilities will be provided on site during the construction phase.
- x. The site shall be kept in a neat and tidy condition. No littering is permitted.
- xi. Toilet facilities must be implemented in such a way that they do not cause water or other pollution. Disposal of untreated effluent in the environment will be prohibited.
- xii. Chemical toilets will be cleaned regularly and proof thereof will be available on site.
- xiii. The site shall be maintained in a neat and tidy condition.

3.2.6 Soil management

- i. Soil disturbance should be kept to a minimum.
- ii. Topsoil will be removed from all areas where physical disturbance of the surface will occur.

- iii. Topsoil will be kept separate and not be utilized for any construction activities.
- iv. Removed topsoil is to be stockpiled in an area where it will not be disturbed by vehicles and above the 1:100 flood lines. Measures should be implemented to protect topsoil from washing away during rainstorms (e.g. one layer of brick / stones to be placed around stockpiles).
- v. Re-spreading of topsoil is preferably to be done to a maximum of 10 cm or to its original depth.
- vi. Construction activities should be limited to designated construction areas to prevent peripheral impacts on surrounding natural habitats.
- vii. Wherever the removal of topsoil is necessary the topsoil should be stockpiled separately and protected against weed infestation and erosion.
- viii. Topsoil should be replaced on top of the soil surface where it has been removed as soon as possible.

3.2.7 Erosion and storm water management

- i. Erosion management is imperative. Rehabilitation of disturbed areas is important to help the recovery of the vegetation.
- ii. Soil erosion occurrences should be attended to immediately.
- iii. Access roads will be maintained so that no erosion will occur.

- iv. Erosion berms should be designed so that the intervals between them ensure maximum soil retention during heavy rains (where applicable).
- v. Drainage of water on the site will be properly designed according to the nature of the site so that the existing flow pattern is not disturbed but rather copied.
- vi. Stockpile areas will be kept leveled to ensure free-drainage as this will prevent ponding of surface water and limit erosion.
- vii. Stockpile areas will not be situated within natural drainage systems or areas prone to erosion.

3.2.8 Protection of animal life

- i. No animals or birds on the site may be harmed in any way and includes capturing, trapping or hunting. This must be strictly enforced.
- ii. Animals that live within the construction site will be removed and translocated to areas where the animals will not be disturbed, where possible. In the event of poisonous snake or other dangerous animals encountered on the site an experienced and certified snake handler or zoologist must remove these animals from the site and re-locate them to a suitable area.

3.2.9 Access roads

- i. The contractor will make use of existing roads as far as possible.
- ii. During construction of any temporary access roads, the contractor will make necessary provision for erosion and storm water control.

- iii. In the case of dual or multiple uses of access roads, arrangements for multiple responsibilities must be made with the other users.
- iv. If not, the maintenance of the access roads will be the responsibility of the applicant.

3.2.10 Dust control

- i. The formation of dust will be controlled if it becomes problematic by the use of water spraying and / or other dust-allying agents.
- ii. The speed of vehicles making use of the access road and / or site will be limited to 35 km/h to avoid dangerous conditions, the formation of dust and the excessive deterioration of the roads being used.
- iii. Stockpile areas will be planned and positioned as best as possible to reduce exposure to wind erosion and will not be positioned directly alongside existing structures or properties.

3.2.11 Noise control

- i. Construction activities will be limited to normal working hours.
- ii. Machinery and vehicle silencer units are to be maintained in good working order.

3.2.12 Safety and security

- i. The site will be fenced for security as well as biosecurity purposes.

- ii. Controlled access will be implemented to ensure that no unlawful entry to site is obtained and will prevent degradation of the environment in the nearby vicinity.
- iii. The contractors must comply with the Occupational Health and Safety Act, National Building Regulations and any other national, regional or local regulations with regard to safety on site. Construction contracts must include safety and security measures for staff.
- iv. If activities that can cause a fire are carried out, fire extinguishers will be available on site and in the construction camp.

3.2.13 Plant rescue and protection

- i. Natural vegetation will not be disturbed unnecessarily.
- ii. No open fires will be allowed on site.
- iii. No firewood will be collected on site or in surrounding areas.
- iv. The establishment of alien vegetation will be monitored and areas with extensive growth of alienated species will be cleared thereof.
- v. Heavy vehicles will use the same routes / roads on the site throughout the construction period, in order to prevent any unnecessary damage to surrounding vegetation.
- vi. Species, especially grasses, trees and shrubs occurring in the region must be used to rehabilitate disturbed areas.
- vii. Smoking shall not be permitted anywhere on the site other than in a designated smoking area which has been cleared of all flammable material and where a

suitable container is provided for extinguished cigarettes.

3.2.14 Re-vegetation and habitat rehabilitation

- i. All activities will be undertaken within an area approved by the ECO, within the area indicated in the EIA and EA.
- ii. Topsoil will be stockpiled separately with the natural seed bank intact.
- iii. The topsoil will be protected against weed infestation and erosion.
- iv. After termination of activities, the disturbed areas will be rehabilitated to acceptable standards.
- v. Hydro-seeding will be investigated for the rehabilitation of the disturbed areas if the natural establishment of vegetation does not occur within a reasonable time period.

3.2.15 Alien invasive management

- i. The area will be inspected regularly for the presence of invader weed species.
- ii. Stockpiled topsoil must be continually cleared of any weed growth to prevent the invasion of alien plants.

3.2.16 Protection of environmental sensitive areas

- i. Environmental sensitive areas (if any) will be identified by the ECO.

- ii. Proper mitigation measures to protect the identified areas from construction activities will be implemented and monitored by the ECO.

3.2.17 Site clean-up and rehabilitation of construction

- i. After construction of the pipeline the area must be rehabilitated to acceptable standards.
- ii. Temporary structures and office sites shall be dismantled and removed after completion of the construction and operational phases of the project.
- iii. All waste, equipment, materials, etc. used during construction and not to be used during the operational phase must be cleared from the site. The contractors must ensure that the site is cleared and rehabilitated according to best practices and Section 28 of NEMA (Duty of Care).
- iv. All litter must be removed from site.
- v. After construction the areas cleared of vegetation will be susceptible to infestation by invader weed species. The site should be monitored for the presence of invader weed species to be removed.
- vi. Re-vegetation of disturbed areas must be undertaken with site indigenous species.
- vii. Areas that have become compacted due to construction activities should be ripped.

3.3 Operational Phase

- i. Regular inspections of the pipeline route should be done to identify leakages. These should be attended to immediately.

- ii. A waterway monitoring programme should be implemented to ensure that the affected waterway(s) are adequately rehabilitated.
- iii. Maintain the proposed road and associated infrastructure in good working order.
- iv. The occurrence of alien vegetative growth will be monitored.
- v. Soil erosion occurrences will be attended to immediately.
- vi. Any factors that contribute to negative environmental impacts will be rectified as soon as possible.
- vii. Refuse removal must be improved and campaigns against littering may alleviate the impacts of refuse on the seasonal stream.

3.4 Decommissioning / Closure Phase

It is not foreseen that the operational phase will cease in the nearby future. If decommissioning is however decided upon, a rehabilitation plan will be developed and will amongst other, include the following:

- The demolishing of infrastructure and the rehabilitation of the site.
 - No structures (mobile or otherwise) will be left behind, unless indicated in the rehabilitation plan.
 - The area will be ripped and leveled.
 - Seeding with natural occurring vegetation will take place if the tempo of natural re-vegetation is insufficient.
 - The end-use of the area will be kept in mind during the compilation of the rehabilitation plan.
- i. The applicant will:
 - Ensure that proper mitigation measures are implemented to protect the environment against long term negative environmental impacts.

- The environment is cleaned up of any contaminants.
- Ensure that erosion is prevented through regular monitoring and the implementation of rehabilitation measures at degraded areas.
- Prevent alien plant species to spread in the area.

4. COMPLIANCE AND MONITORING

- i. The contractors will be responsible for ensuring EMPr compliance during the construction phase.
- ii. The applicant will ensure that the contractors adhere to the recommendations of the EMPr, EA and best practices during construction.
- iii. An ECO can be appointed separately or can be part of the contractor's team to monitor the construction phase.
- iv. Regular internal monitoring and / or spot inspections at least every fortnight during the construction phase is recommended.
- v. Inspections will be documented and any shortcomings addressed immediately.

5. REPORTING

- i. Any changes of the layout plan or technology will be submitted to the relevant environmental department for attention.
- ii. Reports confirming compliance with various points identified in the EMPr will be kept and made available when requested.
- iii. Any emergency or unforeseen impact will be reported to the relevant environmental department within 24 hours after identification for telephonic approval and will be confirmed in writing.