

PROJECT DETAILS

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ENVIRONMENTAL ASSESSMENT PRACTITIONERS' QUALIFICATIONS AND RELEVANT EXPERIENCE

Mr Reuben Heydenrych

Mr Heydenrych is a qualified Environmental Assessment Practitioner with a wealth of experience. He holds a Masters in Philosophy (Environmental Management) which he obtained from the University of Cape Town and a degree in Landscape Architecture from the University of Pretoria.

His key experience includes project management of various medium and large-scale infrastructural and environmental projects.

He has been involved with Environmental Impact Assessment (EIA) processes in South Africa and in various other African countries as required by relevant national legislation and in terms of international requirements as EIA team leader and team member. These projects have included exemptions, scoping and full EIAs for projects such as rezoning, filling stations, water and sewage pipelines, roads (national, provincial and municipal), residential developments, game lodges, telecommunications structures, mines, infrastructure in sensitive environments and industrial processes.

Mr Heydenrych also has experience in environmental advisory services and strategic environmental management including Strategic Environmental Assessments (SEAs), environmental scans, environmental feasibility studies and Environmental Management Frameworks (EMFs); Environmental Management Programmes (EMPs) for the construction and operational phases of infrastructure developments; and environmental auditing, including due diligence assessments, ISO 14001 systems development and auditing, legal compliance and waste management audits.

Ms Masala Mahumela

Ms Mahumela is currently an Environmental Practitioner in the Lynnwood Manor Office, under the Environmental and Advisory Services Unit – a division of Aurecon South Africa (Pty) Ltd. Ms Mahumela holds a B.Sc. Environmental Sciences degree from the University of Pretoria and a B.Sc. Honours Environmental Management degree from the University of South Africa.

She has worked on projects that include upgrading of sewage treatment plants, Eco Estate houses, upgrade and construction of gas, water and sewage pipelines, Construction of Eskom transmission power lines and application for borrow pit authorisations. Ms Mahumela has also conducted Environmental Monitoring/ Auditing on several projects. Through the above she is gaining experience in conducting Environmental Impact Assessments, Basic Assessments, Environmental Management Plans and preparing Environmental Management Plans for borrow pits applications and also conducting public participation process.

1. INTRODUCTION

Aurecon has been appointed by AngloGold Ashanti (AGA) to render all necessary professional services in respect of the environmental authorisation of the proposed construction of a potable water pipeline at the AGA's Vaal River operations.

The project entails the construction of a potable water pipeline from the existing water reservoirs adjacent to the African Explosive Limited (AEL) Explosives Depot to a tie in point with the current above ground pipeline at a point just before it crosses the Vaal River. The entire project is planned on land owned by AGA at its Vaal River Operations in the Orkney area. The proposed project proposes to improve the current ageing infrastructure and reduce the risk of breakdowns or unscheduled maintenance. The project will not increase the current volume of water provided to the three business units that it will service, but will ensure uninterrupted water provision especially during unplanned events or breakdowns. It is estimated that the project will have a lifespan of the entire life of the operations that it will service. The length of the pipeline will be approximately 1.3 km and the pipeline will have a diameter of 600mm. The pipeline will be a glass reinforced pipe and will be buried.

Prior to receiving Environmental Authorisation, AngloGold Ashanti commenced with construction on 6 June 2011 and stopped on 25 August 2011. Thereafter the North West Department of Economic Development, Environment, Conservation, and Tourism (DEDECT) requested AngloGold Ashanti to prepare a National Environmental Management Act, 1998 (Act No. 107 of 1998), Section 24G Report which must be accompanied by an Environmental Management Plan. This Environmental Management Plan addresses impacts that were caused during the illegal construction activities as well as the potential impacts that will be experienced when construction resumes again after authorisation.

1.1 Location

The Vaal River Operation of AGA is located approximately 5 km from Orkney, on the north east direction. It is situated on Portion 4 of the Farm Modderfontein 440 IP and Portions 1 and 4 of the Farm Zuiping 394 IP, North West Province.

1.2 Need for the Environmental Management Plan

The Environmental Management Plan is essential to ensure thorough environmental consideration during the life cycle of the proposed project. This document is aimed at achieving the following:

- To guide the construction phase of the proposed project;
- To prevent negative impacts associated with the project as far as possible;
- Where negative impacts cannot be avoided, the EMP proposes mitigatory measures to minimise it to acceptable levels;

- To limit spatial and temporal aspects of impacts; and
- To identify the actions to be taken and clarify responsibilities to ensure that responsible environmental management is applied.

1.3 Document Structure

Subsequent sections of the document provide the following:

- Section 2: A description of the proposed project;
- Section 3: Framework for environmental monitoring and auditing of the construction phase;
- Section 4: The Environmental Management Plan; and
- Section 5: Framework for the control of incidents.

2. PROJECT DESCRIPTION

AGA proposes to construct a potable water pipeline from the existing reservoirs at the AEL Depot to a tie in point with the current above ground infrastructure within close proximity of the bridge crossing the Vaal River at its Vaal River Operations in the Orkney area. The proposed project will propose to provide a backup to the existing pipeline as a contingency measure. The project will not increase the current volume of water provided to the three business units that it will service but merely ensure uninterrupted water provision even during unplanned events or break downs. It is estimated that the project will have a lifespan of the entire life of the operations that it will service.

The proposed pipeline will tie in with the current potable water infrastructure i.e. reservoir and pump station and follow a route in a south westerly direction initially and follow the existing road in a westerly direction, before eventually diverting south parallel to the existing pipeline across the Vaal River. The pipeline will cross under the road in an existing culvert and run parallel to the existing pipeline, then cross under a second road where it will end. This is the point where existing infrastructure can be connected as the need arises.

3. FRAMEWORK FOR COMPLIANCE AND AUDIT

Is it the intention of the project proponent to use an Environmental Coordinator (EC) on site during construction, however, if the Environmental Authorization, requires the project proponent to employ an independent Environmental Control Officer (ECO), they will do so.

An independent Environmental Coordinator shall be appointed for the construction period to conduct regular monitoring (monthly) to ensure compliance with this EMP and keep records of such monitoring.

The results of the monitoring inspections must be reported to the client and the main contractor, in the form of a monthly report. The EC shall also keep records of non-compliance and the strategies used to correct/rectify non-compliance. This should be included in the monthly report.

4. PROJECT RELATED IMPACTS AND MITIGATION MEASURES

The table below lists potential impacts and their mitigation measures. The potential impacts addressed are for pre-construction (planning) phase, construction phase and rehabilitation phase.

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
Material laydown area	Construction	Removal of natural vegetation	<p>Objective:</p> <p>To minimise vegetation removal and other impacts on natural environment.</p> <p>Targets:</p> <ul style="list-style-type: none"> The 10m wide construction corridor must be clearly demarcated with danger tape or other similar methods for the duration of construction. No-go areas outside the 10m wide construction corridor must be fenced off to prevent access by construction plant and to prevent the disturbance of vegetation outside this corridor. Materials lay down area must be established in already disturbed areas. Recommendation of using the already disturbed area near the reservoir. Contractor shall submit the layout drawing to AngloGold Ashanti, indicating where the laydown area is 	Contractor	During site establishment and throughout construction phase.	Environmental Coordinator (EC)

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
			<p>planned.</p> <ul style="list-style-type: none"> • All construction materials shall be stored within the AngloGold Ashanti property which is already disturbed. • The site camp must be fenced and access must be controlled. 			
Environmental awareness	Construction	Impacts related to ignorance	<p>Objective:</p> <p>To ensure that impacts caused by construction personnel on the environment are minimal.</p> <p>Target:</p> <ul style="list-style-type: none"> • The contractor shall arrange that all his employees and those of his subcontractors receive environmental training before the commencement of construction to the satisfaction of the Engineer and the Environmental Coordinator (EC), in order that the employees: <ul style="list-style-type: none"> - acquire a basic understanding of the key environmental features of the work site and environs; and - are thoroughly familiar with the requirements of the environmental protection and control specifications as apply to the works; 	Contractor	Prior to commencement of construction works and repeated as may be required.	Site Engineer and EC

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
			<ul style="list-style-type: none"> The Contractor will undergo AGA Safety, Health and Environmental training to ensure compliance with the company requirements before commencement of work on site. No open fires will be allowed on site. 			
Access to the site	Construction	Use of unsuitable access roads which in turn will destroy vegetation and habitat.	<p>Objective:</p> <p>To avoid establishment of undesirable accesses that may result in significant environmental impacts.</p> <p>Targets:</p> <p>Access to the site must only be through existing roads or temporary roads approved by the engineer and the EC.</p>	Contractor	During site establishment and throughout construction	Site Engineer
Security	Construction	Security risk to workers and the surrounding area	<p>Objective:</p> <p>To ensure maximum security to workers and the community in general.</p> <p>Target:</p> <ul style="list-style-type: none"> The contractor shall monitor his site personnel and their activities. No loitering of non-workers shall be allowed on site. Construction workers' freedom to 	Contractor	Throughout construction phase	Site Engineer

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
			venture into the neighbouring residential area shall be limited.			
Health impacts	Construction	Potential injuries and other health impacts to construction workers	<p>Objective:</p> <p>To ensure that the health of workers is protected.</p> <p>Targets:</p> <ul style="list-style-type: none"> • Temporary chemical ablution facilities must be provided on site. • The ablution facilities must always be maintained and serviced as required. • The contractor must ensure that there is provision of clean water to all site personnel at all times. 	Contractor	Throughout construction phase	EC and Site Engineer
Safety	Construction		<p>Objective:</p> <p>To maximize safety of the construction personnel.</p> <p>Target:</p> <ul style="list-style-type: none"> • Workers must be equipped with personal protective equipment at all times. • Open trenches shall be marked with warning measures such as danger tape and orange barricade netting. 	Contractor	Throughout construction	OH&S Officer

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
			<ul style="list-style-type: none"> • A first aid kit must be provided and available on site with trained first aiders. • Operators of construction machinery must be trained personnel and drivers of vehicles must be in possession of relevant and valid AGA driver's licence. • Construction vehicles such as excavators and TLBs shall not be allowed to carry passengers other than the operator of such particular machine (i.e. only operators are allowed onto the machinery). 			
Noise	Construction	Increased noise impact	<p>Objective:</p> <p>To ensure that noise level is kept at minimum.</p> <p>Target:</p> <ul style="list-style-type: none"> • Construction work shall be restricted to normal working hours (between 06h00 and 18h00). • Employees shall be issued with appropriate hearing protection equipment. • All Regulations relating to noise generation shall be observed. • Construction machinery shall be equipped with approved and 	Contractor	Throughout construction period	Site Engineer

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
			<p>specified muffler systems to reduce potential noise impact.</p> <ul style="list-style-type: none"> All vehicles must be roadworthy. 			
Social impacts	Construction	Theft, prostitution and spread of HIV/AIDS	<p>Objective: To avoid negative social impacts.</p> <p>Target:</p> <ul style="list-style-type: none"> The contractor shall employ awareness campaigns such as HIV/AIDS education to inform the employees of the social and health implications of their actions. Local labour must be used as far as possible during construction of the proposed project. Local people should be informed appropriately about how employment recruitment will be implemented. The contractor must ensure that there are signs indicating the availability and non-availability of employment and that hiring local labour is properly managed to prevent conflict situations and to manage the likely influx of casual labour seekers. 	Contractor	Throughout construction period	EC
Traffic impacts	Construction	Disturbance on the normal flow	Objective:	Contractor	Prior to commencement of construction work	Site engineer, EC

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
		of traffic	<p>To ensure that normal traffic flow is not disturbed.</p> <p>Target:</p> <ul style="list-style-type: none"> • Adequate and appropriate traffic warning signage and appropriate speed limits for construction vehicles (15 km/h) shall be adhered to at all times. • Deliveries of construction materials shall be done during normal working hours (between 08h00 and 17h00). • All regulations relating to traffic management shall be observed. • Stop and go mechanism of controlling traffic on the bridge will be important and contractor should implement this procedure. 		and throughout construction phase.	
Visual Impacts.	Construction and Operation	Visual impact	<p>Objective:</p> <p>To minimize visual impact of the development.</p> <p>Target:</p> <ul style="list-style-type: none"> • The construction period must be as short as possible and appropriately managed. • Ensure appropriate rehabilitation of disturbed areas after completion of construction. 	Contractor	During construction period	EC

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
Waste	Construction	Litter/waste pollution	<p>Objective:</p> <p>To prevent waste from being left lying on the ground and spread of litter.</p> <p>Target:</p> <ul style="list-style-type: none"> Refuse and waste from construction activities will not be disposed of on site, but shall be removed to the registered landfill. Refuse bins shall be provided and shall be emptied on a frequent basis to prevent overflowing of the bins. The contractor shall ensure that the site is clean and neat at all times, to the satisfaction of the EC. 	Contractor	Throughout construction phase	EC
Disposal sites	Construction	Dumping of construction waste on areas not approved	<p>Objective:</p> <p>To ensure that construction waste is disposed at approved sites only.</p> <p>Target:</p> <ul style="list-style-type: none"> The contractor shall communicate with the mine in order to acquire permission to use the registered landfill site for construction wastes. Waste will be disposed of at the AGA registered landfill site and proof thereof shall be kept on site. 	Contractor	Prior to commencement of construction works	EC and the site engineer.

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
Air quality	Construction	Dust pollution	<p>Objective:</p> <p>To limit dust pollution during construction and rehabilitation (during levelling of topsoil).</p> <p>Target:</p> <ul style="list-style-type: none"> The extent of disturbed areas shall be limited to within the construction zone. A speed limit of 15 km/h should be adhered to within the construction zone and mine speed limits off site. Light construction vehicles are to remain within the construction zone. When necessary water will be sprayed on the exposed soil areas of the construction site to suppress dust. 	Contractor	Throughout construction phase	EC
Hazardous substances	Construction	Health risk to workers and soil contamination	<p>Objectives:</p> <p>To prevent any health risk to people handling chemicals. To prevent soil and groundwater contamination.</p> <p>Target:</p> <ul style="list-style-type: none"> People handling hazardous substances, including fuel, shall be 	Contractor	Before construction work commences	Site engineer, EC

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
			<p>orientated and provided with necessary safety equipment.</p> <ul style="list-style-type: none"> • Hazardous substances will be stored in sealed containers in an appropriate bunded area. • Spillages on bare soil must at all costs be avoided. • In the event of a spill, polluted soil must be collected and disposed of at a hazardous landfill site that accepts such waste and replaced with unpolluted soil. • All vehicles will be road worthy and free of leaks. • Hazardous substances must be dealt with according to AGA Mine Services' Environmental Management System. • Drivers transporting hazardous waste must be appropriately trained to prevent and handle spillages. • Proper signage must be put in place according to relevant legal requirements. 			
Topsoil	Construction and Operation	Soil contamination	<p>Objective: To prevent soil contamination.</p> <p>Target:</p> <ul style="list-style-type: none"> • Vegetation clearing shall be done 	Contractor	Throughout construction phase	EC

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
			<p>only where work is planned to take place. Topsoil will be stockpiled for rehabilitation of the disturbed area.</p> <ul style="list-style-type: none"> • No vehicle maintenance shall take place on site. In case of emergency, a drip tray shall be used to avoid diesel and/or oil spills. • Concrete mixing shall not be done on bare soil. Either ready mix concrete must be used or a dedicated mixing area, which has been designed to prevent pollution, needs to be provided. • Once the construction activities have terminated, rehabilitation of all the disturbed and compacted areas shall occur. 			
Flora	Construction and Operation	Loss of vegetation	<p>Objective: To maintain or improve the current status of vegetation in the area.</p> <p>Target:</p> <ul style="list-style-type: none"> • Only areas targeted for the proposed project should be cleared of vegetation. • Re-vegetation of cleared areas shall be done immediately after completion of construction and shall take place progressively as pipeline 	Contractor	Throughout construction period	Engineer and EC

ASPECTS	PROJECT PHASE	POTENTIAL IMPACTS	MITIGATION	IMPLEMENTATION RESPONSIBILITY	TIME SCHEDULE	VERIFICATION
			<p>construction is completed.</p> <ul style="list-style-type: none"> • All disturbed areas shall be rehabilitated with grass \species occurring naturally in the area. • No burning of material will be allowed on site. 			
Fauna	Construction	Disturbance of wildlife	<p>Objective:</p> <p>To limit disturbance of faunal species.</p> <p>Target:</p> <ul style="list-style-type: none"> • Measures must be taken to ensure that workers are aware of laws and restrictions governing the hunting, capturing or trapping animals in the vicinity. • Contractor will ensure that the site is kept clean and tidy and free from litter that could attract rodents and other animal species. • No domestic animals shall be allowed on site. 	Contractor	Throughout construction phase	EC

5. CONTROL OF ENVIRONMENTAL PROBLEMS

5.1 Training and awareness building

It is important to ensure that construction workers are aware of the environmental situation and problems that may arise from construction activities. It is therefore important to conduct environmental awareness training of construction workers before and during the construction of the project. Training should be done as required to allow for sessions with arrival of new staff on site.

5.2 Contingency planning

Plans to curb any emergency situations, particularly related to fire risk, must be provided by the contractor for approval by the EC.

6. REHABILITATION OF SITE AFFECTED BY CONSTRUCTION WORK

Prior to the start of construction the contractor must submit a method statement to include information regarding construction, handling of material, and rehabilitation at the footprint area. Work may not commence until the method statement has been accepted by the EC and clearly communicated to the contractor's employees. Please refer to Annexure B for a method Statement template.

Rehabilitation must be carried out as soon as possible after construction is completed and must be implemented progressively as construction is completed in sections of the pipeline.

Removal of all facilities and materials from the construction area will be required, and then rehabilitation must be carried out, including (but not necessarily limited to) the following:

- Concrete and compacted platforms;
- Chemical toilets;
- Bunded area(s);
- Dustbins;
- All construction machinery;
- Should there be spills of hazardous substances on the soil, polluted soil will be collected and disposed of at a hazardous landfill site that accepts such waste and replaced with unpolluted soil.

The proposed construction and rehabilitation steps are as follows:

- Clearing of vegetation along the proposed corridor which will be kept to within 3m (1.5 m either side of the pipe's centreline).
- The corridor within which the work will be carried out at is 10m (5m on either side of the pipe's centre line). Topsoil and subsoil must be stockpiled along the corridor, making sure that topsoil and subsoil is stockpiled separately.
- Placing of bedding material in the trench. The bedding material will be commercially sourced by the contractor.
- Laying of the 600 mm diameter glass reinforced pipe
- Backfilling of the trench with the subsoil first and then lastly with topsoil.
- Removal of alien vegetation by chemical means or mechanical means. The contractor must obtain permission from EC as what the best way of alien vegetation removal is.
- Re-vegetation of the area affected by the project with indigenous vegetation species. The proposed method of re-vegetation is hydro-seeding.
- The area must be landscaped in such a way so as to follow the contours of the surrounding natural landscape.

6.1 Mitigation measures to be undertaken

The following mitigation measures should take place with regards to further vegetation rehabilitation:

- **Topsoil**
Topsoil and subsoil has not been separated. Additional topsoil needs to be imported in order to successfully rehabilitate disturbed areas.
- **Areas which have been backfilled:**
In areas which have already been backfilled, ripping, scarifying, spreading of imported topsoil (150 mm), mulching, fertilizing and seeding of appropriate indigenous grass species should occur.
- **Remaining open trenches**
Remaining open trenches should be backfilled; topsoil (150mm) should be spread, mulching, fertilizing and seeding of appropriate indigenous grass species should occur.

6.2 Specifications for rehabilitation

Ripping of compacted earth

All soil to be rehabilitated shall be ripped with a mechanical ripper to a depth of 300 mm or as agreed by the engineer. No section of ground shall remain undisturbed after ripping.

Scarifying and removal of rock, stones and roots

Where spoil material has been placed, and a crust has formed scarifying shall be repeated to break the crust prior to establishing vegetation.

Topsoil

Where the importation of topsoil is instructed, topsoil shall consist of soil, selected from areas showing a good coverage of natural vegetation, preferably grasses and the source shall be agreed with the EC.

Before placing topsoil, the Contractor shall remove all visible weeds from the placement area and from the topsoil. Topsoil shall generally be spread evenly over the prepared surface to a depth of 150 mm on flat ground. After spreading of topsoil all rocks and stones larger than 100 mm in maximum dimension left on the surface after topsoil placement shall be removed prior to seeding. Topsoiling shall only be implemented after shaping, ripping, trimming and scarification has been carried out to the satisfaction of the EC.

After spreading of topsoil all rocks and stones larger than 100 mm in maximum dimension left on the surface after topsoil placement shall be removed prior to seeding.

Seeding

The seed shall be fresh and of good quality. Should, for reasons beyond the control of the Contractor, the procurement of a specific seed species not be possible, replacement with seed from a similar species may be requested. Such replacement shall only occur with the written approval of the EC.

Should the Supervisor not agree to the replacement of species, the unobtainable species should be omitted from the seed mix and no compensation for such seed will be applicable. The seed mixture shall consist of the following species in the stated proportions:

TABLE 6-1: APPLICATION RATE FOR GRASS SEED MIXTURE 20KG/HA	
<i>Eragrostis curvula</i>	20%
<i>Cynodon dactylon</i>	20%
<i>Eragrostis tef</i>	5%

<i>Chloris gayana</i>	15%
<i>Cenchrus ciliaris</i>	10%
<i>Digataria eriantha</i>	10%
Indigenous / endemic species	20%

Species shall be hand seeded and an anti-erosion compound shall be added to the mixture.

*This is a standard Highveld mixture and percentages and species might change due to availability and specific site conditions

All species are obtainable from EC REHAB in Potchefstroom Tel: 018 297 7320.

Processed mulch

250 kg/ha

The mulch shall consist of either straw or veld grass that has been processed by an agricultural hammermill where the fibre length does not exceed 25 mm. Only straw or veld grass that is not contaminated with weeds will be used.

The mulch will be placed in closed bags and delivered to site where it will be inspected prior to use. The mulch application will be not less than 250 kg/ha.

NPK Fertilizer

The Contractor shall take representative samples of the top 75 - 150mm topsoil for soil analysis by a recognized laboratory in order to determine the soil PH, the Lime, Superphosphate, the N:P:K fertilizer, the CEC (Cation exchange capacity) and organic carbon content. The areas to be grassed are to be fertilized in accordance to the soil analysis recommendation.

The fertilizer requirements as determined by the soil analysis report will be added with the hydroseeding mixture. The fertilizer shall be uniform in composition, free flowing and suitable for application with approved equipment. It shall be delivered to the site in bags or other convenient containers, each of which shall be fully labeled and bear a clear indication of the contents, the trade name or trade mark, the producer's name and a warranty by the producer with regard to the contents. Care shall be taken to ensure that fertilizers are stored such that it does not pose a threat to the environment. Where hydroseeding is done the fertiliser shall be included in the hydroseeding mix.

The fertiliser will consist of either 2:3:2, 3:2:1 or any other NPK combinations thereof.

Limestone Ammonium Nitrate or Urea will be applied separately as a maintenance dressing 8 to 12 weeks after germination.

TABLE 6-2: THE STANDARD APPLICATION RATES FOR THE VARIOUS FERTILISERS ARE PROVIDED

Agricultural Lime	1.00 ton /ha
Superphosphate	0.5 ton/ha
Limestone Ammonium Nitrate	0.25ton/ha
Urea	0.15ton/ha
2:3:2 (22) + Zn	0.35ton/ha
3:2:1 922) + Zn	0.35ton/ha
Organic supplement(GROMOR)	1.00ton/ha

Soil binder/anti erosion compound





The soil binder or anti erosion compound will be either HYDROPAM @ 5 kg/ha or as specified by the suppliers. The soil binder/anti erosion compound will be applied simultaneously with the mixture. The anti-erosion compound shall consist of a soil binding agent in suspension, which is sprayed on the soil as part of the hydroseeding mix to bind the soil and protect it against erosion.

Organic supplement

GROMOR organic supplement or similar approved processed chicken/cattle manure will be applied 1000 kg/ha or at the recommended application rates.

Health and Safety considerations in the use of rehabilitation products

The health and safety considerations of the above-mentioned rehabilitation products must be taken into account in the use of these products. MSDS requirements must be taken into account during the handling, use and disposal of these products.

	
<p>Figure 1: Existing open trench close to the proposed mainline connection</p>	<p>Figure 2: Stockpiles: Topsoil and subsoil have not been separated</p>
	
<p>Figure 3: Areas that have been backfilled</p>	<p>Figure 4: Poor soil quality after backfilling</p>

ANNEXURE A

ENVIRONMENTAL AWARENESS POSTERS

ANNEXURE B

EXAMPLE OF METHOD STATEMENT TEMPLATE