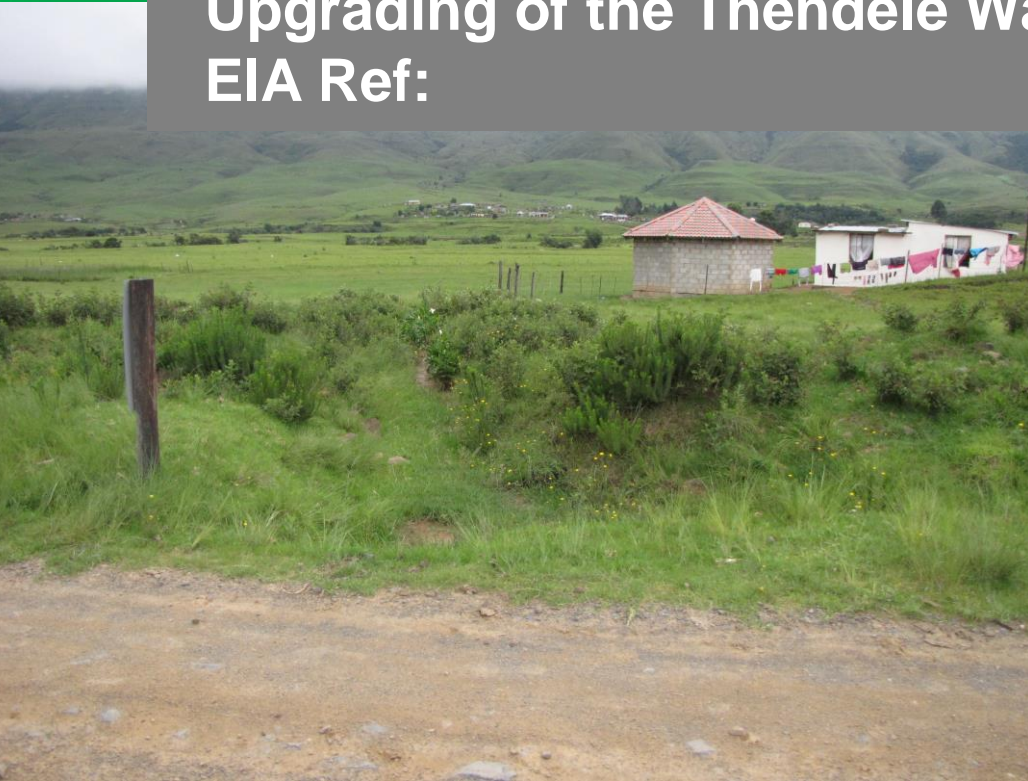


November
2015

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Environmental Management Program
Upgrading of the Thendele Water Supply Scheme
EIA Ref:



EnviroPro



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SECTION 1

INTRODUCTION, PROJECT AND SITE DESCRIPTION

1.1. Background

The Umgungundlovu District Municipality propose to upgrade the Thendele Water Supply Scheme within Ward 2 of the Mpofana Local Municipality (Figure 1). Water is currently supplied by a borehole however yield has dropped steadily over the past few years. The existing reticulation is very basic with no bulk pipelines in place. Due to the remote nature of Thendele, a bulk municipal water supply is not possible and therefore a new borehole is proposed to supply the community. The borehole is located at 29°22'46.6"S; 29°40'56.8"E.

A 500kl reinforced concrete reservoir will be constructed on top of a hill to the south of the Thendele community (29°22'54.89"S; 29°41'11.03"E). The location of the proposed reservoir is shown in Figure 4 and lies within the boundary of the declared uKhahlamba Drakensberg World Heritage Site. All proposed pipes will be dug in trenches approximately 60cm wide and less than 1m deep. As far as possible the new pipeline has been aligned alongside the existing roads and footpaths, with an offset of approximately 3m, to cater for any future road widening or realignments.

There are 15 points where the proposed pipelines cross watercourses and therefore required Environmental Authorization (EA). The entire project area was assessed as all new infrastructure lies within 5km of the uKhahlamba Drakensberg World Heritage Site (Kamberg Nature Reserve). A site-specific Environmental Management Program (EMPr) was required as a condition of the EA and is to be adhered to by Contractors on site.

1.2. Scope of Work

Prepare a site specific EMPr for the upgrading of the Thendele Water Supply Scheme in order to manage and mitigate potential environmental impacts identified in the Basic Assessment process during construction. The provisions of this EMPr are binding on the contractor throughout the life of the contract.

1.3. General Principles and Purpose of the EMPr

The purpose of this EMPr is to provide guidance to all contractors and site workers on how to operate in a responsible manner so as to achieve these goals and ensure that the requirements of the legislation are met. This EMPr is a working document to be used during construction and has been generated to ensure:

- The protection of the environment during the construction period.
- All emissions to air, water and soil are controlled and managed so as to mitigate their impacts on the environment and surrounding communities.
- Nuisance factors associated with construction are controlled as far as is reasonably possible.
- The correct principles are followed from the very beginning during site set up thereby reducing frustrations on the part of the contractor when asked to comply with the strictures of the EMPr and relevant environmental legislation.
- The post construction clean-up is carried out correctly so as to avoid any long-term environmental impacts and meet the legislated requirements.

This EMPr is subject to change as brought about by variations in the project specification and any changes must be approved by the relevant authorities.

1.4. Responsibilities

The Project Applicant (uMgungundlovu Municipality) is responsible for:

- Ensuring that the engineer and contractors comply with the approved EMPr.
- Ensuring compliance with the provisions for duty of care and remediation of damage in accordance with section 28 of the National Environmental Management Act (NEMA), (No. 107 of 1998) and its obligations regarding the control of emergency incidents in terms of Section 30 of NEMA.

- Notifying the relevant authorities (EDTEA) of any incident as defined in subsection 30(1)(a) of NEMA.

The Project Manager or Engineer is responsible for:

- Appointing the appropriately qualified contractor and ensuring that they have read and understood the EMPr.
- Ensuring all work undertaken is in accordance with the EMPr.
- Ensuring adherence to safety, health and environment (SHE) standards and ensuring the construction activities comply with the EMPr.
- Arranging for the site to be monitored on a daily basis to ensure compliance with the EMPr.
- Overall responsibility and accountability for the site during the construction phase.
- Mitigating impact on the environment through responsible operation and adherence to the EMPr.
- Ensuring transparency in their operation and environmental management of the site.
- Managing the contractor to ensure that they adhere to the EMPr and ensuring that all necessary documentation is maintained on site.
- Ensuring that the contractor has a copy of the EMPr and Method Statements.

The Site Contractor(s) is/are responsible for:

- Providing a suitable person to operate as Environmental Officer (EO) to undertake the monitoring of the day to day requirements of the EMPr.
- Operating in accordance with the EMPr and carrying out construction activities with due care and diligence.
- Ensuring that any communications from stakeholders are reported to the Environmental Control Officer (ECO).
- Maintaining relevant documentation for review by the ECO.

The Environmental Officer (EO) or designated Safety Health Environment (SHE) officer is responsible for:

- Daily compliance monitoring of construction against the requirements set out in this EMPr and the environmental authorization.
- Ensuring that all site staff are adequately trained in environmental matters.
- Liaising with site staff and I&APs through the Community Liaison Officer (CLO), if required.
- Must be conversant with the applicable legislation pertaining to the environment.
- Liaise directly with the ECO on the monthly audit findings.
- Identification of possible areas of improvement during construction.
- Monitoring the construction site on a regular basis and recording key findings.
- Advising the Project Manager and the contractors on environmental matters.
- Provide appropriate recommendations to address and rectify these matters.
- Monitoring implementation of the EMPr by the contractor.
- Work hand in hand with the health and safety officer.
- Maintain records pertinent to the requirements of the EMPr.

The Environmental Control Officer (ECO or Independent environment practitioner) is responsible for:

- Conducting regular auditing against the requirements of the EMPr and Environmental Authorization.
- Liaising directly with the EDTEA and supplying them with copies of the audit reports.
- Liaising directly with the contractor and EO and supplying them with a copy of the audit reports.

1.5. Monitoring

The key to a successful EMPr is appropriate monitoring and review to ensure effective functioning of the EMPr and to identify and implement corrective measures in a timely manner. The EO should be responsible for day to day monitoring and reporting while the ECO should undertake to monitor the site on a monthly basis. The day to day monitoring should be conducted by the EO in conjunction with the contractor and the engineer. The monthly audit report by the ECO can then be used to provide external monitoring and reporting to EDTEA Compliance and Enforcement. Paramount to the reporting of non-conformances or incidents is that appropriate corrective and preventive action plans are developed and adhered to. Photographic records of all incidents and/ or non-conformances should be retained.

1.6. Applicable Legislation

The site engineer should be aware of any compliance issues raised by the EO and ECO and should ensure that the necessary corrective measures are implemented. As per the National Environmental Management Act No 107 of 1998 (Section 28), offending parties may be held financially accountable for any pollution or environmental damage.

The following environmental legislation should be adhered to:

- Constitution of South Africa (Act No. 108 of 1996)
- National Environmental Management Act (Act No 107 of 1998) – NEMA
- Environment Conservation Act (Act No 73 of 1989)
- National Heritage Resources Act (Act No 25 of 1999)
- National Water Act (Act No 36 of 1998)
- Hazardous Substances Act (Act No. 15 of 1973)
- National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
- Occupational Health and Safety Act (Act No 85 of 1993)
- National Environmental Management: Waste Management Act (Act No. 59 of 2008)
- National Building Regulations and Building Standards Act 103 of 1977
- Relevant local bylaws

1.7. Layout of the EMPr

The EMPr is divided into five sections dealing with an introduction and description of the proposed activity and the site, construction activities and post-construction activities. Section 5 provide definitions and records that can be used to record training, incidents and complaints. Under the construction section, each section deals with a specific aspect of the development i.e. administration and records. Within these sections the specific activity is described and the mitigation action required is provided. The tables have been set up to enable ease of auditing with a section for the EO/SHE officer or ECO to state whether or not mitigation measures have been put in place and to make comment about any problems noted.

1.8. Project Details

The water supply scheme will be constructed in the rural area of Thendele, at the foothills of the uKahlamba Drakensberg World Heritage Site. The pipeline will run through an area of low density rural homesteads and subsistence farms. The pipeline route follows existing roads and tracks, which tend to be disturbed and show a high level of invasion by alien species, although the vegetation associated with Thendele is in good condition. The pipeline travels through two vegetation types, which include the Drakensberg Foothill Moist Grassland (vulnerable) and the Northern Drakensberg Highland Grassland (vulnerable). There are 15 watercourse crossings, which comprise of drainage lines, streams and wetlands. The pipeline will be tied to existing structures, which are in place across the watercourses, where possible. Where there are no structures the pipe will be placed under the smaller watercourses on a stone bed.

Figure 1: The study area outlined in red with the various watercourse crossings shown with blue pins. The World Heritage Site is shaded in green (source: Google Earth Pro, 2015)



1.10. Names and Telephone Numbers of Contact Persons

The following list of contacts must be printed and made clearly visible on the site. Additional emergency contacts should be added as required.

Contact List			
Designation	Organisation	Name	Contact number
Applicant	uMgungundlovu District Municipality Water Service Authority	Simphiwe Zuma	079 682 2528
Consulting Engineer	NME Engineers	Kevin Naidoo	083 779 1308
Independent Environmental Practitioner and ECO	EnviroPro	Josette Oberholzer Iain Jourdan	082 568 3687 082 887 4362 031 765 2942
Environmental Authority (Enforcement & Compliance)	EDTEA		
Contractor			
Heritage Resources	AMAFA	Bernadette Pawandiwa	033 394 6543
	Fire Department		10111
	Police		10111
	Ward Councillor	Mr Khumalo	073 287 2947

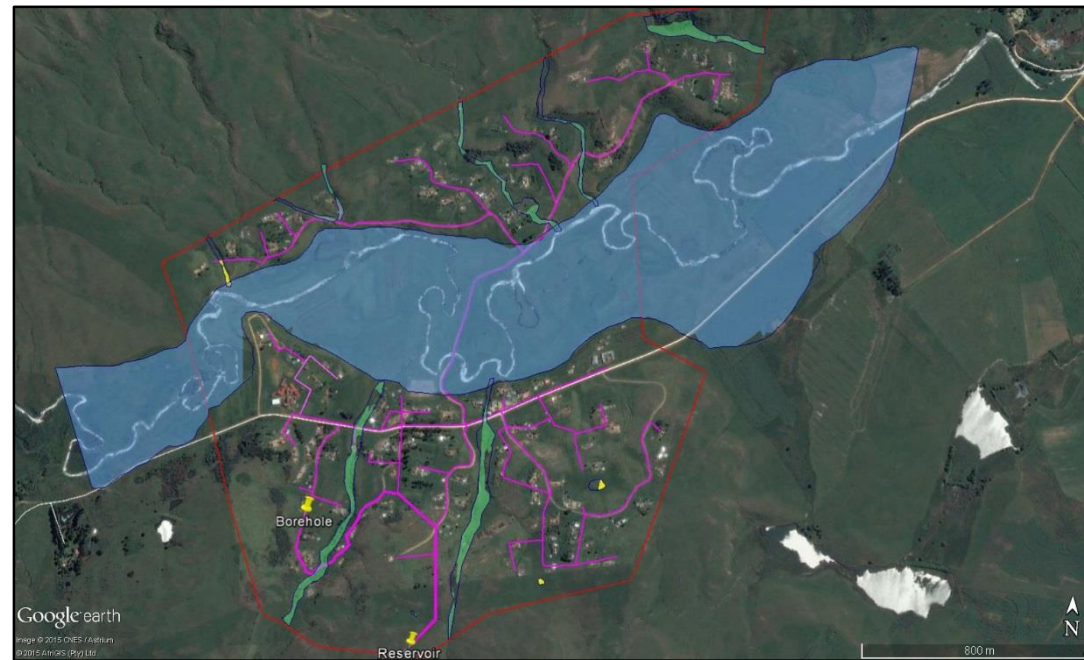
SECTION 2**CONSTRUCTION****2.1 Administration & Records**

Activity / Document	Required Action	In place (Yes / No)	Comments
EMPr	<ul style="list-style-type: none"> Keep a hard copy of the EMPr at the site camp at all times and ensure that it has been signed by the Contractor. 		
	<ul style="list-style-type: none"> All contractors, engineers and anyone associated with the construction must be provided with a copy of the EMPr prior to coming on to site. 		
	<ul style="list-style-type: none"> An initial site meeting must be held with all responsible parties to discuss the EMPr and ensure that all elements are understood. 		
Environmental Authorisation	<ul style="list-style-type: none"> A copy of the Environmental Authorisation (EA) must be kept at the site camp at all times. 		
Appointment of ECO / EO & Audits	<ul style="list-style-type: none"> Appoint an ECO (Environmental Control Officer) prior to commencement of construction to monitor the entire construction phase. Keep proof of appointment and contact details as well as dates of audits. A record of audits conducted on the site as well as findings must be kept on site. Environmental monitoring to take place monthly with audit reports to be submitted to EDTEA. 		
Incident records & Photographs	<ul style="list-style-type: none"> Keep records of incidents and non-conformances that have occurred and how they were remediated. <ul style="list-style-type: none"> Photographs must be taken when incidents or non-conformances occur with follow up pictures to demonstrate remediation. These must be kept on record. Please see the definition of an incident and non-conformance as defined below. 		
Permits & Approvals	<ul style="list-style-type: none"> Keep all necessary permits and approvals on file i.e. construction licences, water use license etc. 		
MSDSs	<ul style="list-style-type: none"> Material Safety data Sheets (MSDSs) are to be kept on site for all hazardous materials. 		

Records	<ul style="list-style-type: none"> An environmental site file must be kept for storage of environmental documentation i.e. training records, hazardous substances inventory, EMPr, EA etc. in order to prove compliance with this EMPr. 		
Proof of Environmental training	<ul style="list-style-type: none"> Keep training attendance registers on file as proof that environmental training including training on protection of sensitive areas has taken place. 		
Identification of services	<ul style="list-style-type: none"> All existing services must be identified prior to construction as standard practice. 		
Proof of raw material sourcing and resource use	<ul style="list-style-type: none"> Proof of sustainable sourcing of all materials used must be obtained and documented especially for raw material i.e. topsoil, sands, natural gravels, crushed stone, clay liners, timber etc. <ul style="list-style-type: none"> E.g. sand may only be obtained from an approved sand winning operation which is licensed by the Department of Mineral Resources (DMR) and has an approved EMPr for operation. Where materials are borrowed (mined), proof must be provided of authorization to utilise these materials from the landowner / mineral rights owner and DMR. 		

2.2 Site Camp, Storage & Handling of Hazardous and Non Hazardous Materials & Stockpiling			
Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Location & Establishment of construction camp	<ul style="list-style-type: none"> The construction camp must be marked out with the approval of the ECO. 		
	<ul style="list-style-type: none"> The site camp must be located on a flat portion of land which can be rehabilitated once construction is complete. Do not set up the construction camp within 32m of any watercourse or delineated wetlands (Figure 2). Ensure that permission is obtained from the relevant landowner before setting up the site camp. The site camp must be clearly demarcated and fenced off to prevent illegal entry. 		

Figure 2: Delineated wetland areas to be avoided (source: The Biodiversity Company, 2015)



- The following areas must be demarcated and clearly marked within the construction camps:
 - **A waste storage area**
 - **A materials storage area**
 - **Areas for fuel and hazardous chemical / flammable goods (if required)**
 - **Vehicle servicing and wash bay areas (if required)**
 - **Stockpile areas**
 - **Parking area**

Establishing storage areas & Stockpiles

- **A Primary waste storage area** must be demarcated in the site camp.
- Sufficient waste bins / skips suitable for collection and storage of all waste being generated on site must be placed in the designated waste area in the site camp.
- Liquid waste must be stored on a hard surfaced bunded area and must be under cover or in a waste container that is closed and can be sealed shut.

	<ul style="list-style-type: none"> Waste must be removed from site on a regular basis by a reputable, registered Waste Contractor. 		
	<ul style="list-style-type: none"> A materials storage area must be identified and designated within the Site Camp. Liquid materials and potentially environmentally hazardous materials must be stored within a hard surfaced bunded area (110% capacity of largest container). The liquids storage area must either be under cover or liquids must be stored in closed containers that can be sealed to prevent ingress of water. 		
	<ul style="list-style-type: none"> Areas for fuel and hazardous chemical / flammable goods must be identified and clearly signposted. These areas must be hard surfaced and bunded and under cover or stored in closed containers that can be sealed to prevent ingress of water. 		
	<ul style="list-style-type: none"> Bulk fuel storage: No bulk fuel storage to occur on site. 		
	<ul style="list-style-type: none"> Designated areas for stockpiling of raw materials must be demarcated. Stockpiles may not exceed 2m in height. No stockpiles to occur on or near slopes where they could be washed into the surrounding properties or into any watercourse. All stockpiling areas must be approved by ECO and must be located more than 32m from the edge of any watercourse. Special precaution is to be taken when stockpiling material near a watercourse crossing to ensure no material is washed into the watercourse when it rains. 		
	<ul style="list-style-type: none"> Parking: parking areas must be demarcated and marked as such. Vehicles must park only in designated parking areas overnight. Vehicles must not work within the watercourse. Excavation is to be carried out by hand for the watercourse crossings. 		
	<ul style="list-style-type: none"> Vehicle servicing and washing: only emergency and minor services may be carried out on site. i.e. those necessary to get the vehicle moving so that it can be taken to a repair facility or small repairs such as stopping of oil leaks, lubricating of hydraulics, changing of buckets / breakers on Excavators and TLBs or changing of tyres. This must be carried out in a designated work shop area. <ul style="list-style-type: none"> A designated area must be set aside for this, which must be hard surfaced and bunded. All vehicles and equipment that have the potential to leak fuel or oil must be equipped with a drip tray. 		


	<ul style="list-style-type: none"> ○ Equipment must always be stored standing on the drip tray and the drip tray must be used when conducting minor repairs on vehicles or when the vehicles are seen to be leaking. ○ Any other planned or required maintenance must be done off site at a suitable garage. ○ Vehicle washing may not occur on site. Vehicles must be washed off site at a suitable vehicle wash bay. ○ Cement vehicles may not be flushed out or washed on site. 		
Handling of liquids on site	<ul style="list-style-type: none"> ● Decanting of any liquids / chemicals paints etc. must be done on a hard surfaced area and within the confines of a drip tray, which is of sufficient size for the job being undertaken. ● No decanting of liquids to take place adjacent to any watercourses. 		
	<ul style="list-style-type: none"> ● Decanting from large containers (e.g. 210L drums) must be done using a hand pump. 		
	<ul style="list-style-type: none"> ● All handling of hazardous materials including cement must take place on a demarcated hardened surface or within a drip tray or cement-mixing tray. 		
	<ul style="list-style-type: none"> ● No liquids or cement to be spilled in the watercourses or wet areas ● No liquids or cement to be spilled anywhere that the spill may enter the natural stormwater drainage system. 		
	<ul style="list-style-type: none"> ● Washing of excess concrete is not to take place on site unless the concrete can be used as backfill (to be advised by the engineer). 		
Inventory and record of substances stored on site	<ul style="list-style-type: none"> ● A full inventory of hazardous substances and Material Safety Data Sheet (MSDS) for each substance stored on site must be maintained and each substance must be stored and managed in accordance with the MSDS. 		
Storage of hazardous materials	<ul style="list-style-type: none"> ● Hazardous materials and liquids to be stored in the assigned storage area as described above. 		

2.3 Training & Awareness			
Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Who should be trained & Frequency of training	<ul style="list-style-type: none"> ● All construction staff will have basic environmental awareness training, which can be conducted at the same time as the required health & safety training. 		

	<ul style="list-style-type: none"> • All construction staff are to be aware of the location of the watercourses and World Heritage Site (near reservoir). • Staff are to be made aware of the restrictions associated with these sensitive areas (see section 2.4 below) 		
	<ul style="list-style-type: none"> • Staff must be trained on their environmental responsibilities before commencing work and refresher sessions can be conducted during toolbox talks on specific areas causing problems. 		
	<ul style="list-style-type: none"> • Staff must sign the training register and records of training should be kept for review by EDTEA if requested. 		
<p>Training Content and staff conduct</p>	<ul style="list-style-type: none"> • Training should include <ol style="list-style-type: none"> 1. The definition of environment (people + air + soil + water +business); 2. Reasons for conserving and protecting the environment; 3. How the following activities can impact the environment: - Not using assigned ablutions, hazardous materials, uncleaned spills, mixing of cement on soil or grass surfaces, waste management i.e. use of waste receptacles and waste separation for recycling, vehicle washing polluting soil & ground water; litter; 4. What to do to prevent the above impacting the environment i.e. assign impermeable mixing areas, no vehicle washing on site, use of waste receptacles and separation of waste to allow for recycling, how to respond in an emergency and deal with a spill; 5. Consideration of neighbours. 6. Use only the chemical toilets provided. 7. No dumping to occur. 8. Restrictions when entering the World Heritage Site. 9. Location of the heritage features identified in the HIA. 10. Impact of erosion in and around pipe watercourse crossings. 11. Use waste bins provided. 12. Use drip trays provided. 13. Do not build fires for any purpose on the site. 14. Behave in socially acceptable manner and do not use drugs or alcohol on site. 15. No poaching of wild animals. 		
<p>Neighbours & Working hours</p>	<ul style="list-style-type: none"> • Limit hours of operation to weekdays 7-5pm and Saturday mornings (8-1pm). • Local community members must be notified of the project through community leaders and must be notified of the existence of any hazardous storage areas as well as the type of chemicals being used on site. This can be achieved through placement of signboards. 		

	<ul style="list-style-type: none"> Residents adjacent to the pipeline route to be advised prior to periods where work will be done outside normal working hours. 		
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2.4 Sensitive Social & Environmental Areas

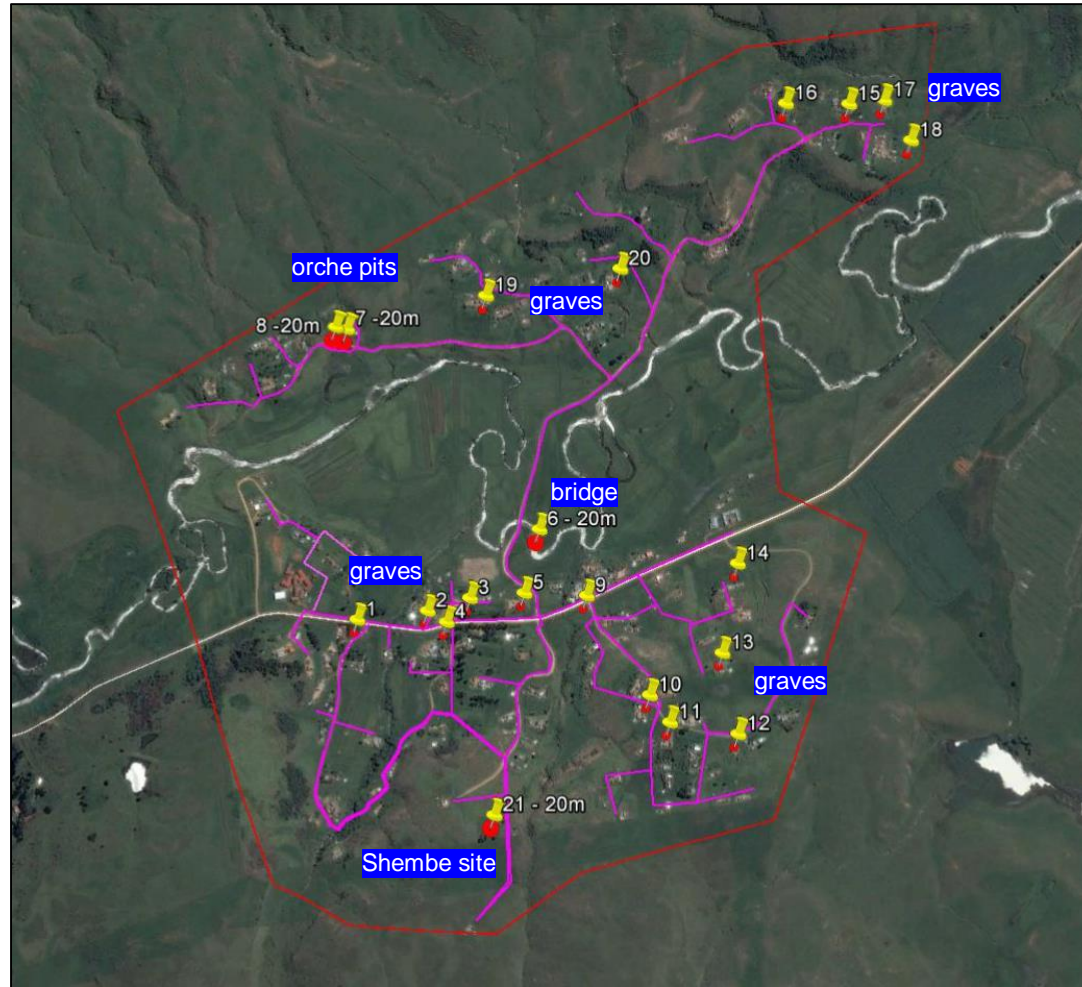
Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Local Community	<ul style="list-style-type: none"> The contractor must exercise the necessary sensitivity with respect to the community by: <ul style="list-style-type: none"> Notifying community prior to construction commencing; and Ensuring that there is a contact number that they can call if they have complaints as well as a complaints register in the environmental file on site. 		
	<ul style="list-style-type: none"> Construction vehicles to operate with care on all roads particularly near the schools and community halls where pedestrian traffic is higher. Speeding will not be tolerated. 		
Watercourse Crossings	<ul style="list-style-type: none"> All watercourses must be treated as sensitive environmental areas. New pipes are to tie onto existing structures crossing the watercourses, where available (see Figure below for watercourse crossing 8). <p>Figure 3: Existing crossing at proposed watercourse 8.</p> 		

	<ul style="list-style-type: none"> • Where there are no existing structures, the pipe is to be placed underground and the trench infilled and compacted so that it is flush with the bed of the watercourse. • Where possible the trench is to be dug by hand reducing the area of disturbance. • Vehicle access to watercourses must be restricted to only where necessary for the laying of pipeline at the specified watercourse crossing points. • No tracked vehicles (i.e. excavators) to be permitted within 15m of the watercourses unless they are using existing roads. • The contractor must mark out a single access point for each crossing and vehicle access must be restricted to this area only and only if absolutely required. • No additional crossing points other than those authorised are permitted (i.e. marked on Figure 1). • A 15m buffer must then be imposed on the remainder of each watercourse with no vehicles or storage permitted within this buffer zone. • Existing roads must be used and where additional roads are required, a path for vehicles to follow must be demarcated which must maintain a 32m buffer on all watercourses. • No storage of materials within 15m of any watercourses. • It must be ensured that all excess fill material is removed and not left in the river channel or near the banks where it may be washed into the river in a high flood event. The excess fill material must be stored in the approved spoil site or within the designated stockpile area within the site camp. • No cement mixing may occur within 15m of any watercourse. • Any temporary diversions (should they be required) made in any of the watercourses must not impede water flow. Water flow must be retained around the diversion at all times. • All temporary structures or channels must be removed once construction is complete. 		
<p>Vegetation</p>	<ul style="list-style-type: none"> • On-going control of alien vegetation within the construction footprint to be maintained. 		
	<ul style="list-style-type: none"> • Only vegetation within the construction footprint must be cleared and the clearance width must not be larger than that required for the pipeline trench i.e. at most 1m wide and 800mm deep. It is imperative that throughout the scheme, and especially near the watercourse crossings that only the minimal area required for the trench is excavated and cleared. • Where clearing of riparian vegetation (associated with the watercourses) is required, it must be kept to a minimum due to the small size of the pipe and associated trench. • In more heavily vegetated areas, loss of vegetation can be reduced by using local labour to dig the trenches by hand. • The watercourse crossings are to be carefully demarcated to ensure limited clearance. • No trees are to be removed during construction. 		

	<ul style="list-style-type: none"> • Top soil removed during the excavations must be kept to one side (stored more than 15m from watercourse) • This must then be re-used for rehabilitation purposes. Soil must be replaced in the same area that it was excavated from. Much of this topsoil, especially the top 30cm will retain grass and vegetation seeds. • Soil stockpiles must not exceed 2m in height, must be covered or grassed to prevent erosion caused by exposure to heavy wind or rain. • The pipeline route must follow the road reserve of existing roads except where required to deviate in order to service a house or reach the reservoir. • There is a higher risk of erosion at the watercourse crossings and therefore appropriate measures to manage erosion must be taken. 		
<p>Water abstraction</p>	<ul style="list-style-type: none"> • Water used during construction will be abstracted from the Mooi River. • No more than 50 000l per day may be abstracted. • A daily record of the volume of water abstracted are to be maintained by the Contractor. • Conditions in the Water Use Authorisation are to be adhered to. • Water use must be controlled and reduced wherever possible. • Water wastage will not be tolerated. 		
<p>Maintenance of the abstraction point</p>	<ul style="list-style-type: none"> • One point of entry must be established and approved by the ECO. Multiple entry points and pathways must not be permitted. • The abstraction point must not be established within wetland areas or in areas thickly vegetated by riparian vegetation. • The abstraction point must be easily accessible and where possible, located in close proximity to an established road to avoid creation of additional tracks. • It is recommended that water be abstracted from watercourse crossing 11, shown in Figure 1. • The abstraction area must not be located on steep slopes where the point may be come eroded. • No vehicle repairs or maintenance or refuelling may be conducted at the abstraction point. • Care must be taken to avoid damage to the banks of a water resource. • Should the area become damaged or eroded, erosion protection measures must be put in place such as sand bags or hessian sheeting must be put in place to allow the re-establishment of vegetation and stabilisation of the area. • Once an abstraction point is no longer being used, the area must be rehabilitated to its former state. 		

- The Contractor is to be aware of the location of the features of heritage importance identified during the HIA (see Figures below).

Figure 4: Aerial image showing the location of the heritage features and recommended buffers.



Cultural and Heritage items

	<ul style="list-style-type: none"> • The recommended 10m (graves) and 20m (structures) buffers must be adhered to with no construction activities taking place in these buffers (including storage of material and stockpiles). • Should the developer decide to move any of the proposed pipelines closer than the recommended buffers, a second phase HIA should be initiated. • Work on the reservoir and pipeline in the uKahlamba Drakensberg World Heritage site is to be tightly managed to ensure that no further distance is carried out in this sensitive area. • Any fences removed for construction are to be replaced once work in this area is complete. • Should any other items with historical or archaeological value be found during construction, these must be reported to AMAFA and work in the affected area should be stopped immediately. 		
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2.5 Soil, Stormwater Runoff; Erosion

Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Stormwater system	<ul style="list-style-type: none"> • Temporary stormwater protection measures must be established before construction activities commence. • Stormwater must not be allowed to flow into surrounding properties and must enter existing stormwater channels. 		
	<ul style="list-style-type: none"> • No contaminated runoff or grey water must be discharged from the site camp into the surrounding environment. 		
Stormwater quality	<ul style="list-style-type: none"> • Washing of any vessels or any containers on site must not enter any of the watercourses or stormwater. These washings are to be contained and removed as waste. 		
Incidents	<ul style="list-style-type: none"> • Any entry of any liquid substance onto the watercourses is to be considered an incident and must be reported to the ECO for the purposes of maintaining the site's incident records. 		
Stormwater flow	<ul style="list-style-type: none"> • Any drainage system installed on the site must be regularly checked to ensure an unobstructed water flow. • Channelled flow must not be permitted to enter any of the watercourses where it may erode the banks. 		

<p>Erosion Control</p>	<ul style="list-style-type: none"> • Install appropriate erosion barriers (berms or diversion ditches, sandbags) and other sediment control structures (grates or grids, geofabric) before clearing in order to prevent substances from entering exposed drains or channels. • Identify any steeper areas (river banks- rocky slopes adjacent to the site) where erosion is more likely to occur and ensure adequate protection of these slopes. This can be achieved through planting of vegetation, placement of berms or use of hessian material. • Regularly check and clean material from behind erosion barriers. • Should an area showing signs of erosion due to construction related activities be identified on the site, this is to be attended to by the Contractor to prevent further erosion from occurring. • Sediment / soil must not be permitted to enter any of the watercourses 		
<p>Temporary Stream diversions</p>	<ul style="list-style-type: none"> • It is preferable to carry out work in streambeds during winter when flow rates are lower. • A suitably qualified contractor must be appointed to handle the temporary stream diversion work to ensure that the flow rate and stream morphology are taken into account. • Appropriate measures are to be taken to manage potential erosion and introduction of sediment into the stream. This can be managed by using appropriate materials for the stream diversion and using sediment traps to capture dislodged sediment. • Only a portion of the stream may be diverted at a time while the pipeline is laid in sections to avoid any risks associated with damming the flow, which might lead to localized flooding. • Soft material gabions to be used instead of concrete encasement (placed just downstream of the pipe) in order to mitigate potential impacts while working in the streambeds. • Stream diversions must not be left in place indefinitely and must be used only for the time required to cross the watercourse, after which they must be removed immediately. 		
<p>Trenching</p>	<ul style="list-style-type: none"> • Trenches may not be left open indefinitely. Only small sections may be left open for testing of the pipeline and these must be demarcated with barrier tape. • Once a section has been completed, the trench must be closed and vegetation replanted. Open trenches can become a hazard especially after heavy rainfall where they fill up with water, creating a drowning hazard for children and animals. • Care must be taken to ensure that when closing trenches, soil is compacted sufficiently to the same level as the surrounding land. If soil settles along the pipeline route, it will leave a depression along which water will travel and this could create a focal point for erosion. This can be especially problematic on sloped sections where water will follow the depression along the pipeline route, building up speed down steeper sections and creating furrows. If this occurs near watercourses, it will erode the riverbanks and cause them to collapse. Therefore, if settling is noted, additional soil must be added and compacted to ensure that the area is levelled. 		

	<ul style="list-style-type: none"> • Rehabilitation through replanting of naturally occurring species as soon after closure as possible will aid in stabilising soil and preventing erosion. • Trenches must not remain open during building shut down periods i.e. over Christmas and Easter. • Trench work must be planned so that trenches are closed before these shut down periods as there is a risk that the trenches will either collapse or fill with water if left unattended and this can create a hazard for children and animals. • Sections of trench near homes, schools and pedestrian walking areas must be suitably demarcated. 		
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2.6 Housekeeping, Waste Storage Handling and Disposal

Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
General Waste Storage	<ul style="list-style-type: none"> • The waste area to be designated and demarcated within the site camp. 		
	<ul style="list-style-type: none"> • Solid waste must be stored in covered, tip proof metal drums to be collected and disposed of by a certified waste contractor. 		
Record keeping	<ul style="list-style-type: none"> • A record of the volume of waste type and volume disposed of must be retained on site. • Proof of appropriate disposal i.e. Safe disposal certificates for this waste must be obtained and kept on site. 		
Hazardous waste	<ul style="list-style-type: none"> • Hazardous materials that require disposal (cement, paints, solvents, old fuel / oil etc.) must be disposed of at a registered hazardous landfill site. 		
	<ul style="list-style-type: none"> • These materials must be removed by an appropriate hazardous waste contractor. 		
	<ul style="list-style-type: none"> • Hazardous materials are not to be stored directly adjacent to any watercourses. 		
Waste from chemical toilets	<ul style="list-style-type: none"> • Install chemical toilets and ensure appropriate disposal of waste by a registered contractor. 		
	<ul style="list-style-type: none"> • Waste from the toilets must be regularly collected by a registered and reputable company. 		

	<ul style="list-style-type: none"> • Safe disposal certificates for toilet waste must be obtained and kept on site as assurance that the waste was properly disposed of. 		
	<ul style="list-style-type: none"> • Toilets must not be situated on slopes or within 32m of any of the watercourses and must be secured to prevent them tipping over. 		
	<ul style="list-style-type: none"> • Staff must use facilities provided and are not permitted to use any other areas in Thendele as toilet facilities. 		
	<ul style="list-style-type: none"> • Chemical toilets must be checked daily and cleaned. 		
<p>Waste storage and handling</p>	<ul style="list-style-type: none"> • No waste may be buried or burned on site or dumped on surrounding properties. 		
	<ul style="list-style-type: none"> • All litter and other materials, which have been dumped on the site, are to be disposed of at a registered landfill prior to construction commencing. 		
	<ul style="list-style-type: none"> • All skips/ waste receptacles must be covered to contain odours and prevent waste from blowing around the site and into the forest. 		
	<ul style="list-style-type: none"> • A register of all waste generated and disposed of must be maintained. 		
	<ul style="list-style-type: none"> • Ensure the correct waste containers are used by all site personnel. 		
	<ul style="list-style-type: none"> • Waste must not be allowed to build up on site and must be removed on a regular basis when the skip is full. 		
	<ul style="list-style-type: none"> • Provide litter bins and ensure all litter is immediately cleared. 		
<p>Waste separation</p>	<ul style="list-style-type: none"> • Hazardous: Hazardous waste must be stored separately from general waste. <ul style="list-style-type: none"> ○ Hazardous waste must be disposed of at a permitted hazardous waste landfill and safe disposal certificates must be obtained. ○ Hazardous waste includes used oils, lubricants, solvents, solvent based paints, cement. 		
	<ul style="list-style-type: none"> • Solvents and solvent based paints must be disposed of by a licensed contractor as hazardous waste at a permitted landfill. 		

	<ul style="list-style-type: none"> • Oils must be stored within a bunded storage area and treated as flammable waste. <ul style="list-style-type: none"> ○ Where possible used oils must be recycled. ○ Safe disposal certificates must be kept on site demonstrating appropriate disposal or recycling of the used oils. ○ Solid paint waste may be disposed of as general waste. 		
	<ul style="list-style-type: none"> • Concrete waste: <ul style="list-style-type: none"> ○ Return excess concrete with delivery truck to supplier for recycling or proper disposal. ○ Any other excess concrete can be stored in a lined bin for eventual recycling or disposal. 		

2.7 Resource Use and Conservation (Electricity, Water)

Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Water use	<ul style="list-style-type: none"> • Minimise and monitor water use on site. 		
	<ul style="list-style-type: none"> • Maintain records of water usage on site. • A Water Use Authorisation is required for the abstraction of water from a water resource (s21a of the National Water Act, 2008). 		
Electricity use	<ul style="list-style-type: none"> • If an electrical connection is obtained, measures to conserve electricity use should be implemented i.e. switch off appliances at the plug point when not in use; switch off lights and computers when not in use. 		

2.8 Noise

Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Noise Generation and suppression	<ul style="list-style-type: none"> • Use noise suppressors on machinery. 		
	<ul style="list-style-type: none"> • All construction vehicles must be fitted with standard silencers and be well maintained. 		

	<ul style="list-style-type: none"> Workers must be trained regarding noise on site and construction hours should be kept to working hours (07h00 to 17h00 weekdays and 08h00 to 13h00 on Saturdays). Work may not take place on Sundays or public holidays. 		
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2.9 Dust & Emissions

Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Dust from stockpiles	<ul style="list-style-type: none"> Cover any stockpiled fine material that may release dust with plastic. 		
Dust from surfaces	<ul style="list-style-type: none"> Damp down surfaces and stockpiles as required to reduce windblown dust. 		
	<ul style="list-style-type: none"> A water cart must be used which should remain on designated road ways. 		
	<ul style="list-style-type: none"> If dust from the site is likely to create problems for nearby residents, these areas must be shielded with shade cloth. 		
Vehicles	<ul style="list-style-type: none"> All construction vehicles must be fitted with the appropriate silencers and exhausts to prevent excessive emissions. 		

2.10 Vehicle Maintenance, Operation, Driving on Site and Vehicle Washing

Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Roads and access	<ul style="list-style-type: none"> Existing roads must be used. Haulage to be created only if strictly necessary. These roads must be demarcated at site set up. No haulage roads may be placed within 32m of any watercourse, as this may require environmental authorisation. All vehicles to remain in the parking area designated within the construction site. 		
Vehicle servicing and repairs	<ul style="list-style-type: none"> All vehicles to be equipped with drip trays for overnight storage at the site camp. 		
	<ul style="list-style-type: none"> No major equipment or vehicle servicing to occur on site i.e. major disassembly and repair work, clutch replacements and oil or lubricant changes must be carried out at a suitably equipped workshop area. 		

	<ul style="list-style-type: none"> Only minor emergency repairs, i.e. those necessary to get the vehicle moving so that it can be taken to a repair facility to be carried out i.e. stopping of oil leaks, lubricating of hydraulics, changing of buckets / breakers on Excavators and TLBs or changing of tyres. This must be carried out in designated work shop areas within the allowed construction camps. These areas to be hard surfaced and bunded. 		
	<ul style="list-style-type: none"> All small machinery used on site must be situated on a drip tray (i.e. pumps, generators, compressors etc.). 		
	<ul style="list-style-type: none"> No leaking vehicles to be allowed on site. 		

2.11 Incidents, Spills and Emergency Response

Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Spill kits	<ul style="list-style-type: none"> Adequate spill kits and containers for spilled and contaminated material to be on standby on site. 		
	<ul style="list-style-type: none"> Keep clearly marked booms and/or absorbent material on site to contain spills if they occur. A spill kit can consist of a drum that is in good condition and which holds sand for absorbing spilled material and that is stored together with a spade. Another drum must be kept ready to receive contaminated soil for disposal as hazardous waste. This drum must be stored under cover on a hard surfaced area. 		
	<ul style="list-style-type: none"> All staff must be trained on how to react in the case of an emergency. 		
	<ul style="list-style-type: none"> If a spill occurs, stop the source, contain it, clean up in accordance with MSDSs and notify relevant authorities. 		
	<ul style="list-style-type: none"> Make staff aware of emergency phone numbers to use in the case of a large spill. 		
Definition of incidents	<ul style="list-style-type: none"> All incidents are to be recorded. 		
	<ul style="list-style-type: none"> Minor incidents: small spills less than 5 l that do not enter stormwater or nearby water courses, minor non-compliance with EMPr that does not cause major environmental impact i.e. housekeeping issues etc. <ul style="list-style-type: none"> Action: Supervisor and staff on site to record and address and notify ECO. Take photos of spill. Prevent spill from spreading and contain it. Collect spilled material and contaminated soil and place in sealed container for disposal. ECO to advise on remediation measures and to follow up on actions taken to address incident. Records: On site incident register. 		

	<ul style="list-style-type: none"> • Major incidents: Large spills or any spills that enter stormwater or nearby water courses, fires, explosions; anything that results in the death or injury to a protected species. Please see definition of a reportable incident provided below. <ul style="list-style-type: none"> ○ Action: Report immediately to ECO, action to be taken to prevent further damage and incident to be reported to authorities. ECO to advise on remediation measures and to follow up on actions taken to address incident. ○ Records: On site incident register and report to authorities. 		
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2.12 Sewage and Grey Water Management

Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Sewage	<ul style="list-style-type: none"> • Adequate toilet facilities (i.e. chemical toilets) sufficient in number to cater for the number of staff on site must be provided. 		
	<ul style="list-style-type: none"> • Waste must be removed by a licensed contractor and safe disposal certificates retained to prove proper disposal. 		
Grey water / wash water	<ul style="list-style-type: none"> • Grey water should not be permitted to enter the watercourses or stormwater system directly. 		
	<ul style="list-style-type: none"> • Vehicles, especially cement trucks, must not be washed on site these should be washed at a wash bay facility off site. 		
	<ul style="list-style-type: none"> • Grey water (i.e. soapy wash water) may be disposed of at the site camp after the settleable solids have been removed (i.e. soakpits). • Hazardous wastes i.e. where water has been used to wash cement mixing equipment must be disposed of as hazardous waste. • Alternately the wash water can be collected and returned with the suppliers truck for disposal by the supplier. 		

SECTION 3

POST CONSTRUCTION

3.0 Post Construction Activities			
Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Post Construction Audit	<ul style="list-style-type: none"> • Clearance from the ECO must be obtained to ensure the all of the requirements of the EMPr have been complied with. 		
Stormwater	<ul style="list-style-type: none"> • The Contractor is to check that the stormwater channels are free from building rubble, spoil materials and waste materials. 		
	<ul style="list-style-type: none"> • Ensure that in the long term stormwater is protected from ingress by potential pollutants. 		
Waste & Spills	<ul style="list-style-type: none"> • All spillages cleaned up and contaminated soil removed and disposed of appropriately. 		
	<ul style="list-style-type: none"> • All remaining waste bins and / or skips must be removed and disposed of. 		
	<ul style="list-style-type: none"> • All excess concrete must be removed from site on completion of works and disposed of. Washing of the excess into the ground is not allowed. 		
	<ul style="list-style-type: none"> • All excess aggregate must also be removed. 		
	<ul style="list-style-type: none"> • Used oil must have been collected by a registered used oil contractor and documentation to this effect provided. 		
	<ul style="list-style-type: none"> • Surfaces are to be checked for waste products from activities such as concreting or asphaltting and cleared in a manner approved by the ECO. 		
	<ul style="list-style-type: none"> • No litter must be left on site. 		
Structures, materials and stockpiles	<ul style="list-style-type: none"> • Any fences, barriers or demarcations utilized for the construction phase must be removed and disposed of. 		
	<ul style="list-style-type: none"> • All structures and imported materials within the construction camp must be removed. 		
	<ul style="list-style-type: none"> • The remaining building materials must be removed from the site. 		

Erosion	<ul style="list-style-type: none"> Any eroded soil on paths / roadways / other areas must be collected and replaced in the area from which it was eroded. These high-risk erosion areas must be protected from further soil erosion. Particular caution must be taken around the watercourse crossings where the entry and exit points tend to be quite steep. 		
Damage	<ul style="list-style-type: none"> Any damage incurred on the neighbouring properties must be repaired. 		
	<ul style="list-style-type: none"> Any damage to existing infrastructure (i.e. water pipelines, electricity lines and residential property) must be repaired or replaced once construction is complete. 		
Vegetation	<ul style="list-style-type: none"> All vegetation planting must be completed and any areas that have been disturbed or cleared must have been rehabilitated and re vegetated. 		
	<ul style="list-style-type: none"> Re-vegetation of cleared land must utilize only 100% locally indigenous plant material to ensure no erosion occurs once the site is vacated. 		
	<ul style="list-style-type: none"> Ensure that no sensitive habitats have been damaged during the construction phase. 		
	<ul style="list-style-type: none"> Where habitats or riparian zone have been damaged these must be reported to the ECO and procedures for rehabilitation of these habitats must be undertaken. 		
Close Out	<ul style="list-style-type: none"> A meeting must be held between Engineer, the ECO and the contractor to approve all remediation activities and ensure that the site has been restored to a condition, which has been approved by the Engineer. 		

3.1 Rehabilitation			
Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Comments
Rehabilitation of areas surrounding the proposed crossing points	<ul style="list-style-type: none"> Cleared areas to be re-grassed on completion. Indigenous grasses to be used, which are specific to the vegetation type in that area (i.e. indigenous grasses from the Drakensberg Foothill Moist Grassland vegetation type). Where possible, vegetation that was removed during clearing must be kept aside and re-used. This can be kept on site in nursery areas or if the replanting occurs within a few days of clearing, can be kept to one side and immediately re-planted. Grass can be reintroduced by hydroseeding or planting of grass plugs. Re-vegetation must not only take place at the end of construction but must occur on an on-going process behind the working front. 		

	<ul style="list-style-type: none"> • Cleared areas may not be left exposed for long periods and must be re-vegetated in stages as each section is completed. • Where habitats have been damaged, these must be reported to the ECO and procedures for rehabilitation of these habitats must be undertaken. 		
Top Soil	<ul style="list-style-type: none"> • Top soil removed during the excavations must be kept to one side (stored more than 32m from watercourse) and re-used in the same area that it was excavated from. • This top soil to be used when re-vegetating and rehabilitating areas cleared for trenches. 		
Rehabilitation of eroded areas	<ul style="list-style-type: none"> • Any erosion damage caused during construction must be repaired. The affected area must be reshaped and soil replaced. • The eroded area must be re-vegetated or measures put in place to control further erosion. 		
Removal of alien invasive species	<ul style="list-style-type: none"> • There must be no alien invasive species along the disturbed footprint. • Standard procedure for removal of alien plant species is mechanical removal by hand whereby alien plant species are cut down or physically pulled out at the roots. • Use of chemical pesticides to kill alien plant species is the secondary option to achieve the same outcome as the methodology mentioned above. Should the infestation be of sufficient size this option must only be used after mechanical removal has been attempted. 		
Damage to subsistence agriculture along the route	<ul style="list-style-type: none"> • For the most part the pipeline will be laid within the road reserve. However if any properties or crops are affected, the contractor must liaise with the community ahead of time. Proof to be retained. • Any damage to subsistence agriculture must either be repaired or compensation must be provided to land users affected. 		
Damage to watercourses	<ul style="list-style-type: none"> • Where a water course or riparian zone has been damaged the following measures are to be taken to ensure appropriate restoration of the habitat: <ul style="list-style-type: none"> ○ ECO must assess the damaged area ○ Any construction debris or contaminants within the watercourse must be removed ○ Original soil structure must be restored ○ Any impedance or diversion to waterflow must be removed ○ Area must be vegetated with suitable riparian or wetland species • No loose soil or damaged banks can be left behind after construction. 		

SECTION 4**DEFINITIONS*****Stormwater***

Clean rainwater which should be allowed to enter the stormwater system or natural water bodies without causing erosion. Stormwater should not be contaminated with any other substance including soaps, washings, hazardous materials, soil etc

Grey water

This is wash water that may contain non-hazardous soaps i.e. bath water, vehicle wash water etc. This should not be permitted to enter the stormwater system but can be disposed of in the sewage system or as effluent. If no sewage system is available on site the grey water must be collected and disposed of.

Sewage

Human excrement from chemical toilets.

Raw materials for which source statement must be obtained


Topsoil, sands, natural gravels, crushed stone, asphalt, clay liners, timber etc. E.G: sand may only be obtained from an approved sand winning operation which is licensed and has an approved EMPr for operation.

Incidents

All incidents should be recorded. Minor incidents could include small spills of less than 5l that do not enter a water body or any stormwater drains, as well as housekeeping issues and general small non compliances with the requirements of the EMPr. Major incidents are those that must be reported to the authorities and include all incidents involving contamination of a water body or stormwater or other reportable incidents as defined below.

Reportable incident is defined as 'an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed' NEMA Section 30, 'includes any incident or accident in which a substance (a) pollutes or has the potential to pollute a water resource; or (b) has, or is likely to have, a detrimental effect on a water resource.' NWA Section 20.

NEMA Section 30 Incident Report Form

Department: Environmental Affairs and Tourism 	Document Type:	Emergency Incident Report	
	Title:	EXAMPLE	
	Document Status:	Pilot reporting format	
Reference:	[A reference that may be used in future correspondence]	Initial Submission Date:	[Date of initial submission of the report to the Department: Environmental Affairs and Tourism]
Revision No.:	example	Compiled by:	[Full name and contact details of the person submitting the report]

This form provides a template for the emergency incident report required in terms of section 30(5) of the National Environmental Management Act (Act No. 107 of 1998) (hereinafter “NEMA”) in which the responsible person or, where the incident occurred in the course of that person’s employment, his or her employer, must, within 14 days of the incident, report to the Director General, provincial head of department and municipality such information as is available to enable an initial evaluation of the incident, including: (a) the nature of the incident; (b) the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects; (c) initial measures taken to minimise impacts; (d) causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure; and (e) measures taken and to be taken to avoid a recurrence of such incident.

In terms of section 30(1)(a) of NEMA, an “incident” means an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed.

In line with section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996), “serious” is taken to be a measure of the impact of an incident where such an incident has had, could have had, is having, or will have a negative impact on human health or well-being.

RESPONSIBLE PERSON			
In terms of section 30(1)(b) of NEMA, the “responsible person” includes any person who: (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident; or (iii) was in control of any hazardous substance involved in the incident at the time of the incident			
Name:	[Full name of person, company, etc.]	Designation:	[designation of responsible person (n/a for companies, etc.)]
Postal Address:	[Full postal address including postal code]	Physical Address:	[Full physical address]
Telephone (B/H)	[Business hours contact telephone number and area code]	Telephone (A/H)	[After hours contact telephone number and area code]
Nature of Business:	[Brief summary of the nature of the business]		

Emergency Incident Summary Information							
Mark the appropriate boxes							
Fire:	<input type="checkbox"/>	Spill:	<input type="checkbox"/>	Explosion:	<input type="checkbox"/>	Gaseous Emission:	<input type="checkbox"/>
Injuries	<input type="checkbox"/>	Reportable injuries:	<input type="checkbox"/>	Hospitalisation:	<input type="checkbox"/>	Fatalities:	<input type="checkbox"/>
Open water impacts:	<input type="checkbox"/>	Ground water impacts:	<input type="checkbox"/>	Atmospheric impacts:	<input type="checkbox"/>	Soil impacts:	<input type="checkbox"/>
Own emergency response involved	<input type="checkbox"/>	Fire prevention services involved	<input type="checkbox"/>	Government hazardous materials emergency response involved	<input type="checkbox"/>	More than 1 governmental emergency response service involved	<input type="checkbox"/>
Emission of non-toxic substances at low concentrations	<input type="checkbox"/>	Emission of non-toxic substances at high concentrations	<input type="checkbox"/>	Emission of toxic substances at low concentrations	<input type="checkbox"/>	Emission of toxic substances at high concentrations	<input type="checkbox"/>
No evacuation required	<input type="checkbox"/>	Immediate area evacuated	<input type="checkbox"/>	Immediate surrounds evacuated	<input type="checkbox"/>	Evacuation of the general public	<input type="checkbox"/>

Initial Emergency Incident Report

In terms of section 30(3) of NEMA, the responsible person or, where the incident occurred in the course of that person’s employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available: (a) the nature of the incident; (b) any risks posed by the incident to public health, safety and property; (c) the toxicity of substances or byproducts released by the incident; and (d) any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment to: (i) the Director General; (ii) the South African Police Services and the relevant fire prevention service; (iii) the relevant provincial head of department or municipality; and (iv) all persons whose health may be affected by the incident.

Description	Date:	Time:	Medium:	Contact Details:
Director General:	[submission date]	[submission time]	[Fax, phone, SMS, letter, etc.)	[who was the report made to?]
SAPS:				
Relevant fire prevention service:				
Relevant province or municipality				
Affected persons:			Provide details of who was contacted and how they were contacted as Annexure A to this report	

Incident Details

In terms of NEMA section 30(5)(a) and (d), the responsible person must report on the nature of the incident as well as the causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure

Incident start time:	[The exact time that the unexpected event started]	Incident duration:	[the duration of the unexpected event]
Duration of danger:	[The time taken from the start of the event to the time when the impacts of the event no longer posed a threat to anyone’s health or well-being]	Duration of exposure:	[The duration of conditions that had a direct impact anyone’s health or well-being]
Incident description	[Brief description of the incident detailing, but not limited to, a description of: (i) what happened; (ii) how it happened; (iii) where it happened; (iv) the timing and sequence of events; and (v) why it happened. A detailed discussion may be included as an annex.]		
	Plans, diagrams, maps or any other graphical material relating to the incident description must be attached as annexures B1, B2, etc.		
Wind speed and direction	[The wind speed and direction at the point of the incident at the time of the incident]	Ambient air temperature	[ambient air temperature at the time of the incident]
Weather conditions	[Sunny, light rain, mist, heavy rain, etc.]	Other relevant	[Temperature inversion, floods, etc]

Incident Details

In terms of NEMA section 30(5)(a) and (d), the responsible person must report on the nature of the incident as well as the causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure

		meteorological conditions	
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POLLUTANTS RELEASED DURING INCIDENT

In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity.

List all the pollutants directly released during the incident (i.e. exclude those pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.)

Substance or mixture of substances	Reference Number	Phase	Total Quantity emitted	Unit	Nature of emission
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[emitted from truck, underground pipe, stack, etc.]

SECONDARY POLLUTANTS RESULTING FROM INCIDENT

In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.

List all the pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.

Substance or mixture of substances	Reference Number	Phase	Total Quantity emitted	Unit	Nature of emission
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[emitted from truck, underground pipe, stack, etc.]

POLLUTANT concentrations

In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.

List all the pollutants detailed in sections.

Substance or mixture of substances	Reference Number	Estimated pollutant concentration			
		10m	100m	500m	Concentration unit (e.g. ppm)
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[estimate the concentration of the pollutant in water, soil and/or air within a 10m radius of the epicentre of the incident]	[estimate the concentration of the pollutant in water, soil and/or air within a 100m radius of the epicentre of the incident]	[estimate the concentration of the pollutant in water, soil and/or air within a 500m radius of the epicentre of the incident]	[[Provide the unit of concentration used in columns 0, 0 and 0.]

POLLUTANT concentrations					
In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.					
List all the pollutants detailed in sections.					
Substance or mixture of substances	Reference Number	Estimated pollutant concentration			Concentration unit (e.g. ppm)
		10m	100m	500m	

Incident Impact	
In terms of NEMA section 30(5)(b), the responsible person must report on possible acute effect on persons and the environment and data needed to assess these effects;	
Minor injuries	[Describe the number and types of any minor injuries that resulted from the incident or efforts to manage the incident or the impacts thereof]
Reportable injuries	[Describe the number and types of any injuries requiring statutory reporting that resulted from the incident or efforts to manage the incident or the impacts thereof]
Hospitalisation	[Describe the number and types of any injuries that required professional medical care that resulted from the incident or efforts to manage the incident or the impacts thereof]
Fatalities	[Describe the number and cause of any fatalities that resulted from the incident or efforts to manage the incident or the impacts thereof]
Biological impacts	[Describe any impacts on biological life, other than human life, e.g. fish kills, plant mortality, etc.]
Impact area	[Describe the area possibly affected by the incident or the impacts thereof including: (i) size of the area; (ii) socio-economic context; (iii) population density; (iv) sensitive environments (if any), etc.]
Data	Attach relevant impact reports, medical reports, death certificates, post mortem reports, environmental monitoring data, etc. as Annexes C1, C2,... to this report

EXISTING PREVENTION PROCEDURES AND/OR SYSTEMS	
Foresight	[Briefly describe whether the incident could have, or had, been foreseen, e.g. was it included in any environmental impact assessment, risk assessment, health and safety plan, etc.]
Procedures and/or systems	Attach any relevant safety, health and environmental plans (including any statutory planning requirements) that detail what actions should be taken in the event of the incident that is the subject of this report
Procedure and/or systems failures	[Describe any failures or shortfalls in procedures and/or systems that may have contributed to the incident]
Technical measures	[Describe any technical measures, equipment, 'fail-safe' devices, etc. that are in place to prevent the occurrence of the incident]
Technical failure	[Describe any failures of technical measures, equipment, 'fail-safe' devices, etc. that are in place to prevent the occurrence of the incident]

INITIAL Incident MANAGEMENT	
In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.	
Evacuation	[Describe any evacuation activities including information on the number of people evacuated and whether these people were staff or otherwise]
Technical measures	[Describe all technical measures taken to address the incident]
Mitigation measures	[Describe all measures taken to minimise the impact]
Emergency Services	[Describe any governmental emergency services involvement]

Cleanup and/or decontamination			
In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.			
Cleanup and/or decontamination		[Provide a detailed description of all cleanup and/or decontamination activities and the environmental quality and impacts resulting from these activities as well as contact details for any contracted service providers in an annex.]	
Permissions and Instructions			
Provide details of any permissions and/or instructions received from any organ of state during initial incident management, cleanup and/or decontamination			
Type	Statuate	Issued By	Details
[Describe the nature or type of permission or instruction]	[Provide a reference to the legal mandate for the permission or	[Provide contact details for the permitting or instructing authority]	[provide a summary of the activities carried out in terms of the permission or instruction]

Cleanup and/or decontamination

In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.

	instruction]		

MITIGATION MEASURES

In terms of NEMA section 30(5)(e), the responsible person must report on measures taken and to be taken to avoid a recurrence of such incident.

Measure	Objective	Cost	Timing
[Briefly describe each of the measures taken, and to be taken, to avoid a recurrence of such incident]	[Briefly describe the objective of the measure, i.e. the desired outcome of the measure]	[Estimate the cost of the measure in terms of capital costs and/or recurrent costs]	[Provide information on the timing for the full implementation of the measure]

AUTHORISATIONS

Provide detail on all authorisations (including permits, licenses, certificates, etc.) in respect of the activity to which the incident relates.

Type	Statuate	Issued By	Issue & Expiry Date
[Describe the nature or type of authorisation, e.g. Registration Certificate]	[Provide the reference for the authorisation, e.g. section X of the National Environmental Management Act (Act No. 107 of 1989)]	[Provide contact details for the issuing authority]	[provide the date of issue and expiry]

History			
Provide details on any and every similar incident involving the responsible person in the last 24 months. Similar incidents include those that: (i) involved similar circumstances; (ii) involved similar emissions; (iii) involved similar personal; and/or (iv) involved similar impacts.			
Incident title	Report reference	Date of incident	Summary of event
[Provide the title used in the relevant emergency incident report]	[Provide the reference in respect of the relevant emergency incident report]	[Date of incident]	[Provide a summary of the event]

Signed by, or as a mandated signatory for, the responsible person:		Date:	
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