Environmental Management Programme for the Proposed Road Deviation (D4380) at Mogalakwena Platinum Mine

Report Prepared for

Mogalakwena Platinum Mine

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Environmental Management Programme for the Proposed Road Deviation (D4380) at Mogalakwena Platinum Mine

SRK Consulting (South Africa) (Pty) Ltd.
SRK Consulting
265 Oxford Road, Illovo
Johannesburg 2196
South Africa

website: www.srk.co.za

Tel: +27 (0) 11 441 1111
Fax: +27 (0) 11 880 8086

SRK Project Number 435183

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Compiled by:	**Reviewed by:**
Natasha Anamuthoo	Darryll Kilian

e-mail: nanamuthoo@srk.co.za

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1 Introduction and Scope of Report

Mogalakwena Platinum Mine (MPM) proposes to re-align a portion of the D4380 Provincial Road along a route as close as possible to the western boundaries of the farm Zwartfontein 818 LR, to allow for the expansion of mining activities (Expanded open pit and waste rock dump) once the necessary surface lease has been obtained, in a westerly direction. The project will result in the important upgrading link in the roads infrastructure as an important link between the towns of Bakenberg and Mokopane. The existing gravel road will be upgraded and tarred over some of its length providing an improved transport network for the local community. A section of the road will be re-aligned. The re-aligned section will also be tarred. This document is based on a generic environmental management programme (EMPr).

2 Environmental management plan

The purpose of the Environmental management plan (EMPr) is to ensure that social and environmental impacts, risks and liabilities identified during the EIA process are effectively managed during the construction, operation and decommissioning/ of the project. The EMPr specifies the mitigation and management measures to which MPM is committed, and shows how the project will mobilise organizational capacity and resources to implement these measures. The EMPR also shows how mitigation and management measures will be scheduled.

The key objectives of the EMPr are to:

- Formalize and disclose the programme for environmental and social management; and
- Provide a framework for the implementation of environmental and social management initiatives
- Present guiding principles and generic measures for the detailed development of the final EMPR, which will include detailed method statements.
- Provide mitigation measures
- Specify roles and responsibilities for implementing the EMPr.

Best practice principles require that every reasonable effort be made to reduce and preferably to prevent negative impacts, while enhancing positive impacts/benefits. These principles have guided the EIA process. Some potential negative impacts have been avoided through careful design and location of infrastructure. Specialists (Heritage and Biodiversity) have also identified measures whereby impacts can be avoided/ mitigated (see Appendix D) which contains the specialist reports).

Work underpinning the EMPr has complied with EIA Regulation requirements, and has included a public participation process. The EIA has listed potential impacts associated with the proposed project identified mitigation measures for potential negative environmental and social impacts and formulation of the EMPr against the negative impacts.

The EMPr covers information on the management and/or mitigation measures that will be taken into consideration to address impacts in respect of:

- Pre - construction activities;
- Operation; and
- Decommissioning, where relevant.

It is necessary to highlight that the EMPr is a living document that must be periodically reviewed and updated. This EMPr will also be publicly disclosed during the public participation process, and an opportunity will be offered to participating stakeholders to comment on it. Work underpinning the EMPr needs to comply with the EIA Regulation requirements, and includes the following:

- A public participation process set out in Regulations 54, 55, 56, 57 and 58;
- A BA report of the proposed Project, including specialist reports, that aims to:
    - List the impacts and risks associated with the proposed Project;
    - Identify mitigation measures relating to the negative environmental and social impacts identified during the BA process; and
    - Formulation of the EMPr to avoid/minimize negative impacts.

The EMPr covers information on the management and/or mitigation measures that will be taken into consideration to address impacts, where relevant, in respect of:

- Pre-construction and construction activities;
- Operation; and
- Closure.

It is necessary to highlight that the EMPr is a living document that will be periodically reviewed and updated as necessary.

2.1 Approach to environmental impact management

Responsibility for the EMPr will reside in the HSE functional management cluster of MPM, but there will be links with other functional clusters in areas such as operation and maintenance services. The sections that follow outline the management cycle that will characterise HSE management, and which will apply to the EMPr. Table 1-2 presents the range of approaches that will be used to manage potential project activities.

Table 1-1: Approaches to impact management

Avoidance	Avoiding activities that could result in adverse impacts and/or resources or areas considered sensitive
Prevention	Preventing the occurrence of negative environmental impacts and/or preventing such an occurrence having negative impacts
Preservation	Preventing any future actions that might adversely affect an environmental resource
Minimisation	Limiting or reducing the degree, extent, magnitude or duration of adverse impacts through scaling down, relocating, redesigning and/or realigning elements of the project
Mitigation	Measures taken to minimize adverse impacts on the environment
Enhancement	Magnifying and/or improving the positive effects or benefits of a project
Rehabilitation	Repairing affected resources, such as natural habitats or water resources
Restoration	Restoring affected resources to an earlier (possibly more stable and productive) state, typically 'background' or 'pristine' condition
Compensation	Compensating for lost resources, and where possible, the creation, enhancement or protection of the same type of resource at another suitable and acceptable location

3 Responsibility and accountability

3.1 Corporate structure

The environmental management structure pertinent to the proposed development is provided in section below:

Environmental management structure

MPM will maintain general responsibility for the implementation of the EMPr during construction, operation and decommissioning. MPM is accountable for ensuring that resources are made available to effectively implement the EMPr and necessary environmental management measures arising from the project, shows the proposed organizational structure for the MPM Project, Figure 3-1 showing the reporting lines of staff to be involved in environmental management of the project. The General

Manager will take responsibility for the day-to-day running of the project and will oversee the detail of implementation of the EMPR.

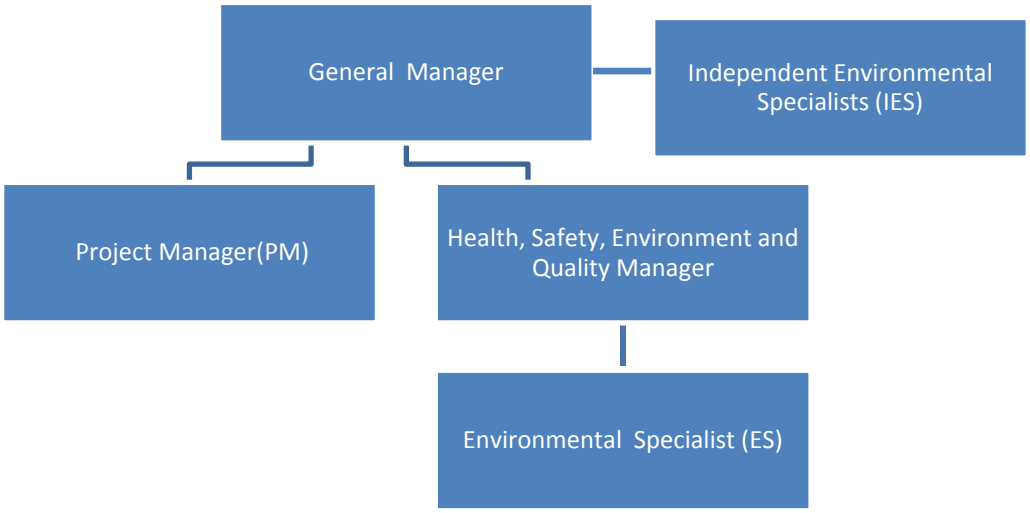

Figure 3-1: Proposed organizational structure for MPM Project showing the position of staff involved in environmental management

Table 3-1 provides details on the functions of each staff member. The environmental, health and safety management of the project will be the responsibility of the Safety, Health, Environment and Quality (SHEQ) Manager who reports directly to the General Manager. The SHEQ Manager will be supported by an internal Environmental Specialist (ES).

Environmental monitoring will be undertaken by the ES, and independent audits of environmental performance will be conducted from time to time by independent environmental specialists (IES).

Table 3-1: Responsibilities of staff involved in environmental management at MPM

Position	Reporting line	Responsibilities
Safety, Health, Environment and Quality Manager	General Manager	• Develop policies and procedures on the environmental, social, health and safety issues • Oversee implementation of the EMPr • Review and analysis of monitoring results and preparation of short reports to Project Manager • Planning of training programs for personnel in accordance with labour protection requirements • Community consultation and liaison (as necessary) • Implementation of environmental management programme/action plans • Preparation of annual environmental and social report • Inspection/audits of environmental protection requirements by employees and sub-contractors, including the ES • Obtaining and maintaining all necessary environmental permits
Environmental Specialist	SHEQ Manager	• Preparation of environmental monitoring reporting and any permit applications (if any) • Running of day-to-day requirements for EMPr implementation • Overseeing of construction process and ensuring the implementation of avoidance and mitigation measures • Conducting monitoring and review of EMPr implementation by contractors
Independent environmental specialists	General Manager /SHEQ Manager	• Periodically commissioned to assist with specific tasks such as: o review of information o advice on specialist issues o assistance with annual monitoring report o conducting of environmental auditing

3.2 MPM Safety, Health, Environmental and Quality Policy

MPM environmental management is integrated with health and safety. MPM Safety, Health, Environment and Quality Policy follow international best practice in terms of environmental. Since the proposed development is essentially, all environmental management measures will be incorporated into the current environmental management system and EMPr. These measures include:

- A Sustainable Development Policy
- A Code of Business Conduct
- Approach to Employment including:
  - HIV/AIDS in the workplace
  - Training and Development
  - Community Development and

- Communication

1.1 Management of contractors

Responsibility for implementation of some of the EMPr commitments will be transferred to contractors. However, MPM fully recognises that it is not absolved from those management responsibilities. Ultimate responsibility for meeting all commitments lies with MPM.

MPM will commit contractors to meeting the relevant responsibilities by means of specific conditions in the contracts of appointment. Activities of contractors will be overseen by the General Manager and staff as appropriate.

1.2 Contractor arrangements during construction and operation

The following construction phase contractor arrangements will be made to support EMPr implementation:

- Contractors will have certain key environmental line functions included in their job descriptions and performance criteria. Critical among these is the Construction Manager.
- The Construction Manager will be accountable for environmental (including social) management during the construction phase. Specific responsibilities for the Construction Manager will include:
  - Effective implementation of the EMPr
  - Regular performance reviews
  - Corrective and/or remedial action where this may be required.
- Regular (at least monthly) liaison between the Construction Manager, the MPM Project Manager and the SHEQ Manager and/or his/her team must be carried out. At the commencement of the construction phase, weekly meetings should occur. Meetings should review implementation of EMPr requirements, highlight issues of concern, identify required interventions and prescribe corrective actions and schedule, and allocate budget and appoint responsible parties. MPM SHEQ department must receive minutes of meetings and should be invited to attend meetings at least once a quarter.
- Construction teams will be required to comply with MPM code of practice (COP) and Safe Operating Procedures (SOP's), if required additional COP's and/or SOP's would be compiled and implemented . This COP's and SOP's will guide the management and behaviour of construction teams. The procedures will include items relating to health, safety and environmental issues.
- Information on the implications of construction will be disseminated before construction commences.
- Contracts will be key tools in managing many potential negative impacts such as transport related incidents. They will specify required environmental and social practices.
- Prior to commissioning of the energy recovery plan and associated infrastructure MPM will establish or revise existing operational procedures to give effect to measures to avoid and mitigate identified impacts.

1.3 Training, awareness and capacity-building

All new employees and contractors will attend an induction session/s that will include health and safety, environmental and community awareness and emergency response procedures. MPM will use written (newsletter/posters/toolbox talks) and verbal (as part of routine briefings) communication methods to raise awareness on a range of health, safety and environmental issues. This will be done in both Zulu and English languages (as appropriate) to ensure that all members of the workforce are made aware. Training for construction workers will include HIV/Aids counselling and awareness.

1.4 Monitoring and compliance assessment

During the construction phase, MPM will be entitled to monitor and inspect contractors' written records to demonstrate compliance with the EMPr. This compliance monitoring will verify that the responsible parties are implementing the specifications contained in the EMPr. Compliance will mean that the contractor is fulfilling contractual obligations.

- Internal environmental inspections for the pre-construction, construction and operational phases will be carried out at least monthly, and all environmental aspects will be inspected at least once during the year. The internal inspection will be performed by the Environmental Specialist in association with the SHEQ Manager.
- Minor non-conformances will be discussed during the inspection and recorded as a finding in the inspection report. Major non-conformances will be formally reported as an incident and will be subject to the incident reporting and handling procedure (see below).
- The SHEQ Manager will arrange for external inspections and will provide any assistance required/requested by relevant authorities in this regard. Independent external environmental, health and safety audits will be conducted by competent and independent external professional/s at least once every two years. Any negative findings arising from the authority's inspection or the external audit will be treated as an incident and dealt with in accordance with the incident reporting and handling procedure (see below).

1.5 Incident handling and reporting

An incident can arise from the following:

- Significant non-conformance with the EMPr identified during an internal inspection
- Any significant non-conformance identified by either the authorities or an external audit
- Accidents or spills resulting in significant potential or actual environmental harm
- Accidents or near misses that did or could result in injury to staff, visitors to site or the surrounding communities
- Significant complaints received from any source.

All incidents will be formally recorded on the relevant form (to be developed) and noted in the incident register. This register will specify at least:

- Nature of the incident
- Date and time it occurred and who reported it
- Actual or possible consequence of the incident
- What actions are being taken to address/remedy the incident
- Date incident closed and who authorised closure (once incident has been adequately addressed).

Checking and corrective action

Checking and, if necessary implementing corrective action should be implemented to ensure that required EMPr management activities are being implemented and desired outcomes are achieved. The four key activities are:

- Monitoring selected environmental quality variables as defined in the objectives and targets. Monitoring of EMPr implementation must be structured and presented for review on an on-going basis so that if objectives and targets are not met, corrective action can be taken.
- Regular inspections of the operational controls and general state of the operations. An on-

going, pragmatic inspection regime must be followed which to identify transgressions so that mitigation can be quickly and effectively implemented.

- Internal audits to assess the robustness of the EMPr or to focus on a particular performance issue. When inspection reports highlight problems, an internal audit can be used to ascertain the source of the problem and to define action to prevent its recurrence.
- External audits to provide independent verification of the efficacy of the EMPr to include the Contractor's SHEQ performance.

Lending institutions and commercial banks may have their own requirements for external, independent monitoring verification, as well as regular audits of the EMPr implementation.

Corrective action

There are several mechanisms for implementing corrective action, both during the pre-construction, construction and operational phases. The main mechanisms to address transgressions include: verbal instruction (in the event of minor transgressions from established procedure, usually following a site inspection); written instruction (identifying source/s of problems, usually following an audit) and contract notice (following possible breach of contract).

Reporting

The findings of all of the above will be structured into instructive reporting that provides information to all required parties on SHEQ performance, together with clearly defined corrective action where this is seen to be required. Reporting will include the provision of information on the SHEQ performance to external stakeholders including relevant authorities and surrounding communities as applicable.

Management review

Management review must take place every 6 months, both during the construction and operational phases. The purpose of the management review is for senior project management to review the environmental management performance during the preceding period and to propose measures for improving that performance in the spirit of continuous improvement.

Monitoring and safety

Monitoring of the energy recovery plant and associated infrastructure, is essential to ensure safe and efficient operation.

3.2.1 MPM's Social and Environmental policy

MPM is committed to developing and operating a terrestrial fibre optic cable system in a manner that ensures environmental protection and minimises social impacts and is in line with industry best practice. This commitment is central to the company's Social and Environmental Management system framework.

In line with this commitment MPM will endeavour to:

- Undertake its activities in line with applicable industry standards and industry good practice;
- Meet the requirements of national legislation wherever its network exists;
- Manage construction activities, which MPM recognises as the main potential source of social and environmental impacts, in a sustainable manner in order to minimise such impacts;
- Ensure social and environmental impacts during operation of the project are avoided or reduced as far as practicable;
- Communicated and work closely with its Contractors to ensure their understanding and shared commitment to conformance with this policy;
- Provide training in social and environmental matters to key employees and Contractor representatives where appropriate; and

- Implement all reasonable precautions to protect the health and safety of its employees and promote the health and safety of contracted workers.

These objectives shall be met via provision of adequate resources by senior management within MPM to support the implementation of the social and environmental management systems. This policy and other elements of the social and environmental management system shall be regularly reviewed and updated in order to ensure its continued applicability to the activities of MPM.

3.2.2 Planning and design

Planning and design is necessary to ensure that mitigation and impact management can be effectively implemented and minimise impacts in future stages of the project cycle. The alignment of the fibre optic data cable and siting of repeater sites should be informed by identified environmental sensitivities along the route, with a view to avoiding, minimising and mitigating potential negative impacts and enhancing potential benefits.

In the case of the MPM Project the environmental aspects and potential impacts will mainly emanate from the following project related activities:

3.2.3 Pre-construction and construction

The EMPr will put in place measures to avoid and mitigate impacts and optimize benefits arising from activities during the pre-construction (e.g. establishment of access roads, campsites and clearing of the construction right of way) and construction phase (e.g. trenching and laying of data cable) of the Project. The construction process is detailed in Section 2 of this EMPr. The principal role of the Contractor/s during pre-construction and construction stages of the project will include: personnel and Contractor management and training; conduct and site management; landowner relations; maintenance of complaints register; emergency preparedness; and management and mitigation of impacts such as noise, dust and safety).

Field investigations and surveys will be undertaken during the pre-construction and construction stages of the project to ensure that ecological, heritage and palaeontological resources are identified, documented and, where necessary, rescued. Permits will need to be obtained from the relevant conservation authorities for the trimming and/or removal of indigenous trees.

Assignment of responsibility and Contractor management is especially important during the construction phase, when Contractors are used to build the data cable. Contractors will also be used on an ongoing basis for a range of maintenance and other functions. Contractors will be held to best practice performance requirements.

3.2.4 Operation

The mechanisms for effecting the EMPr requirements are collectively called ‘operational controls’. Such operational controls require that a responsible party, a budget and an implementation schedule be specified and allocated, to further enable and facilitate implementation. Roles and responsibilities need to be defined for implementation of the EMPr. To facilitate coordinated and purposeful implementation, the EMPr management and mitigation measures are grouped in programmes and plans.

3.2.5 Checking and corrective action

Checking and, if necessary implementing corrective action, form one of the components of the EMPr management cycle. They ensure that the:

- Required EMPr management activities are being implemented; and
- Desired outcomes are being achieved.

As such this component will includes monitoring selected environmental quality variables as defined in the objectives and targets.

Monitoring

The environmental features that are to be monitored are described in Section B of the Basic Assessment Report. The management activities for these features are presented in Table 3-1 of the EMPr. Monitoring results must be structured and presented for review on an ongoing basis so that if objectives and targets are not met, corrective action can be taken.

Inspections: construction phase

Owing to the transient nature of the construction phase, the greatest source of information is that obtained through ongoing visual inspection. At the same time some potential impacts are difficult to monitor quantitatively, such as soil erosion and waste management. An ongoing, but pragmatic inspection regime will be developed that allows for potential HSE transgressions to be identified proactively so that mitigation can be quickly and effectively implemented.

Internal audits

Where the monitoring data and the inspection reports highlight problems, an internal audit can be used to ascertain the source of the problem and to define action to prevent its recurrence. The three key areas for audit are facilities (are they operating properly?), project procedures (are they properly designed and implemented?) and finally, and perhaps most importantly Contractor's HSE performance.

Incident handling and reporting

An incident can arise from the following:

- Significant non-conformance with the EMPr identified during an internal inspection
- Any significant non-conformance identified by either the authorities or an external audit
- Accidents or spills resulting in significant potential or actual environmental harm
- Accidents or near misses that did or could result in injury to staff, visitors to site or the surrounding communities
- Significant complaints received from any source.

All incidents will be formally recorded on the relevant form (to be developed) and noted in the incident register. This register will specify at least:

- Nature of the incident
- Date and time it occurred and who reported it
- Actual or possible consequence of the incident
- What actions are being taken to address/remedy the incident
- Date incident closed and who authorised closure (once incident has been adequately addressed).

Checking and corrective action

Checking and, if necessary implementing corrective action should be implemented to ensure that required EMPr management activities are being implemented and desired outcomes are achieved. The four key activities are:

- Monitoring selected environmental quality variables as defined in the objectives and targets.

Monitoring of EMPr implementation must be structured and presented for review on an on-going basis so that if objectives and targets are not met, corrective action can be taken.

- Regular inspections of the operational controls and general state of the operations. An on-going, pragmatic inspection regime must be followed which to identify transgressions so that mitigation can be quickly and effectively implemented.
- Internal audits to assess the robustness of the EMPr or to focus on a particular performance issue. When inspection reports highlight problems, an internal audit can be used to ascertain the source of the problem and to define action to prevent its recurrence.
- External audits to provide independent verification of the efficacy of the EMPr to include the Contractor's SHEQ performance.

Lending institutions and commercial banks may have their own requirements for external, independent monitoring verification, as well as regular audits of the EMPr implementation.

Reporting

The findings of all of the above will be structured into instructive reporting that provides information to all required parties on HSE performance, together with clearly defined corrective action where this is seen to be required. Both the monitoring and inspections are reported on continuously. Within the reporting structure it is necessary to create a review function that continuously assesses the reporting and prescribes any necessary corrective action.

Training, awareness and capacity-building

All new employees and contractors will attend an induction session/s that will include health and safety, environmental and community awareness and emergency response procedures. MPM will use written (newsletter/posters/toolbox talks) and verbal (as part of routine briefings) communication methods to raise awareness on a range of health, safety and environmental issues. This will be done in both Zulu and English languages (as appropriate) to ensure that all members of the workforce are made aware. Training for construction workers will include HIV/Aids counselling and awareness.

3.2.6 Management review

The final component of the EMPr management cycle is a formal management review that takes place at defined intervals, both during the construction and operational phases. The purpose of the management review is for senior project management to review the environmental management performance during the preceding period and to propose measures for improving that performance in the spirit of continuous improvement.

3.2.7 Liaison

Throughout the project, liaison will be maintained with relevant parties (authorities and/or communities) to ensure the following:

- Advance warning to communities and/or landowners, where a project activities is likely to infringe on private land, or where project activities may have some adverse impact on surrounding communities, e.g. clearing of construction of right of way and activities such as blasting;
- Feedback to the relevant authorities (e.g. water affairs, environmental affairs) on the environmental performance during the construction phase of the project.

3.3 Assumptions

The assumptions for the project are as follows:

- All the technical data and information provided by the proponent to the EAP and specialists are accurate and up-to-date.
- The public involvement process has been sufficiently effective in identifying the critical issues that needed to be addressed through specialist investigations and/or by the EAP. Specialist input has thus been appropriately scoped to investigate the critical issues.
- The public involvement process has sought to involve key stakeholders and every effort has been made to ensure that landowners affected by the development, in particular those whose land is traversed by the development, have been provided opportunity to comment. It is assumed that where participation has been sought from the organizational representative/s, that these parties have the authority to comment on behalf of their organization.
- MPM and its contractors will implement the measures contained in the EMPr.
- A monitoring and evaluation system, including auditing, will be established to track the implementation of the EMPr to ensure that management measures are effective to avoid, minimize and mitigate impacts; and corrective action is undertaken to address shortcomings and/or non-performances.
- MPM and its consultants will adopt a process of continual improvement when managing and/or mitigating negative environmental impacts arising from the project. The EMPr will be used as the basis of environmental management and will be improved and refined regularly.

3.4 Pre – construction and construction phase

Pre-construction activities will include: preparation of plans; obtaining of wayleaves and permits; servitude establishment where the route/infrastructure falls outside the national and provincial road reserves; land surveying; establishment of construction campsite/s; building of access roads; and clearing of vegetation and removal of obstructions in the path of the proposed data cable.

3.4.1 Scale and pace of construction

It is envisaged that construction will happen concurrently, with a suitable number of separate construction teams working on different portions of the route corridor simultaneously. It is envisaged that there will be between 2 and 4 construction teams operating on the development at any one time. The final number will be determined by the Contractor and will take into account a number of factors, including time and cost.

The average rate of progress of construction will be strongly dependent on ease of excavation and may vary from a kilometre a day to 50m per day depending on the terrain. The temporary construction right of way required will be approximately 5-7m.

3.4.2 Construction process

The construction process is as follows:

Earthworks:

- Clearing of road from km 000 to km 4, 04
- Excavation of 150mm topsoil and the preservation thereof for the entire length of the contract. Rehabilitate affected areas alongside the road and other construction areas with topsoil.
- Bulk excavation to depths between 0,5m and 0,8m,

- Importation of selected layers and compaction of 150mm selected layers where underlaying material properties are not suitable for support under foundation.
- Importation and construction foundation layers.
- Importation and construction pavement layers.
- Construction of sub-surface drains on both sides of road from km 2,64 to km 6,76.
- Construction of 13 spigot and socket 450mm stormwater drains with headwalls on road D4380-5.22
- Construction of 7 spigot and socket 450mm stormwater drains with headwalls on side drains at village junctions.
- Construction of side drains on both sides of road.
- Construction of shoulders along the entire 6,76km of Road D4380-5.

Construction Materials

- All the material for the selected layers and the foundation layers will be sourced from the Mogalakwena Mine dumps.
- Base and sub-base material will be imported from commercial sources.
- Material for construction of shoulders will come from the Mogalakwena Mine dumps.
- Road D4380-5 will be surfaced with a double seal. (19 mm + 9,5mm aggregate).

Fencing

- There is only a fence along the first some 700m on the northern side where the road D4380 will be constructed on road D3501. This fence will be removed for construction and replaced.
- The existing security fence of the Seritarita Secondary School from chainage 700 to 1000 will be relocated to accommodate the new alignment of the road.
- No further provision is made for upgrading or repairing of fences under this contract.

Guardrails

- No guardrails will be installed.

Road Markings

- Provision is made to mark road D4380-5 at the end of construction and again at the end of the maintenance period.

Road Signs

- Provision is made for stop, speed limit and warning signs. Danger plates will be erected at the drainage structures and curves. Road information signs will erected at the two T junctions.

Energy, water, sanitation and waste requirements

Temporary construction camps will be established where required in remote areas. There will be energy and water use requirements (to be determined and supplied by the Contractor). Water use

will be limited to domestic and cooling purposes, and must be arranged by the Contractor from authorised supplies. Sewage and waste generated by activities of the construction camp will need to be disposed of. During the lifespan of the project electronic components will need to be updated and replaced from time to time. E-waste generated will be suitably disposed of at a registered landfill site.

Employment

It is anticipated that 35 temporary jobs will be created during the construction phase of the project. These employment opportunities will require a combination of both skilled and unskilled labour in a range of technical fields. Wherever possible, workers will be recruited from the local area.

3.5 Operational phase

3.5.1 Road Design

The road will be designed according to the norms and standards published in Geometric Design Guidelines from the South African National Roads Agency. Road D4380 will be realigned from km 7.68 and follow the alignment of Road D3501 for 140m before a new T-junction to the right in a north westerly direction with the Ga-Masenya village on the western side until the road joins again with road D4380 at km 11,030. The existing road will be upgraded from gravel to tar. The new section will also be tarred.

3.5.2 Safety and security

The operation of the cable and its associated end points will be monitored by trained personnel. Regular maintenance checks will also be undertaken.

3.5.3 Energy, water, sanitation and waste requirements

Transmission of data will be powered by electricity drawn from the national grid with backup generators in the case of power failures. Energy will be provided by Eskom and local authorities via the national electricity grid. There will be the requirement for on-site ablution facilities at data end points and repeater sites. Water use will be limited to domestic and cooling purposes, and will be the responsibility of the Contractor.

3.5.4 Monitoring

Monitoring of the data cable route and its associated infrastructure will need to be carried out for the first 12 months after installation and rehabilitation to ensure problems such as erosion caused by surface runoff are rectified.

3.5.5 Employment

During the operational phase, unfortunately no permanent employment will be created.

3.6 Decommissioning

It is envisaged that the equipment will be removed and suitably disposed of and/or reused.

3.7 Management plans

3.7.1 Rationale

It is advisable to implement mitigation and management actions via integrated management plans. These plans are outlined below. While generally the principles guide preconstruction and

construction, operational and decommissioning phase plans, some of them start during construction and continue into decommissioning, such as soil conservation management, air quality and water management. The following management plans need to be implemented during construction and maintenance of the road:

- Construction management plan
- Labour and human resources plan
- Workplace health and safety plan
- Community safety plan
- Land acquisition and compensation plan
- Emergency management and response plan
- Social responsibility plan and
- Decommissioning plan

Many of the issues to be addressed in these plans are regulated in existing laws, regulations and guidelines. In addition, it is recognised that the content of several plans will be generic, in the sense that existing procedures are documented in standard codes of practice, and that adaptations of such generic plans will only be possible as a dynamic process during construction and operation. Plans presented below, therefore, contain specific actions as well as undertakings to prepare additional plans as required prior to the commencement of certain activities during the detailed design phase. MPM recognises the need for ongoing development and revision of all plans to ensure their continued applicability.

3.7.2 Construction management plan

The construction management plan to be implemented by the Contractor shall include the following key measures:

Management of construction campsites

- The Contractor shall comply with all relevant laws and regulations concerning water provision, sanitation, wastewater discharge and solid waste disposal. The Contractor is referred, in particular, to the requirements of the National Water Act (Act 36 of 1998) and related regulations, as well as requirements contained in the WUL.
- The Contractor shall not locate campsites in any area in which vegetation is pristine, nor within 100 m of any watercourse, nor in any area that could cause nuisance or safety hazards to surrounding landowners, inhabitants or the general public. The location of a construction campsite requires prior landowner agreement.
- Prior to the commencement of construction, the Contractor shall also prepare documentation for each proposed campsite which contains, but is not limited to, details of: (a) site layout; (b) topsoil management; (c) sewage treatment; (d) solid waste disposal; (e) erosion control (f) fencing; (g) litter management; (h) provision for vehicle and plant servicing; (i) management of hazardous materials, (j) water supply, (k) management of veld fire risk (l) rehabilitation; and (m)security. The documentation shall be submitted to MPM as a part of the Contractor's project specific Environmental Plan prior to establishment on site.
- The Contractor shall access construction campsites in compliance with this EMPr.
- The Contractor shall keep construction campsites clean and tidy at all times. The Contractor shall not leave domestic waste uncontained, and temporary storage shall be fenced to keep out people

and animals. No permanent domestic waste disposal shall be permitted at the campsites. All domestic refuse is to be removed weekly to an existing licensed domestic landfill.

- The Contractor shall take specific measures to prevent the spread of veld fires, caused by activities at the campsites. These measures may include appropriate instruction of employees about fire risks and the construction of firebreaks around the site perimeter.
- The Contractor shall prevent accelerated erosion from construction campsites and shall not discharge polluted runoff into drainage lines.

Management of fuels and other hazardous materials

- The Contractor shall comply with all applicable laws, regulations, permit and approval conditions and requirements relevant to the storage, use, and proper disposal of hazardous materials.
- The Contractor shall manage all hazardous materials and wastes in a safe and responsible manner, and shall prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials.
- The Contractor shall prepare a hazardous materials and waste management plan for inclusion in the site specific Environmental Plan to be submitted to MPM prior to establishment on site. This plan shall include, but shall not be limited to, measures to prevent: (a) contamination of soils; (b). pollution of water; (c) safe siting and storage; (d) containment of lubricants and waste oil during maintenance of vehicles; and (e) tampering with tanks.
- The Contractor shall classify all hazardous materials to be used on site according to recognized Codes of Practice such as SABS Code 0228 for the Identification and Classification of Dangerous Substances and Goods and the DWAF Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste, and shall ensure that the handling, storage, transport and disposal of these materials meets the requirements of these Codes.
- The Contractor shall not locate fixed fuel storage tanks in any location other than at approved plant yards or campsites. Any fuel storage facilities with a capacity greater than 1000 litres shall be located on flat or gently sloping ground and shall be bermed from the surrounding area to contain at least 125% of the total capacity of the storage containers. The berms and the floor of the bermed area shall be of impermeable material or be lined to ensure that petroleum products cannot escape.
- The Contractor shall not construct fixed fuel storage or service or refuel any vehicle or equipment within 100m of a watercourse or wetland, within a floodplain, or where there is the potential for spilled fuel to enter a watercourse or groundwater. Should it not be possible to establish such a facility outside of the 100m zone, the Contractor shall ensure that the necessary precautions are taken to prevent and clean up spillages, including spill kits on the bowsers.
- The Contractor shall enclose all fixed storage by a security fence with a lockable gate.
- When crossing watercourses and wetlands, the Contractor shall place on-site tools and equipment, such as pumps, compressors and generators on bermed impermeable sheeting (e.g. polyethylene or other similar material) to prevent hydraulic fluid or fuel leaks from contaminating soil or groundwater or entering any watercourse or wetland.
- The Contractor shall take all reasonable precautions to prevent fuel and lubricant spills during the course of construction. To this end, the Contractor shall ensure that: (a) there is no overfilling of diesel bowsers and equipment tanks; (b) regular audits are performed to verify that no leaking or defective equipment is brought onto site; and (c) any oils or lubricants discharged during routine

vehicle servicing on site are captured using drip trays, containers or other appropriate containment measures.

- The Contractor shall ensure that all equipment which is required to work in fish-bearing waters is cleaned of oil, grease and other contaminants damaging to aquatic life.
- The Contractor shall ensure that fuelling and repairs are carried out or supervised by personnel familiar with spill containment and cleanup procedures.
- The Contractor shall ensure that there is sufficient absorbent material available on site to manage accidental spills. The Contractor shall immediately clean up accidental spillages of fuels and oils, or other hazardous substances, and shall report the incident to MPM and the measures taken to remediate the spill problem.

Management of the construction right-of-way

- The Contractor shall obtain access to and along the cable (a) on a public road (b) on an existing private road or track with the consent of the relevant owner or occupier of land (c) along the cable and construction right-of-way and (d) along a specially approved route as defined below. Access to, and along the construction right-of-way explicitly excludes access to land other than the access routes referred to above.
- The category of ‘specially approved route’ is for cases where there is no existing access. A specially approved route is one for which the relevant owner or occupier of land has given consent, and for which approval has been applied for in writing, and granted in writing by MPM, subject to any conditions that the landowner or MPM consider to be warranted (e.g. regarding erosion control, rehabilitation). No specially approved routes will be granted if areas of pristine habitat are to be impacted.
- The utility and safety of any existing access shall not be lowered by use for the construction work or construction-related activities, nor shall spillage, littering, accelerated erosion, or other environmental impact, occur. The Contractor shall: (a) ensure compliance with these requirements; (b) exercise all relevant health, safety and environmental controls (including dust control, noise abatement and litter prevention); and (c) remedy immediately any non-compliance and the effects thereof.
- In all areas where construction requires gravelling or other methods of improving vehicle access, the Contractor shall completely remove these materials after construction and prior to rehabilitation of the area.
- The Contractor shall restrict the number of entry and exit points for security reasons. The Contractor shall ensure that his activities do not compromise the landowners or occupiers security, nor result in the loss, injury or death of any farm animals or game.
- The dismantling of gates and fences shall be subject to any special conditions reached in the servitude agreements between MPM and landowners.
- The Contractor shall prevent littering and the random discard of solid waste on the site. The Contractor shall not dispose of any waste in the data cable trench.
- The Contractor shall manage hazardous waste as described in provisions 8 to 19.
- The Contractor shall minimise the risk of bush fires.
- The Contractor shall prevent trespassing on the site. Public entry to the site shall be prohibited and signs to this effect shall be erected at points of potential public entry.

- The Contractor shall prohibit and actively monitor and prevent poaching or harassment of animals by contract employees. Any employee found poaching shall be dismissed.
- At the start of every working day the Contractor shall patrol the open trench and rescue any animals that are trapped in it either by catching and releasing (e.g. frogs and toads) or by driving out (e.g. dangerous snakes).
- The Contractor shall prohibit and actively monitor and prevent the harvesting of medicinal or any other plants by contract employees.
- The Contractor shall ensure that contract employees remain within the construction right-of-way or on approved roads providing access to the construction right-of-way.
- The Contractor shall determine safe off-road travelling speeds for each section of the route corridor along the right-of-way and shall ensure that these restrictions are enforced.

Emergency preparedness

- The Contractor shall develop an emergency plan that will enable rapid and effective response to all types of environmental emergencies in accordance with recognized national and international standards.
- The emergency plan shall include the establishment of a network of communication between the Contractor and emergency services including police, traffic police, local medical and ambulance services, fire departments, farmers associations, conservancies, farmer neighbourhood watches, etc.
- The Contractor shall test emergency preparedness on a regular basis and review procedures to remedy shortcomings to ensure a high level of emergency readiness to deal with environmental and third party incidents.

Fire prevention and management

- The Contractor shall take all necessary precautions to prevent the ignition of veld fires caused either deliberately or accidentally as a result of the work being performed.
- The Contractor shall prepare a fire prevention and fire emergency management plan as a part of the Environmental Plan to be submitted to MPM prior to establishment on site. The plan shall include, but not be limited to, the following: (a) sources of fire risk; (b) measures to comply with any requirements of local authority fire departments; (c) measures to meet requirements agreed between MPM and the landowner; (e) measures to minimize the risk of accidental veld fires caused by any activity related to the work; and (f) measures to control an accidental veld fire.
- The Contractor shall provide adequate fire fighting equipment at specified localities on the work site to meet any emergency resulting from ignition of a veld fire. This equipment should include, but not be limited to, (a) fire extinguishers; and (b) fire fighting flails.
- The areas of commercial plantations through which the data cable is routed are particularly sensitive to fire hazard (such as in commercial forests) and the Contractor shall strictly comply with all fire management requirements set by the owners of these plantations.
- The Contractor may expect that hot work will be prohibited under specified meteorological conditions and that appropriate and adequate fire fighting equipment would be required to be on standby at all times where hot work is being carried out.

- Wherever practicable, bush shall not be cleared using burning. In instances where this is possible, controlled burning can only take place upon request of and approval from the landowner, and when there is no wind and appropriate fire fighting equipment is in attendance.

Management of dust and noise nuisance

- The Contractor shall control dust along the construction right-of-way so as to ensure that no detrimental effects to landowners, occupants or the general public are caused. Control measures to be considered include the use of water bowsers to wet down surfaces that have been denuded and which have the potential to generate dust.
- The Contractor shall comply with the legal requirements for the management of noise impact specified in the Noise Regulations under the Environment Conservation Act (Act 79 of 1989). If instructed to do so by MPM, the Contractor shall demonstrate compliance with the noise regulations by means of measurement of residual noise levels at receiver points specified by MPM. Measurement shall be in accordance with the requirements of the noise regulations.
- In the event that this should be required, the Contractor shall notify all landowners and inhabitants within 200m of a blast zone of the dates and times at which blasting is scheduled to occur. Blasting shall not be undertaken between the hours of 18h00 and 07h00 without the agreement of the affected landowners and occupiers.
- The Contractor's employees shall not make recreational use of all-terrain vehicles or motorcycles on the site.

Land owner and occupier relations

- The Contractor shall respect the property and rights of landowners and occupiers at all times and shall treat all such persons with deliberate courtesy.
- The Contractor shall comply with all special agreements between MPM and affected landowners provided in the Servitude Agreements and/or the Property Line List and/or required in terms of relevant national legislation.
- Access over land, the integrity of fences, the closure of gates, control of veld and forest fires, littering, dust control, noise abatement, harassment of domestic and wild animals, sedimentation and contamination of ground and surface waters, damage to landscape and vegetation, and all such environmental matters, shall be controlled, as far as practicable, by the Contractor in the best interests of the land owner or occupier.

Complaints register

- The Contractor shall establish and maintain a register for periodic review by MPM that logs all complaints raised by landowners, occupiers or the general public about construction activities. The register shall be regularly updated and maintain records, including the name of the complainant, his or her domicile and contact details, the nature of the complaint and if any action that was taken to rectify the problem.

Health management

- The Contractor shall comply with all relevant legislative requirements governing worker health and safety (e.g. Occupational Health and Safety Act (Act 85 of 1993) and related amendments and regulations).
- The Contractor shall also prepare and implement a programme to minimize the spread of HIV infection as a result of the construction contract. The programme shall be prepared with the assistance of a medical doctor with experience of HIV prevention and treatment.

Control of construction activities in sensitive areas

- Prior to the commencement of construction activities, the Contractor shall (together with the ECO) survey the limits of the construction right-of-way and of any additional workspace areas required for construction and shall mark the limits using 1.5m long stakes at 200m maximum intervals. These stakes shall be preserved throughout the work under contract. In the areas where pristine habitat is affected, the stake interval shall be reduced to 50 m spacing and the stakes shall be painted a conspicuous colour.
- In these areas, the Contractor shall take the following additional precautions: (a) staff and, in particular, machine operators shall be specifically instructed about the sensitivity of the areas; (b) vegetation clearance shall be restricted to the absolute minimum necessary to provide access along the construction right-of-way; and (c) site staff responsible for environmental management shall increase the frequency of monitoring in the areas to verify continuing compliance with the environmental standard and the restriction of vehicle traffic to within the construction right-of-way.
- The Contractor shall erect a physical barrier (e.g. a removable fence) to ensure that there is no unauthorized access of any other areas by construction workers, or as specified in the servitude negotiations with the affected parties.
- In sections of the route corridor, where the data cable crosses the escarpment and where steep and rugged terrain is experienced, the Contractor shall prepare a detailed method statement for review and approval by MPM prior to construction. The method statement shall include details of: (a) access requirements and the construction of any necessary access roads; (b) any areas of cut and fill required to complete the works; (c) an itemised list of equipment that will be used for the excavation, laying of cable and backfilling of the trench; (d) measures to ensure the management of erosion during the construction of the work; and (e) measures that will be used to stabilise and rehabilitate the completed works. Such measures will need to consider special methods of retaining topsoil on the slopes by reducing rainfall impact, re-vegetation methods that are less prone to erosion loss (veld sod) and any other necessary measures to ensure that rehabilitation is effective.
- Damage or harm to threatened plant species is illegal in terms of legislation. Threatened species are defined in terms of the most recent Red Data list of Southern African Plants. While every effort has been made to ensure that the data cable route corridor does not impact on threatened species, the Contractor shall be solely responsible for any action necessary to ensure the prevention of harm to such species found during construction. In the event that the Contractor, MPM or any other party in any area that could be damaged by the works finds a threatened plant, this shall immediately be reported to MPM and the relevant authority (SANBI or one of the Parks Boards as relevant). The Contractor shall call upon a suitably qualified botanical expert to oversee: (a) rescue of the plant(s) and transplantation in a suitable local habitat in a conserved area or in a recognised botanical garden; or, where this is not possible; and (b) the collection of seeds and cuttings for use at botanical gardens and for storage in seed banks.
- The Contractor shall take note of the possible occurrence of threatened animals and, in particular, antelope near the data cable route corridor. The Contractor shall be particularly vigilant in these areas in order to ensure that none of these animals are deliberately or accidentally harmed.

Control of vegetation clearing

- The Contractor shall not clear any vegetation along the construction right-of-way outside of the areas defined by the stake markers.

- The Contractor shall clear vegetation along the construction right-of-way and the access routes to the minimum degree necessary for construction. Cleared vegetation shall be windrowed along the perimeter of the construction right-of-way.
- The large indigenous trees occurring in the riparian zone which have been individually categorised, named, marked in the field shall not be damaged by the Contractor unless a permit has been obtained from the relevant conservation authority. The trees shall be plotted on the survey drawings. The Contractor shall prevent damage to these trees and/or obtain the necessary permit should it be necessary to trim or remove these trees.
- Where the data cable passes through an afforested (plantation) area the Contractor shall comply strictly with the conditions agreed between MPM and the owner.
- Where the Contractor has to dispose of vegetation cleared from the construction right-of-way, he/she may do so with the permission of the landowner provided there is no impairment to the health and well being of any person, to water quality, land use and capability or ecological stability of the area in which it is disposed.
- The burning of vegetation should be avoided as far as possible. The Contractor shall only be permitted to undertake the controlled burning of brush and other vegetation cleared from the construction right-of-way, upon consent from the landowner and subject to compliance with any burning regulations of the district. A method statement shall be prepared for each controlled burn, and submitted to the relevant fire prevention authority.

Control of topsoil and subsoil

- The Contractor shall store topsoil (defined as the soil above 150mm) excavated from the trench in a wind row or stockpile which shall be discernibly separate from wind rows or stockpiles of any other excavated materials.
- The Contractor shall remove topsoil from a corridor up to 0.5m wide over the line of the trench. Topsoil shall not be disturbed, more than is absolutely necessary, on the remaining construction right-of-way.
- Topsoil shall not be contaminated with anything that might impair its plant-support capacity (e.g. aggregate, cement, concrete, fuels, litter, oils, domestic and industrial waste).
- The Contractor shall temporarily stockpile topsoil in a location that will minimize any loss due to erosion or mixing with other material.
- The Contractor shall ensure that topsoil is stockpiled in a manner and for a period of time that does not result in deterioration in its plant support capacity.
- After the completion of the backfilling, re-contouring and erosion control works, the Contractor shall spread the topsoil evenly at uniform depth over the areas from which it was removed.
- The stockpiling of topsoil along the route corridor for the purposes of reinstatement is regarded as a vital component of successful rehabilitation, and compliance with the stripping requirements specified above will be strictly enforced. In areas where topsoil of less than 150mm is stripped, the Contractor will be required to demonstrate that substantial constraints prevailed which made this requirement unattainable.
- The Contractor may distribute waste soil (soft material) evenly around the construction right-of-way as long as it does not impact negatively on natural vegetation or land capability.

Control of material supply and borrow areas

- No borrow pits are envisaged for this contract. All additional material required for construction will be sourced from the Mogalakwena Mine and from commercial sources.

Bridge Structures

- No bridge structures are required for this section of the road to be upgraded.

Design Road Signs and Road Markings

- Provision will be made for the standard regulatory and warning signs to be erected after construction.

Drainage: Sub-Surface Drainage

- Sub-surface drains on both sides of road will be constructed from km 2,64 to km 6,76. This section has been identified with clay with a high swelling potential.

Drainage Design Guidelines and Flood Hydrology

- The drainage of road D4380-5 is assessed in terms of the Drainage Manual, 5th Edition, by SANRAL. The return period6 for flood design for this road is 20 years.

Control of stone and rock waste

- The Contractor may move surface stone and rock to facilitate data cable construction, but shall not stockpile or dispose of this material off the construction right-of-way without landowner consent.
- Where the land is naturally armoured (i.e. has significant amounts of surface rock and stone), the Contractor may return this material back over the construction right-of-way in approximately the same proportions as occurred prior to construction.
- The Contractor shall prepare a method statement detailing the proposed location and method of disposing of waste rock excavated from the data cable trench. As a general rule, windrowing of waste rock along the perimeter of the trench shall be prohibited. The Contractor shall identify erosion gullies or old borrow pits in these sections of route corridor for preferential disposal of waste rock and other granular material. The method statement shall include the measures that are proposed to stabilise and rehabilitate the disposal site.

Rehabilitation

- The Contractor shall restore the trench and construction right-of-way to the natural contours of the ground and shall allow normal surface drainage.
- The Contractor shall remove all temporary works along the construction right-of-way and fences and private roads disturbed by construction shall be restored to their original condition.
- The Contractor shall loosen compacted soils along the construction right-of-way by means of a plough or scarifier. Scarifying areas where topsoil has been removed shall be carried out prior to the replacement of topsoil. Care shall be taken to avoid topsoil inversion if scarifying is carried out in areas where topsoil has not been removed. Any ripping or scarifying operation shall not exceed a depth of 100 mm.
- The Contractor shall prevent concentrated run-off along, or next to, the construction right-of-way, and shall do so by shaping the land, establishing vegetation, and taking other appropriate measures to absorb and disperse runoff.

- In places where erosion control is required, including the top of bank of all gullies, watercourses, large depressions and steep slopes, the Contractor shall construct diversion banks across the construction right-of-way to divert the flow of water away from the backfilled trench and into the natural drainage courses.
- In all cases, the Contractor shall cover the backfilled data cable trench evenly with topsoil to a minimum depth of 150mm.
- On any deviations from the road reserve which cross arable land, the Contractor shall ensure that stone and rock within the soil profile are stockpiled so as to minimize constraints on adjacent land.
- Where the land is naturally armoured with surface rock or stone, the Contractor shall, after construction, replace the armouring over the construction right-of-way to protect against erosion.
- On slopes steeper than 5%, the Contractor shall use special protection methods to arrest soil erosion during the vulnerable period before vegetation re-establishment occurs.
- Where brush and tree limbs cannot be chipped or used by local communities, this vegetation shall be spread evenly over the construction right-of-way to preserve and assist the regeneration of natural vegetation, erosion control and providing animal habitation. Tree trunks and large limbs are to be laid in a random fashion across the natural slope of the ground, and should not obstructing access by construction vehicles. No tree trunks and large limbs shall be placed in gullies or erosion ditches.
- The Contractor shall establish vegetation cover (using species appropriate to the local area) in all areas disturbed by the works in the first growing season after construction, and shall maintain this cover for the duration of the maintenance period. The Contractor shall notify MPM in writing, prior to re-vegetation, of the method of preparation (scarifying / ripping / discing), soil amelioration (addition of lime or gypsum), fertilizing, and seeding (source, mixture and quantity) to be used in rehabilitating each area of the works and the post-establishment maintenance regime to be implemented.
- The Contractor shall maintain and submit to MPM records of the method used to re-establish grass in each area of the contract.
- Revegetation shall be done on the construction right-of-way including, but not limited to, all borrow areas, temporary access roads, spoil sites, camp sites and the like.
- Once the grass has been established, the maintenance period shall commence. This period shall extend for a minimum period of one calendar year.

3.7.3 Labour and human resources plan

The labour and human resources plan to be implemented by the Contractor and MPM shall include the following key measures:

- The Contractor shall establish a labour and human resources plan which shall be submitted to MPM.
- The plan shall be based on the following principles:
    - Compliance with national policy and legislation (e.g. Employment Equity Act) and international labour conventions and norms.
    - Clear and transparent conditions of service, as appropriate.
    - Open and fair recruitment procedures.

  - Well-structured, transparent and locally-appropriate remuneration and compensation procedures.
  - Accessible and appropriate training and development.
  - Clearly defined and open dispute resolution procedures.

- Wherever possible, first priority should be given to hiring qualified local people.
- The labour and human resources plan shall, as appropriate, be adapted by MPM and applied during the operational phase of the project to cover maintenance of the infrastructure.

3.7.4 Workplace health and safety plan

The workplace health and safety plan to be implemented by the Contractor and MPM shall include the following key measures:

- All relevant national legislation, including the OHS Act and related regulations, shall be adhered to in order to provide a safe and healthy environment for all employees, Contractors, suppliers and the community during construction and operational phases of the Project.
- The Contractor shall develop a health and safety plan in fulfilment of legal requirements for submission to and approval by MPM prior to the start of construction activities.
- MPM shall ensure workplace health and safety during the construction and operational (maintenance) phases of the data cable. Management should lead by example to ensure that legislative and contractual requirements are met.
- Health and safety performance will be continuously monitored and procedures reviewed with the aim of eliminating risk as far as reasonably practicable.

3.7.5 Community health and safety plan

The community health and safety plan to be implemented by the Contractor and MPM shall include the following key measures:

- All relevant national legislation, including the OHS Act and related regulations, shall be adhered to ensure that the health and safety of proximate communities and the public at large are not threatened during construction and operational phases of the Project.
- During the construction phase, the Contractor shall manage and control construction activities in order to minimise the risks to community health and safety. Special attention shall be paid to threats posed by the movement of construction vehicles, violation of cultural sensitivities through damage to graves and historic buildings and sites, contravention of community norms relating to sexual practice and use of alcohol, security and access control to the construction right-of-way, transport safety management and control of dust, noise and water pollution.
- The Contractor and MPM and its Contractors shall ensure that proximate communities are aware of the procedures for ensuring community safety should potentially hazardous activities such as blasting be required (See communication and information principles).

3.7.6 Land acquisition and compensation plan

Should there be diversions off the SANRAL and provincial road servitudes, the land acquisition and compensation plan to be implemented by MPM shall include the following key measures:

- MPM shall carry out negotiations with landowners in order acquire the land needed for the data cable servitude. Compensation will be based on current land and land use valuations in accordance with legislation, as appropriate.

- The data cable route corridor shall be aligned to avoid resettlement of households and economic displacement.
- In order to comply with lender requirements (e.g. Equator Principles and IFC Performance Standards), MPM shall prepare a land acquisition and compensation plan that describes how project affected persons will be compensated, and how it will seek to improve conditions for those affected by project activities. This plan should be based on the following principles:

    a. Avoidance of resettlement and economic displacement wherever possible.
    b. Fair compensation, at full replacement cost, prior to displacement.
    c. The pursuit of amicable and negotiated settlement in the context of compensation and assistance.
    d. Structured and responsive monitoring and evaluation.

- Land expropriation will only be considered where necessary.

3.7.7 Emergency management and response plan

The emergency management and response plan to be implemented by MPM shall include the following:

Emergency management planning

- MPM shall develop an emergency management plan to guide the coordination and operational handling of an emergency situation to include:

    - Structure and operation of the emergency management team.
    - Establishment of an emergency management centre.
    - Information retained by the emergency management team.
    - Incidents requiring activation of the plan.
    - Incident severity classification.
    - Process to be followed in the event of an emergency.

- Information pertaining to emergency management shall be reported through the HSE reporting process.

Emergency response plan

The community health and safety plan to be implemented by the Contractor and MPM shall include the following key measures:

- MPM should compile a comprehensive safety emergency management plan for the data cable, and liaise with emergency services of local municipalities where relevant.
- Emergency preparedness will include: staff emergency training; equipment maintenance and inspection.

3.7.8 Social responsibility plan

The social responsibility plan to be implemented by MPM and its Contractors shall include the following:

- Compliance with the principles of Broad Based Black Economic EMProwerment (BBBEE) as enshrined in the BBBEE Act (Act 53 of 2003) and its associated codes of good practice by MPM and its Contractors.

- As necessary, compliance with the requirements of the Preferential Procurement Policy Framework Act (Act 5 of 2000).
- In fulfilment of the above, maximize local EMPrloyment and local subcontracting.
- Where practicable, provide support to community initiatives aimed at the promotion of sustainable development. This support could take many forms, including the provision of technical information and advice and facilitating development in the areas affected by the data cable.

3.7.9 Decommissioning plan

The decommissioning plan directs pre- and post-closure activities. The provisions relating to this plan area as follows:

Planning for decommissioning

- MPM shall develop a final decommissioning plan in conjunction with local authorities and communities at least one year before the end of data cable operation, and update the plan annually thereafter to ensure that the provisions and costing reflects current realities.
- Prior to closure, MPM will hold negotiations with the relevant authorities and the local population to identify the best possible use for infrastructure. Where appropriate, negotiations will be held to make necessary arrangements to transfer useful infrastructure to new owners.

Decommissioning

- During the decommissioning of the cable, MPM shall ensure appropriate disposal of E-waste and other waste in accordance with waste management legislation dealing with the disposal of hazardous and general waste.
- MPM shall institute data cable abandonment measures as agreed to with relevant authorities.
- The cleared sites and associated infrastructure such as access roads will be rehabilitated by MPM and its environmental consultant/s using industry best practice methods.

Post closure

- Once the data cable has been abandoned, MPM will retain a number of responsibilities. These may include responsibility for ensuring that the right-of-way and any facilities left in place remain free of problems associated with abandonment.

3.7.10 HSE Construction Phase Roles and Responsibilities

MPM plans to put in place a specific team (Owner's Team) to manage the construction phase of the proposed Project. This team will be separate from the operations team, but will coordinate as required to ensure that there are no conflicts between operational and construction requirements. The physical construction will be managed by a Managing Contractor, who in turn will sub-contract specific components to various construction sub-Contractors.

The Managing Contractor’s environmental and social staff will be supervised by the Owner’s Team HSE organization. The Owners Team’s HSE staff will include the following:

- HSE Manager – to oversee the implementation of all HSE requirements as defined by MPM (essentially the requirements stipulated in this EMPr, but others may also become apparent and be included during project implementation). He/she should possess the requisite qualification pertaining to HSE.

- Environment Manager will also oversee environmental matters with his HSE staff (HSE officers). The staff should possess a suitable qualification in a natural science and/or environmental science / management discipline and should have appropriate experience.
- The HSE Officer (HSEO) - will assume the ECO function and be responsible for the implementation of the various environmental management requirements that need to be met by the Managing Contractor as well as the various other Contractors that will be operating on the site. This function will include regular inspections, coordination of reporting, and site wide environmental monitoring. The HSEO should have a tertiary qualification in a natural science and/or environmental science/management discipline with 3-5 years relevant work experience.
- Independent environmental consultant/s – will be commissioned from time-to-time to assist with specific tasks (e.g. review information and provide advice on specialist issues, assist in the preparation of an annual monitoring report and conduct environmental auditing). An independent environmental expert(s), in any field (e.g. wetlands, terrestrial ecology, water management, archaeology etc.), may be appointed on request of the Environmental Manager or Owner's Representative to provide specialist advice.

Contractors will be expected to have their own Environment Managers and their activities will be overseen by the Owners Team HSE staff. In addition, key line functions will have specific environmental and social management responsibilities included in their job descriptions and performance criteria. Critical among these is the Construction Manager. The Construction Manager will be accountable for environmental and social management during the construction phase. Specific responsibilities will include:

- The effective implementation of the EMPr;
- Regular performance reviews; and
- Corrective and/or remedial action where this may be required.

3.7.11 Contractor arrangements during the construction phase

The following construction phase Contractor arrangements will be made to support HSE and EMPr implementation:

- A detailed code of practice for construction teams will be prepared and implemented. This code will guide the management and behaviour of construction teams. The code will include items relating to health, safety and community relations. The code of practice for construction workers will include HIV/Aids counselling.
- Information on the implications of construction will be disseminated before construction starts.
- Information on the construction phase will be disseminated to affected landowners prior to construction.
- Contracts will be key tools in managing many potential negative impacts, such as transport related incidents. In this context both construction and operational contracts will specify required environmental and social practices.

3.7.12 Training, awareness and capacity building

The presence on site of one experienced HSE Manager, with previous exposure to similar projects, will allow on-the-job training.

3.7.13 Environmental procedures for the management of operational impact

Prior to the commissioning of the cable, MPM will establish operational procedures to give effect to the measures contained in the management plans presented in Section 3.3 of the EMPr. These procedures will form part of the MPM's HSE system and include: the routine maintenance of the cable right-of-way; environmental management of the data cable "right-of-way" during repairs; management of major erosion incidents; traffic safety; management of solid waste and health and safety.

Each procedure should include the following information:

- Procedure name and reference
- Purpose of the procedure
- Responsibilities for identifying operational impacts
- Liaison with authorities and communities, where appropriate
- Training of maintenance teams, where appropriate
- Record keeping and reporting
- Scheduling, where appropriate.

3.8 Monitoring

All management plans will be subject to monitoring. In general, monitoring will have two key elements: routine monitoring against set standards or performance criteria; and periodic review or evaluation. This will often focus on the effectiveness and impact of the programme or plan as a whole. In some cases, independent parties will undertake review and evaluation. The diverse monitoring requirements and responsibilities will be consolidated within the HSE function, and will share human resources, databases and management reporting procedures.

During the construction phase, MPM shall be fully entitled to monitor and inspect Contractors' written records to demonstrate compliance with the EMPr. This compliance monitoring is intended to verify that the responsible parties are implementing the management measures / procedures / specifications contained in the EMPr. Compliance will mean that the Contractor is fulfilling his/her contractual obligations.

Where necessary, baseline monitoring will be used as a means of longer term (post construction) verification of biophysical conditions along the data cable route corridor, to critically evaluate issues of habitat recovery, alien plant infestation and erosion along the data cable "right-of-way".

3.8.1 Programme monitoring

MPM shall regularly monitor EMPr implementation. This process will include (as appropriate) the regular monitoring of:

- Erosion of soil along the construction right-of-way (12 months).
- Air quality and ambient emissions, including dust generated by construction activities (3 months).
- Rehabilitation of the construction right-of-way (0-2 years).
- Noise (measured in dBA) generated by construction activities, including blasting, using specific measurement parameters, reference times and measurement locations.

3.8.2 Plan Monitoring

All of the management plans make provision for monitoring and evaluation. Special attention should be given to the monitoring arrangements relating to biophysical, heritage and palaeontological impacts.

During the construction phase of the Project, the Contractor's HSE manager must report all environmental impacts (e.g. large scale sedimentation and erosion, damage to and/or destruction of, natural vegetation and damage to heritage resource) as well as accidents and incidents to the Owner's Representative. These reported impacts and incidents will be captured on a database to ascertain trends and track progress in the implementation of preventative and corrective actions, and benchmarking against other, similar operations.

Depending on the level of severity, accidents and incidents during construction or maintenance will be investigated by the Contractor's HSE division, with key input from the line management to ensure accountability. Rewards and recognition will be given to the best performing work teams on a periodic basis on a periodic basis. The primary objective of these interventions is to recognise the positive behaviours and outcomes of workers with regards to safety.

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Natasha Anamuthoo

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Darryll Killian

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.